To: Bolen, Brittany[bolen.brittany@epa.gov]; Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]; Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Kime, Robin[Kime.Robin@epa.gov]; Inge, Carolyn[Inge.Carolyn@epa.gov]
From: Larry Schafer
Sent: Tue 5/9/2017 7:24:18 PM
Subject: Biodiesel Meeting Request for week of May 15 --- Biodiesel meeting follow up!

Mandy, Brittany and Samantha:

Since we last met in early April, -- **and on which we agreed to follow up with you with additional information from our industry** -- we have updated information and data that is relevant to helping **your team** **set the 2018 RVO for Advanced Biofuels.**

The 2018 RFS RVO rulemaking is one of the first rules coming from this EPA and each year this rule is an important one to all of the nation's fuel related stakeholders.

We want to be respectful of your time but also want to make sure you have the clear, concise, and accurate information you need.

We think it is necessary for us to come by your office to provide supporting information and context about where we are headed as an industry – the available domestic supply of Advanced Biofuels far exceeds 2017's 4.28B RIN gallon requirement and the Biomass Based Diesel's available supply far exceeds this year's 2.0B gallon requirement. Given that 2.6B gallons of biomass based diesel were supplied last year even as an estimated 35% of America's domestic capacity sat idle, those facts appear abundantly self-evident. For 2018, the bare minimum of available supply without any straining of capacity whatsoever for Advanced Biofuels is 5.25B gallons and for 2019, for Biomass Based Diesel is 2.75B gallons.

Our meeting with your team from early April was refreshingly straight forward. You made clear that Administrator Pruitt recognizes RFS as the law of the land, that he intends to administer the law as written, and that your team recognizes the importance of providing clear and timely guidance to all related parties. We want to be helpful to your process and given the importance of this matter to our industry – we want to make sure the data gets to where it is needed.

Would you be kind enough to provide us with a couple of times for next week – that might be convenient for your team to meet? (Week of May 15th)

Our team consists of Gene Gebolys (CEO of World Energy), Scott Lewis (Executive VP of Biox-WEBB) and Jonathan Phillips (General Counsel of RBF, Port Neches) – representing over 500 million gallons of domestically produced biodiesel. We would also like to bring Anne Steckel, the VP of Federal Affairs with the National Biodiesel Board (NBB). (Gene Gebolys is chair of NBB's working group on the RVO process).

Thank you.

==========

Larry Schafer

Principal

Playmaker Strategies, LLC

750 Ninth St., NW, Suite 650

Washington, DC 20001

Phone: (202)997-8072

Email: Lschafer@PlaymakerStrategies.com

Www: www.playmakerstrategies.com

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-----Original Message-----
From: Larry Schafer [mailto:lschafer@playmakerstrategies.com]
Sent: Monday, May 08, 2017 11:59 AM
To: 'Bolen, Brittany'; 'Gunasekara, Mandy'
Cc: Kime, Robin
Subject: RE: Biodiesel meeting follow up

Mandy and Brittany,

I know you are busy. We really feel that it is urgent that we schedule a follow up meeting with you this week.

Do you have availability on Wednesday (10th) or Friday (12th)

I would like to bring back Gene Gebolys and have Anne Steckel from the National Biodiesel Board join us.

Thank you.

==========

Larry Schafer

Principal

Playmaker Strategies, LLC

750 Ninth St., NW, Suite 650

Washington, DC 20001

Phone: (202)997-8072

Email: Lschafer@PlaymakerStrategies.com

Www: www.playmakerstrategies.com

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-----Original Message-----

From: Larry Schafer [mailto:lschafer@playmakerstrategies.com]

Sent: Thursday, April 27, 2017 2:53 PM

To: 'Bolen, Brittany'; 'Gunasekara, Mandy'

Subject: RE: Biodiesel meeting follow up

Brittany and Mandy,

This is note is to provide a quick follow up to our meeting of two weeks ago as well as to our meeting with OTAQ staff yesterday.

Gene Gebolys and Jonathan Phillips, both of whom you met with, and a small group of biodiesel industry leaders met yesterday with Chris Grundler, Director of OTAQ, and his team, to discuss the upcoming 2018 RFS rulemaking. The purpose was to discuss the in-depth modeling prepared by the National Biodiesel Board's RVO Working Group, of which Gene is the co-chair. This is a highly detailed data driven exercise in which our industry annually shares

projections for available production capacity and provides back cast empirical data about the accuracy of our previous projections.

Our earlier meeting with both of you was refreshingly straight forward but yesterday's was less so. You made clear that Administrator Pruitt recognizes RFS as the law of the land, that he intends to administer the law as written, and that your team recognizes the importance of providing clear and timely guidance to all related parties. In contrast, our group left yesterday's meeting with the impression that that while the OTAQ team recognized EPA's obligation under the law to grow the Advanced Biofuel pool of the program, they felt they lacked any clear policy direction for doing so. For an industry that lives or dies on how these regulations are implemented, that was concerning.

EPA staff advised us yesterday that they understand that the available domestic supply of Advanced Biofuels far exceeds 2017's 4.28B RIN gallon requirement and that Biomass Based Diesel's available supply far exceeds this year's 2.1B gallon requirement. Given that 2.6B gallons of biomass based diesel were supplied last year even as an estimated 35% of America's domestic capacity sat idle, those facts appear abundantly self-evident. For 2018, the bare minimum of available supply without any straining of capacity whatsoever for Biomass Based Diesel is 2.75B gallons and for Advanced Biofuels is 5.25B gallons. Those numbers and the data to support them were shared yesterday with OTAQ. Yet, given the importance of this matter and the lack of clarity in yesterday's discussion we want to make sure the data gets to where it is needed.

The 2018 RFS RVO rulemaking is one of the first rules coming from this EPA and each year this rule is an important one to all of the nation's fuel related stakeholders. I want to be respectful of your time but also want to make sure you have the clear, concise, and accurate information you need. As such, I'd be happy to come by your office at your convenience to provide supporting information and context and / or to answer questions. Please let me know how I can best keep you efficiently informed.

Thank you.

==========

Larry Schafer

Principal

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-----Original Message-----

From: Bolen, Brittany [mailto:bolen.brittany@epa.gov]

Sent: Wednesday, April 26, 2017 7:16 AM

To: Larry Schafer

Cc: Gunasekara, Mandy

Subject: Re: Biodiesel meeting follow up

Hi Larry - unfortunately, my schedule is packed with back-to-back meetings today.

Best,

Brittany

> On Apr 25, 2017, at 6:31 PM, Larry Schafer <lschafer@playmakerstrategies.com> wrote:

>

> Brittany

>

> Any chance we can stop by tomorrow?

>

> Larry Schafer

> Playmaker Strategies

> 202.997.8072

>

>

>> On Apr 25, 2017, at 3:33 PM, Larry Schafer <lschafer@playmakerstrategies.com> wrote:

>>

>> Brittany and Mandy,

>>

>> Hope you are well.

>>

>> As Gene mentioned, he will be in DC tomorrow (4-26). Might you have

>> a few minutes for Gene and me to stop by and update you on our

>> meeting with the staff at OTAQ and to update you on our economic

>> analysis as it relates to the Advanced Biofuels program?

>>

>> We will keep it short.

>>

>> Thanks.

>>

>>

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>>

>> Larry Schafer

>> Principal

>> Playmaker Strategies, LLC

>> 750 Ninth St., NW, Suite 650

>> Washington, DC 20001

>> Phone: (202)997-8072

>> Email: Lschafer@PlaymakerStrategies.com

>> Www: www.playmakerstrategies.com

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>> -----Original Message-----

>> From: Gene Gebolys [mailto:ggebolys@worldenergy.net]

>> Sent: Thursday, April 20, 2017 5:55 PM

>> To: bolen.brittany@epa.gov; Gunasekara.Mandy@epa.gov; Larry Schafer;

>> 'Manning Feraci'; Slewis@bioxcorp.com; 'Jonathan Phillips

>> (jphillips@rbfuels.com) '

>> Subject: Biodiesel meeting follow up

>>

>> Mandy and Brittany,

>>

>> Thanks for taking the time to meet with us last week. It was really

>> nice that we were forced out into the beautiful outdoors and that we

>> were able to have a really good exchange. We left that meeting very

>> encouraged about the new team at the helm at EPA.

>>

>> I mentioned then that we were in the final stages of running our

>> annual econometric analysis for the upcoming RVO's. That work is now

>> complete and I'll be back in DC next Wednesday to share it with EPA

>> and USDA career folks. If you would find it useful for Larry and me

>> to come by for a short follow up visit, we'd be happy to do it.

>>

>> One way or the other we'd like to get the data in your hands. It

>> shows that we have that we have more than adequate available capacity

>> to fill an Advanced Biofuels RVO for 2018 of 5.25B and a Biomass

>> Diesel RVO of 2.75B without substantially pressuring RIN values or commodity prices.

>>

>> If you are available for a few minutes on Wednesday we'd be happy to

>> come back for part two of our initial visit. If not, I'll ask Larry

>> to coordinate with you in whatever way is most convenient to both of

>> you to get you the follow up information.

>>

>> Best, Gene

>>

>> Sent from my iPhone

>> Gene Gebolys

>> 617-312-6999

>>

>

To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Kreutzer, David[kreutzer.david@epa.gov]
From: Paul Schlegel
Sent: Tue 3/14/2017 8:15:02 PM
Subject: follow-up

Samantha –

I wanted to follow up on my note from last week and on a couple of discussions I had with David.

I know you must be swamped with issues, but if there is a time when it works for you when we could get together to talk about some key issues, we'd be grateful.

Let me know if there's anything we can do on our end to help facilitate a meeting.

Thanks

Paul

Paul Schlegel

Director, Energy and Environment Team

Direct: (202) 406-3687

Cell: (202) 459-8831

Email: pauls@fb.org

To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Kime, Robin[Kime.Robin@epa.gov]
From: Sheffield, Pete
Sent: Wed 5/3/2017 12:07:09 PM
Subject: RE: Pipeline Permitting Opportunities -- Possible In-Person Discussion May 9

Terrific. Thanks. Robin, please let me know what might work best on your end. At this point, our schedule remains fairly flexible.

Best,

Pete

From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Wednesday, May 03, 2017 7:53 AM
To: Sheffield, Pete
Cc: Kime, Robin
Subject: RE: Pipeline Permitting Opportunities -- Possible In-Person Discussion May 9

Yes, that sounds great. I am copying in Robin, who can help get this set up.

From: Sheffield, Pete [mailto:Pete.Sheffield@enbridge.com]
Sent: Wednesday, May 03, 2017 7:41 AM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Subject: Pipeline Permitting Opportunities -- Possible In-Person Discussion May 9

Samantha – As a follow-up to the Administrator's recent roundtable discussion in OKC, any chance you might be available to meet with Brad Shamla (our head of liquids pipeline operations in the U.S.) next week -- May 9 -- when he's in DC?

I know your schedule is quite full but hoping you may have a window or two that works.

Best,

Pete

Pete Sheffield
ENBRIDGE

Vice President, U.S. External Affairs
TEL: 202-347-2053 | CELL: 202-997-3178 | pete.sheffield@enbridge.com
20 F Street NW, Suite 550, Washington, D.C. 20001

From: Sheffield, Pete
Sent: Tuesday, April 25, 2017 4:49 PM
To: 'Dravis, Samantha'
Subject: RE: Pipeline Permitting Opportunities

Thanks Samantha for the quick response. We have some thoughts we can share but it would be great to connect briefly over the phone as well. Next week would certainly work on our end if there's a window that would work for you.

Best,

Pete

From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Tuesday, April 25, 2017 3:49 PM
To: Sheffield, Pete
Subject: RE: Pipeline Permitting Opportunities

Thank you Pete. Is there any way to submit comments and suggestions via email? I would appreciate that, my schedule is very hectic this week. If not, I can try and jump on a call next week.

From: Sheffield, Pete [mailto:Pete.Sheffield@enbridge.com]
Sent: Tuesday, April 25, 2017 3:39 PM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Subject: Pipeline Permitting Opportunities

Samantha – I'm following up from a roundtable discussion our head of U.S. liquids pipelines (Brad Shamla) participated in last week in Oklahoma City with the Administrator. As I understand it, one take-away from that discussion was to circle back with the agency to share some background on pipeline operations and project development, along with some thoughts on how to enhance the predictability and credibility of the permitting process going forward.

We're eager to share our perspective in a way that's most useful to you and the Administrator. I'm wondering if you might have a few minutes for a call this week to discuss further?

Best,

Pete

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To: Tracy Mehan[tmehan@awwa.org]
From: Tracy Mehan
Sent: Tue 4/4/2017 3:05:51 PM
Subject: A Hopeful Perspective on the Colorado River
A HOPEFUL PERSPECTIVE ON THE COLORADO RIVER JAWWA.pdf

Dear Colleague,

Attached please find my review of *Water Is for Fighting Over-and Other Myths About Water in the West* by John Fleck. It offers an different, upbeat perspective on water management in the Colorado River basin. It appears in the April issue of Journal AWWA.

I hope you find it of interest.

Tracy Mehan

G. Tracy Mehan, III
Executive Director, Government Affairs

American Water Works Association

202-326-6125 (direct)

703-850-9401 (cell)

Attachment

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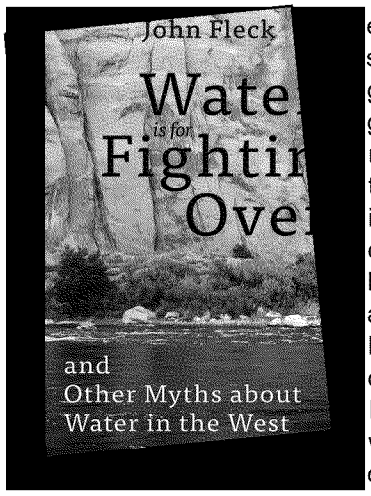
Dedicated to the World's Most Important Resource ®

A Hopeful Perspective on the Colorado River: Exploding Myths About Western Water

A review of *Water Is for Fighting Over—and Other Myths About Water in the West* by John Fleck. Published in 2016 by Island Press (ISBN-13: 978-1-610-91679-0, 246 pp., $30.00).



Among political scientists you will hear it said that no longer is governance just about government. With regard to water supply, this is particularly true in connection with the daunting challenges of both water quantity and quality offered by large-scale watershed or basin management. In a democratic society with constitutional checks and balances, not even the federal government—surely a major player—can simply wave a magic wand and just "make it so" in terms of a desired policy or outcome.

Consider the numerous levels of government and multiplicity of societal interests, both domestic and international, with an interest in managing the waters, say, of the Chesapeake Bay, Great Lakes, Gulf of Mexico, and, most notably, the Colorado River watersheds. Stakeholders include federal, state, tribal, and municipal governments; foreign nations and their provinces or states; agricultural organizations and irrigation districts; navigation interests; drinking water and wastewater utilities; conservation and environmental organizations; and media organizations and the citizens whose opinions are, for better or worse, formed by them.

With government and civil society joined at the hip, friction and conflict are inevitable, causing many to quote a statement (incorrectly) attributed to Mark Twain: "Whiskey is for drinking, water is for fighting over." John Fleck, a former journalist with the *Albuquerque Journal*, challenges this lazy assumption given the progress made in the Colorado River basin. He is upbeat on its prospects for overcoming future challenges of economic and population growth, variable climate, and drought. In *Water Is for Fighting Over and Other Myths About Water in the West,* he categorically rejects the "genre of apocalyptic prophecy," a journalistic narrative that he once embraced but has now abandoned in the face of facts, those troublesome things.

Although Fleck "grew up with the expectation of catastrophe," the droughts of the first decades of the 21st century forced him "to grapple with a contradiction"—i.e., "people's faucets were still running. Their farms were not drying up. No city was left abandoned." Indeed, he found instead "a remarkable adaptability."

"When people have less water, I realized, they use less water," declares Fleck.

Yuma County, Ariz., used to consume 967,000 acre-ft of water in the mid-1970s, about the same quantity diverted to Los Angeles to the west. Half of the county's farmland was planted in alfalfa or cotton, lower-value, or water-intensive crops. By the early 2010s, that acreage was nearly cut in half and the amount of water consumed dropped by nearly a third. However, total agricultural sales rose from $900 million to $1.2 billion in the same period.

His own town of Albuquerque "cut its per capita water use nearly in half, and the great aquifer beneath the city actually began rising as a result of a shift in supply and reduced demand." Farmers idled fields of alfalfa and cotton, "crops that bring in low returns of each gallon of water," and shifted to higher-valued pecan orchards.

Las Vegas, Nev., "a model of progressive water management," saw its population grow by 34% from 2002 to 2013, while its use of Colorado River water dropped by 26%, reducing per capita water consumption by 40%.

Fleck, now a writer-in-residence and adjunct professor at the University of New Mexico, does not gloss over past conflicts, especially those between Arizona and California (do not skip the section in his book on the "Arizona Navy"), or decades of litigation and the endless posturing of politicians playing to the hometown crowd. He provides excruciating detail on the operation of the "Law of the River," an incredible configuration of federal and state law, an interstate compact, international treaties and agreements, local irrigation rules, and court decisions spanning decades governing the basin. But in Fleck's long view, these are epiphenomena, a distraction from the basin community's general movement toward more water efficiency, conservation, fledgling water markets, and more inclusiveness of tribal, Mexican, and environmental interests in the overall management of the Colorado River.

Still, Fleck is not a believer in the inevitably of progress. He is a believer in the efficacy of human agency, "the network" of public and private officials who have

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worked collaboratively to reconcile the inevitable tensions between the Upper and Lower Basins, as well as the region's economic and environmental interests. He embraces the teachings and research of Elinor Ostrom, the first woman to win the Nobel Prize in economics and a proponent of community-based management of common resources, a concept that offers a solution to the "tragedy of the commons" and an alternative to the strictly binary choices between government regulation or outright privatization.

Fleck believes that "place-specific solutions" and numerous informal meetings and conversations between stakeholders—"cheap talk," according to Ostrom—create movement or critical mass for broader, more formal solutions across the basin. He cites several successful examples of this "network governance" that sets the stage for traditional governance—i.e., governmental or legal solutions. The resolution of the problem of groundwater intrusion in the West Basin of Los Angeles started with a voluntary association of "forward-thinking individuals"—the West Basin Water Association.

For anyone not conversant in the history of water policy and development in the Colorado River Basin, Fleck's slim volume covers the big-ticket items from the development of the 1922 interstate compact, to Hoover Dam, Lakes Mead and Powell, the Central Arizona Project, Salton Sea environmental issues, and, of course, Las Vegas. He describes the 80-mi-long All-American Canal, a big artificial river delivering irrigation water to the Imperial Valley as "a spiderweb of some 1,600 miles of irrigation ditches." California's State Water Project, with 701 miles of pipelines and canals, 21 reservoirs, the ability to irrigate 750,000 acres of farmland, and serving 25 million people, Fleck calls "a staggering hydraulic achievement." The ancient Egyptian pyramids pale in comparison with these creations.

The Byzantine complexity of the legal and hydrological system is presented, warts and all, without succumbing to a fashionable hopelessness. On the contrary, the author believes that "the network" continues to generate the needed "social capital—the shared knowledge, understandings, norms, rules, and expectations about

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patterns of interactions that groups of individuals bring to a recurrent activity," as defined by Ostrom, to move the basin forward to even greater efficiency, conservation, and environmental justice.

Fleck opens and closes his book with the story of the despoliation and modest efforts to restore the Colorado River Delta, an area of more than 3,000 mi^2, now supplied by a mere trickle of water. A 1905 visitor from New York, Daniel Trembley MacDougal, found it to be a verdant jungle "sufficient to support a vast amount of native animal life."

"The countless millions of young willows and poplar shoots supply food for the beaver, which bids well to hold out long in the impassable bayous and swamps against the trapper foe," wrote MacDougal.

Aldo Leopold, writing in the 1920s, before the big dams were built, saw "a hundred green lagoons" teeming with life. "For the last word in procrastination, go travel with a river reluctant to lose his freedom to the sea."

What the trappers could not accomplish, water development did. The willows, poplars, and beavers were obliterated. Its present predicament is the resultant vector of massive engineering and excessive consumption by upstream users driven, at least in part, by the "use it or lose it" principle inherent in western water law's Prior Appropriation Doctrine ("first in time, first in right").

Yet Fleck finds hope in the 2014 "pulse" or temporary release of more water for the benefit of the delta and the lower reaches of the river, an experiment resulting from new science on seasonal hydrologic flows; i.e., water released at the right time of year can yield extraordinary ecological benefits even with a low base flow, as well as collaborative discussions by "the network" and between the US and Mexican governments. A new US–Mexico agreement, "Minute 319," pledges further dialogue on letting more of the river run to the sea without being completely sucked dry.

Despite all the dire apocalyptic predictions, the American West and the Colorado River community thrive in spite of the challenges of climate, drought, and growth. So Fleck views optimism as realistic if we discard or abandon our beliefs in the inevitability of conflict and crisis. He concludes his fine book quoting a 1960 headline from the *Los Angeles Times*: "Southland'sWater Safety Margin Placed at 10 Years." How often have we read similar headlines over the past half-century?

"It is possible to apply a simple arithmetic wave of the arm and say, for example, that we could bring the system into balance if everyone used 20 percent less water than they are consuming today," writes Fleck. "We know from experience from Yuma to Las Vegas to Albuquerque, that such reductions are possible, that water-using communities are capable of surviving and even thriving with substantially less water than they use today. But no one will voluntarily take such a step without changes in the rules governing basin water use as a whole to ensure that everyone else shares the reductions as well—that any pain is truly shared."

"We need new rules," argues Fleck. "Absent that, we simply end up with a tragedy of the commons."

John Fleck understands that "cheap talk" can be priceless and invaluable as the Colorado River community aspires to govern its commons rather than fight about it. He agrees with Winston Churchill: "To jaw-jaw is always better than to war-war."

—G. Tracy Mehan III is executive director of government affairs at AWWA in Washington, D.C.; tmehan@awwa.org.

STANDARDS OFFICIAL NOTICE

This shall constitute official notice of the availability of the following new or revised AWWA standards.

The effective date of these standards shall be the first day of the month following notification of the availability in *Journal - American Water Works Association*. To obtain copies of these or any AWWA standards, contact the AWWA Customer Service Group at (800) 926-7337.

These standards have been designated American National Standards by the American National Standards Institute. The date of ANSI approval is shown in parentheses.

ANSI/AWWA B200-17
Standard for Sodium Chloride
(Jan. 24, 2017)

ANSI/AWWA C224-17
Standard for Nylon-11-Based Polyamide Coatings and Linings for Steel Water Pipe and Fittings
(Jan. 3, 2017)

ANSI/AWWA C602-17
Standard for Cement–Mortar Lining of Water Pipelines in Place—4 In. (100 mm) and Larger
(Jan. 24, 2017)

ANSI/AWWA G520-17
Standard for Wastewater Collection System Operation and Management
(Mar. 2, 2017)

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To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Hupp, Millan[hupp.millan@epa.gov]
From: Shea, Quin
Sent: Mon 3/27/2017 8:47:11 PM
Subject: Following Up on EEI Board Meeting
CasesList_032717_Final.docx

Samantha: Thanks again for efforts by you, Millan and others on the EPA team in arranging for Administrator Pruitt to address the EEI Board of Directors. The Administrator's remarks were extremely well received and provided ample food for thought going forward. In that vein, during the Q&A session the Administrator requested a list of current and pending milestones in cases impacting EEI's members. An initial list is attached. Importantly, it focuses on items that EEI has traditionally engaged and/or where industry unanimity has been established. Individual EEI member companies may supplement this list with additional priorities related to their local operations.

I hope you find this note responsive to the Administrator's request. I will follow up with you relative to this and other matters we discussed at the EEI meeting.

Quinlan J. Shea, III (Quin)

Vice President, Environment

Edison Electric Institute

701 Pennsylvania Avenue, NW

Washington, DC 20004

202-508-5027

qshea@eei.org

Currently Active EPA Cases

Air

Arkansas v. EPA – Regional Haze FIP, 8th Circuit. Nos. 16-4270 et al.

- Currently held in abeyance; reconsideration petition proceeding pending

Texas v. EPA – Regional Haze FIP, 5th Cir. No. 16-60118.

- Stay granted, remanded to EPA for reconsideration; stay remains in place, although status report on stay required from EPA in April

Utah v. EPA – Regional Haze FIP, 10th Cir. Nos. 16-9541, et al.

- Petitioners have filed opening briefs (March 10 and 17, 2017)

Wyoming v. EPA – Regional Haze FIP, 10th Cir. Nos. 14-9529, 14-9530, 14-9533 and 14-9534.

- Stay granted, briefing completed and oral argument not yet scheduled. Settlement of one of the cases, No. 14-9533, proposed and comment period closed; EPA deadline to take action on proposed settlement is April 3, 2017

Texas v. EPA – Regional Haze Rule, D.C. Cir. No. 17-1021.

- Petitions for review filed

West Virginia v. EPA – Clean Power Plan, D.C. Cir. Nos. 15-1363, et al.

- Oral argument completed, awaiting decision or further motions, motions to consolidate challenges to denial of reconsideration petitions pending

North Dakota v. EPA – New Source Standard, D.C. Cir. Nos. 15-1381, et al.

- Briefing completed, oral argument scheduled for April 17, 2017

Murray Energy v. EPA – Ozone NAAQS, D.C. Cir. No. 15-1385.

- Briefing completed, oral argument scheduled for April 20, 2017

Wisconsin v. EPA – CSAPR Update Rule, D.C. Cir. No. 16-1406.

- Petitions for review filed

Utility Air Regulatory Group v. EPA – CSAPR > BART Rule, D.C. Cir. No. 12-1342.

- Briefing completed, oral argument not yet scheduled

Murray Energy v. EPA & *ARIPPA v. EPA* – MATS Cost Considerations & Reconsideration Denial, D.C.

Circuit. Nos. 16-1127 & 15-1180 et al.

- Briefing completed, oral argument scheduled for May 18, 2017

Center for Biological Diversity v. EPA – NO_2 NAAQS Deadline Suit, 3:16-cv-03796-VC (N.D. Cal.).

- Settled, requires EPA to propose a rule by July 14, 2017 and finalize by April 16, 2018

Sierra Club v. EPA – Kentucky 2008 Transport Deadline Suit, 3:14-cv-03985-JD (N.D. Cal.).

- Motion for summary judgment hearing held March 23, 2017

Walter Coke, Inc. v. EPA – SSM SIP Call, D.C. Cir. No. 15-1166.

- Briefing completed, oral argument scheduled for May 8, 2017

Solid Waste

USWAG v. EPA – Coal Combustion Residuals, D.C. Cir. No. 15-1219.

- Briefing completed, oral argument not yet scheduled

American Petroleum Institute v. EPA – Definition of Solid Waste, D.C. Cir. Nos 09-1038, et al.

- Oral Argument completed, awaiting decision

Water

In re EPA-Corps WOTUS Rule – WOTUS, 6th Cir. Nos. 15-3799, et al.

- Being held in abeyance since the Supreme Court accepted cert on jurisdictional question for the October, 2017 term

SWEPCO v. EPA – ELGs, 5th Cir. Nos. 15-60821, et al.

- Briefing is ongoing, EPA recently received a 30 day extension on its response, oral argument anticipated fall 2017; Petitioners have sought administrative stay and reconsideration

Cooling Water Intake Structures Coalition v. EPA – Cooling Water Intake Structures, 2nd Cir. Nos. 14-4645, et al.

- Briefing completed, oral argument not yet scheduled

Miscellaneous

Title V Petitions

Enforcement cases and related penalties and settlements

Various NSR Cases

Other Cases Relevant to EPA, but where EPA is Not the Lead Agency:

Endangered Species

NRDC v. Sobeck – Blueback Herring listing decision, No. 1:15-cv-00198-RDM (D.D.C.).

CBD+DOW v. Ashe, Northern Long-Eared Bat, Nos. 1:15-cv-00477+910 (D.D.C).

EWAC v. U.S. Dep't of the Interior, Incidental Take of Eagles, No. 1:15-cv-1486 (D.D.C.).

Alabama v. National Marine Fisheries Service, Critical Habitat, 1:16-cv-00593 (S.D. Ala.)

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Brent Fewell
Sent: Tue 5/9/2017 12:35:59 PM
Subject: Wine to Water Invitation - May 30
May 30 WTW Invitation.pdf

Hi Samantha,

Would love to have you join us at this reception in honor of the work of Doc Hendley and Wine to Water - a little bit about WTW below and the cause. You'll recognize a few of the names on the host committee list. Promises to be a fun evening.

Brent

***

WTW is an international non-profit committed to serving in community to provide clean water for those in need, and empowers communities through water access, water filtration, and better sanitation, and hygiene. Currently, WTW serves communities in the Amazon, Haiti and the Dominican Republic, East Africa, Nepal and Cambodia. The evening is about raising greater awareness of and helping to solve the world's water crisis.

- 663 million people do not have access to clean water.
- 2.4 billion people lack access to improved sanitation.
- Dirty water kills 5,000 children a day.
- Increasing access to clean water and sanitation empowers women and girls, improving personal security and literacy - helping lift communities out of poverty.

Doc founded WTW in 2004 during the Sudan Darfur humanitarian crisis (where water was used as a weapon of war), and was subsequently recognized by CNN as a 2009 CNN Hero - here is a 90 second CNN clip of Doc's story and the amazing work of WTW
https://www.youtube.com/watch?v=RS2Bs9v0WZM

I hope you can join us for a great evening (more details attached). If you are unable to attend but would like to support Wine to Water's work, here is a link where you can contribute http://campaigns.winetowater.org/campaigns/3753-d-c-happy-hour-featuring-doc-hendley

Brent Fewell | **Earth & Water Group**
1455 Pennsylvania Ave., NW, Suite 400, Washington, DC 20004

(202) 280-6362 (o) | (202) 664-9297 (c) | www.earthandwatergroup.com

Earth & Water Law LLC
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winetowater

PLEASE JOIN US FOR

A free wine tasting event honoring the work of Doc Hendley

HOST COMMITTEE

Darryn and Wendy Band
Randy & Kathy Benn
Michael Curley
Elise Edwards
Brent & Sheara Fewell
Ragan Fewell
Alex and Betsy Folk
Ben & Karen Grumbles
Rich & Carol Henning
Marianne Horinko
Bob Iacullo
Gayle Jefferson
Paul King
Scott & Sonja Linn
Mary Ann Grena Manley
Ken Maynard
Sean McGinnis
Tracy & Mary Mehan
Greg & Cindy Murdock
John Oldfield & Tara Butler
Doug & Kim Parker
David Quam
John & Chris Sheehan
Larry & Michelle Weinstein
Emma Weinstein
WTW DC Chapter

Gold Water Ambassador
Suez NA

Corporate Partners
Nelson Mullins Riley & Scarborough LLP
Earth & Water Group
Michael Best
Grape Intentions
The Horinko Group

Date: May 30, 2017
Time: 6-8 p.m.
Location: Nelson Mullins
101 Constitution Ave, Suite 900, NW, Washington DC

* * *

Nearly one billion people in the world today lack access to clean water. Help us fight the world's water crisis one filter, one well, one community at a time.

Contributions Welcome!

For those unable to attend, please consider contributing to WTW's work. Help us reach our goal of $20K for water filters and boots on-the-ground projects. Click below:

http://campaigns.winetowater.org/campaigns/3753-d-c-happy-hour-featuring-doc-hendley

Suggested contribution levels: $50 (1 filter in Haiti/DR), $100 (1 filter in Uganda) $500 (1 community well in Cambodia), or $1500 (1 community well in Nepal).

RSVP to brent.fewell@earthandwatergroup.com by May 23

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Marnie.Funk@shell.com
Sent: Tue 5/9/2017 7:39:25 PM
Subject: RE: Request for a Shell senior leaders meeting with Administrator Pruitt on May 15

Hi Samantha, would early Friday afternoon work for you?

Marnie Funk |Senior Advisor, Government Relations | SHELL | 1050 K Street, NW Suite 700 | Washington, DC 20001 | **Tel:** 202-466-1422 | **Mobile:** 202-341-5631

From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Tuesday, May 02, 2017 4:18 PM
To: Funk, Marnie SHLOIL-GRA <Marnie.Funk@shell.com>
Subject: RE: Request for a Shell senior leaders meeting with Administrator Pruitt on May 15

Thanks Marnie, that would be great.

From: Marnie.Funk@shell.com [mailto:Marnie.Funk@shell.com]
Sent: Tuesday, May 02, 2017 3:31 PM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Subject: RE: Request for a Shell senior leaders meeting with Administrator Pruitt on May 15

Samantha,

It was very nice speaking with you yesterday. Thank you for your help in advancing our meeting request. Sydney has offered a meeting with Mr. Pruitt at 11:30 a.m. on May 15th.

I would welcome an opportunity to touch base with you advance to discuss the issues we would like to raise in the meeting. Happy to pop by for a few minutes next week if your schedule allows.

Regards,

Marnie

Marnie Funk |Senior Advisor, Government Relations | SHELL | 1050 K Street, NW Suite 700 | Washington, DC 20001 | **Tel:** 202-466-1422 | **Mobile:** 202-341-5631

From: Funk, Marnie SHLOIL-GRA
Sent: Friday, April 28, 2017 10:50 AM
To: 'jackson.ryan@epa.gov' <jackson.ryan@epa.gov>; 'dravis.samantha@epa.gov' <dravis.samantha@epa.gov>
Subject: Request for a Shell senior leaders meeting with Administrator Pruitt on May 15

Ryan and Samantha,

I hope you are well and settling into your new roles. Congratulations on your new leadership opportunities! I am personally thrilled with your appointments. I look forward to working closely with you and supporting your efforts.

I am writing to request a meeting with Administrator Pruitt for Bruce Culpepper, Shell US Country Chair, and Greg Guidry, Shell Executive Vice President of Unconventionals, on the morning of Monday, May 15th. Mr. Culpepper and Mr. Guidry would like to update Administrator Pruitt on Shell's operations in the US and discuss policy issues within EPA's jurisdiction that impact Shell's various lines of business.

If the morning of May 15th is problematic, both Shell leaders have some availability on May 16th.

I look forward to hearing from you.

Regards,

Marnie Funk

Marnie Funk |Senior Advisor, Government Relations | SHELL | 1050 K Street, NW Suite 700 | Washington, DC 20001 | **Tel:** 202-466-1422 | **Mobile:** 202-341-5631

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Dennis Hedke
Sent: Fri 6/2/2017 8:37:00 PM
Subject: Re: Congratulations

Samantha,

May I call you for a brief conversation?

Dennis

On Thu, Jun 1, 2017 at 4:17 PM, Dravis, Samantha <dravis.samantha@epa.gov> wrote:

Thank you, Dennis.

From: Dennis Hedke **Ex. 5 - Deliberative Process**
Sent: Thursday, June 01, 2017 4:57 PM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Subject: Congratulations

Dear Samantha,

Please pass on my heartfelt appreciation and congratulations to Administrator Pruitt!

I know the intense pressure that the President was under and how important it was to him to have Scott completely and totally behind him. And I am going to go out on a limb and assume that you were and are right there with the Administrator.

Now, on to the next level.

Warmest regards,

Dennis

To: Dravis, Samantha[dravis.samantha@epa.gov]; Bolen, Brittany[bolen.brittany@epa.gov]
From: rguerard@hyundai-dc.com
Sent: Wed 5/3/2017 2:05:10 PM
Subject: RE: Connecting

I recognize everyone has a busy schedule, so please let me know if you all might be available sometime next week. I can make myself available to fit your availability to a certain degree. I think my earlier email might have fallen through the cracks. Many thanks for the help.

Richard

From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Friday, April 28, 2017 10:04 AM
To: Gunasekara, Mandy; Bolen, Brittany
Cc: rguerard@hyundai-dc.com
Subject: RE: Connecting

Thanks, Mandy! Richard, when is a good time to connect with us next week?

From: Gunasekara, Mandy
Sent: Friday, April 28, 2017 9:18 AM
To: Dravis, Samantha <dravis.samantha@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>
Cc: rguerard@hyundai-dc.com
Subject: RE: Connecting

Hey Richard,

Brittany and Sam, I want to e-introduce you to Richard Guerard who is currently with Hyundai. I met him when he worked with all the good guys at Hunton & Williams. He'd like to touch base on CAFÉ/LDVs issues and the MTE process.

Best,

Mandy

From: rguerard@hyundai-dc.com [mailto:rguerard@hyundai-dc.com]
Sent: Friday, April 28, 2017 9:02 AM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: Connecting

Thanks for connecting me, Mandy. I know our compliance team has a productive relationship with the careers, but any other connections would be most helpful to me.

Richard B. Guerard

Manager, Government Affairs

Hyundai Motor Company

660 North Capitol Street NW

Washington, DC 20001

T: 202-279-1607

rguerard@hyundai-dc.com

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Brandon Kirkham
Sent: Tue 4/4/2017 4:38:52 PM
Subject: OOOO(a) LDAR Monitoring Requirements

Samantha:

An item that was discussed in our initial meeting was looming compliance deadlines associated with LDAR monitoring requirements in OOOO(a):

Marathon Oil's business in Oklahoma has been waiting to incur an initial $30,000 cost to conduct the initial monitoring surveys by the June 3rd regulatory deadline. All operators are approaching a timeframe in which they are already or will have to proceed with that initial monitoring even though we anticipate ultimate compliance with this rule will not be necessary due to the EO.

The above example is just one operator in one basin and I can follow-up with more information regarding Eagle Ford, Permian and Bakken if it is helpful.

The requirement:

40 CFR 5397a(f)(1) You must conduct an initial monitoring survey within 60 days of the startup of production, as defined in §60.5430a, for each collection of fugitive emissions components at a new well site or by June 3, 2017, whichever is later. For a modified collection of fugitive emissions components at a well site, the initial monitoring survey must be conducted within 60 days of the first day of production for each collection of fugitive emission components after the modification or by June 3, 2017, whichever is later.

Appreciate any guidance you could provide,

Brandon

Brandon Kirkham

Four Rivers Consulting

brandon@frc-dc.com

202-329-4160

To: David Wilkins[David.Wilkins@nelsonmullins.com]
Cc: awilson@scag.gov[awilson@scag.gov]; Dravis, Samantha[dravis.samantha@epa.gov]
From: Hupp, Sydney
Sent: Mon 3/27/2017 8:25:48 PM
Subject: RE: Meeting with Administrator Pruitt

Sounds good! Just attendees and topic, please!

Thank you!

Sydney Hupp

Office of the Administrator- Scheduling

202.816.1659

From: David Wilkins [mailto:David.Wilkins@nelsonmullins.com]
Sent: Monday, March 27, 2017 4:21 PM
To: Hupp, Sydney <hupp.sydney@epa.gov>
Cc: awilson@scag.gov; Dravis, Samantha <dravis.samantha@epa.gov>
Subject: Re: Meeting with Administrator Pruitt

Sydney,

That is great! Thank you so very much! We will be there a little before 2 00 pm on April 4. Please let me know what information you need from me, if any, regarding the meeting!

David

From: Hupp, Sydney

Sent: Monday, March 27, 2017 4:07 PM

To: David Wilkins

Cc: awilson@scag.gov; Dravis, Samantha

Subject: Meeting with Administrator Pruitt

Good afternoon Ambassador Wilkins,

Reaching out to you today regarding a meeting with Administrator Pruitt in early April. My apologies for the delay in getting back to you. Would 2PM on April 4th work for you all?

Thank you!

Sydney Hupp

Office of the Administrator- Scheduling

202.816.1659

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To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Adam J. White
Sent: Tue 5/9/2017 9:28:22 PM
Subject: Upcoming Hoover event

I spoke with Lincoln Ferguson about having press at our Hoover event, and I mentioned that I'd be happy to talk with you ahead of time, if you want to map out topics for the conversation with Admin. Pruitt.

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Messner, Kevin
Sent: Fri 4/28/2017 9:41:54 PM
Subject: RE: Meeting - Appliance Manufacturers [WARNING: SPF validation failed]

Sorry, you couldn't make it today but totally understand how things can come up. Had a good quick meeting with Brittany and really appreciate her taking the time. I am in town through next Wednesday if you have any other window to chat. We have our CEOs and executives in town this weekend and maybe Tuesday afternoon or Wednesday morning I could come in again and possibly bring some company people with me, too. It would be after our meeting with Sec. Perry's chief of staff, which also would be good timing (Sec. Perry's father passed away last night). Let me know what may possibly work. Again, appreciate your and Brittany's willingness to hear us.

Kevin Messner

Senior Vice President, Policy & Government Relations

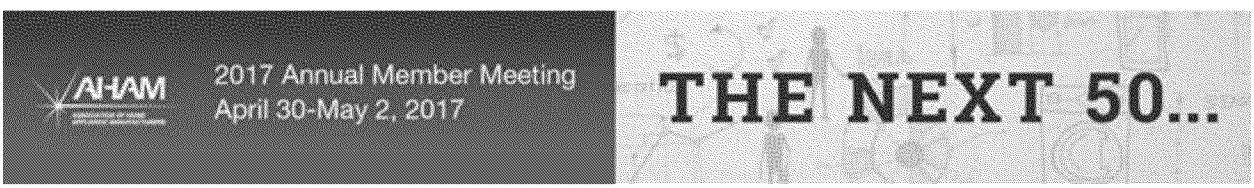
Association of Home Appliance Manufacturers

1512 Willow Lane, Davis, CA 95616

1111 19th Street NW, Suite 402, Washington, DC 20036

t 202.872.5955 ext. 353 *m* 530.309.5629 *f* 202.872.9354 *e* kmessner@aham.org

Connect with us:



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From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Wednesday, April 19, 2017 12:39 PM
To: Messner, Kevin <KMessner@AHAM.org>; Jackson, Ryan <jackson.ryan@epa.gov>
Cc: Inge, Carolyn <Inge.Carolyn@epa.gov>
Subject: RE: Meeting - Appliance Manufacturers [WARNING: SPF validation failed]

Kevin, I am happy to meet about this issue.

Carolyn, would you please find us a time on the appropriate day?

From: Messner, Kevin [mailto:KMessner@AHAM.org]
Sent: Wednesday, April 19, 2017 11:09 AM
To: Jackson, Ryan <jackson.ryan@epa.gov>; Dravis, Samantha <dravis.samantha@epa.gov>
Subject: RE: Meeting - Appliance Manufacturers [WARNING: SPF validation failed]

Just following up on this meeting request. ENERGY STAR is moving a specification on clothes washers, which we oppose. It is critical that I ensure you are aware of what is going on and hopefully stop this action until we can talk in more detail. While this is an urgent matter, it is also very important to discuss the ENERGY STAR program broadly. At a high level, we support its moving back to DOE for our products and have discussed this with the DOE beachhead team. I know there is a lot going on at EPA, but if we could talk for just a few minutes initially to prevent anything from being released that cannot be clawed back, that would be helpful. Thanks again.

From: Messner, Kevin
Sent: Friday, April 14, 2017 11:18 AM
To: 'jackson.ryan@epa.gov' <jackson.ryan@epa.gov>; 'schwab.justin@epa.gov' <schwab.justin@epa.gov>
Cc: 'scheduling@epa.gov' <scheduling@epa.gov>

Subject: Meeting - Appliance Manufacturers

I wanted to reach out to you and request a meeting to discuss key issues appliance manufacturers have with EPA, specifically ENERGY STAR and the refrigerant (SNAP) programs. We have CEOs and other senior executives from the entire industry meeting in DC for our Annual Meeting from April 29-May 2. It would be very helpful if we could discuss our issues with you before that. Any time from Tuesday, April 25, to Friday, April 28 would be ideal. Please let me know what I can do to help in this area. Thanks for considering this request.

Kevin Messner

Senior Vice President, Policy & Government Relations

Association of Home Appliance Manufacturers

1512 Willow Lane, Davis, CA 95616

1111 19th Street NW, Suite 402, Washington, DC 20036

t 202.872.5955 ext. 353 *m* 530.309.5629 *f* 202.872.9354 *e* kmessner@aham.org

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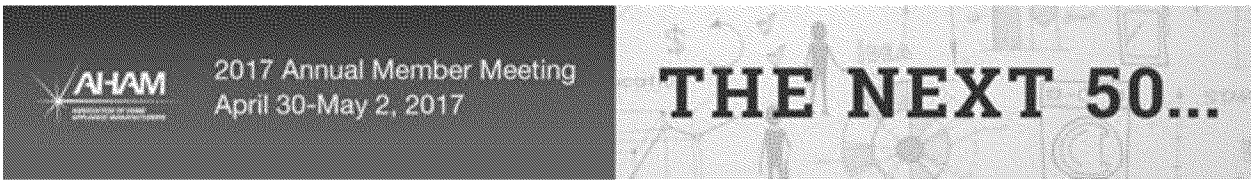

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To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Jay Vroom
Sent: Tue 4/4/2017 2:14:36 PM
Subject: Re: Thank You

Thanks—no she is flying in from rural Oregon this afternoon and back west early Friday morning. I am hoping she can join me for the Ag America/RACC luncheon tomorrow at the JW Marriott where Administrator Pruitt is to speak—any chance you are accompanying him for that?

From: "Dravis, Samantha" <dravis.samantha@epa.gov>
Date: Tuesday, April 4, 2017 at 10:10 AM
To: Jay Vroom <jvroom@croplifeamerica.org>
Subject: RE: Thank You

Jay, this week is pretty crazy for me, I'm sorry. Next week would be better if that is a possibility>?

From: Jay Vroom [mailto:JVroom@croplifeamerica.org]
Sent: Tuesday, April 4, 2017 8:25 AM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Subject: Re: Thank You

Hi Samantha,

I tried to tweak both my Facebook post and the Retweets to include @EPA so you might be able to find both-- and I just sent you a Facebook friend request so that might be another avenue. I'll also get a few minutes at my computer today to copy both the social media posts into an email to send you.

I spoke yesterday with Kim Reed who I mentioned chairs the Republican Lawyers Association about connecting with you--I will do that separately in another email.

Finally I would like to introduce you to a former EPA Bush political appointee who is coming into DC this afternoon for a couple days. What's your calendar look like late today thru Thursday?

Jay

Sent from my iPhone

On Mar 31, 2017, at 9:14 AM, Dravis, Samantha <dravis.samantha@epa.gov> wrote:

Thanks for the photo! Can you link me to the facebook page? I tried searching and didn't find it!

From: Jay Vroom [mailto:JVroom@croplifeamerica.org]
Sent: Friday, March 31, 2017 8:03 AM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Cc: Mary Jo Tomalewski <mjtomalewski@croplifeamerica.org>
Subject: Re: Thank You

Samantha-

Great to meet you and the team. The Administrator was very gracious with his time-- and his message inspiring to all of us. A proper thank you letter from us is to follow, but know how much we appreciate all of you!

Mary Jo is my assistant -- copied here-- and her direct line is 202 872 3849. She can always find me.

Attached is our group photo. It's been Tweeted and posted to Facebook. Our smiles pretty much tell the whole story!

Jay

<image001.jpg>

Sent from my iPhone

On Mar 31, 2017, at 7:50 AM, Dravis, Samantha <dravis.samantha@epa.gov> wrote:

> All:
>
> Thanks for coming in yesterday to meet with Administrator Pruitt. We really enjoyed the conversation and look forward to being in touch. Thanks for sharing your perspective on issues of concern.

My contact info is below and I look forward to hearing from you!

Best,

Samantha

Samantha Dravis

Senior Counsel/Associate Administrator for Policy

dravis.samantha@epa.gov

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Burhop, Anna
Sent: Mon 5/15/2017 2:03:08 PM
Subject: RE: Invitation to Speak at ACC's Environmental Management Committee Spring Meeting

Samantha,

Have you gotten the all-clear from Ethics? If you have, would you mind sending me a short bio that I can circulate to our members?

Thanks so much,

Anna

From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Monday, May 8, 2017 3:55 PM
To: Burhop, Anna <anna_burhop@americanchemistry.com>
Subject: RE: Invitation to Speak at ACC's Environmental Management Committee Spring Meeting

Thank you for the invitation, Anna. Let me clear this with ethics and I will be right back with you.

From: Burhop, Anna [mailto:anna_burhop@americanchemistry.com]
Sent: Monday, May 08, 2017 3:03 PM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Subject: Invitation to Speak at ACC's Environmental Management Committee Spring Meeting

Samantha,

I'd like to invite you to be the guest speaker at ACC's Environmental Management Committee's Spring Meeting on May 23, 2017.

This committee, which I manage, is comprised of 35 Board-approved representatives from our member companies and provides policy direction to ACC's air, waste, and water workgroups. The EMC's top priority for this next cycle is regulatory reform, and they would benefit greatly from hearing from you.

In the past, our guests have come for about 45 minutes around lunch time. Some have stayed for only a half hour, some have stayed for an hour, depending on their availability. The format is flexible and generally informal, involving a short presentation and a Q&A portion at the end.

If you have any questions, please feel free to contact me at the number below. I'm also available by email.

Best,

Anna

Anna Burhop| American Chemistry Council

Director, Environment

Regulatory and Technical Affairs

700 2nd Street NE | Washington, DC | 20002

(202) 249-6440

anna_burhop@americanchemistry.com

www.americanchemistry.com

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email transmission. American Chemistry Council, 700 – 2nd Street NE, Washington, DC 20002, www.americanchemistry.com

To: Hupp, Sydney[hupp.sydney@epa.gov]
Cc: awilson@scag.gov[awilson@scag.gov]; Dravis, Samantha[dravis.samantha@epa.gov]
From: David Wilkins
Sent: Mon 3/27/2017 8:21:23 PM
Subject: Re: Meeting with Administrator Pruitt

Sydney,

That is great! Thank you so very much! We will be there a little before 2 00 pm on April 4. Please let me know what information you need from me, if any, regarding the meeting!

David

[redacted]

Good afternoon Ambassador Wilkins,

Reaching out to you today regarding a meeting with Administrator Pruitt in early April. My apologies for the delay in getting back to you. Would 2PM on April 4th work for you all?

Thank you!

Sydney Hupp

Office of the Administrator- Scheduling

202.816.1659

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To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Bolen, Brittany[bolen.brittany@epa.gov]; Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]
From: Lorraine Gershman
Sent: Tue 5/9/2017 9:06:25 PM
Subject: Follow up on NSPS DD: Grain Elevators

Samantha, thank you again for meeting with the Regulatory Improvement Council (Valis Associates) this morning. It was a pleasure to hear from you regarding some of industry's big concerns.

As I mentioned in our brief discussion, NOPA is a part of a coalition of agribusiness trade associations that have been working on the NSPS DD: Grain Elevators for the last decade. In October 2016, EPA's final NSPS package was sent to OMB for review under EO 12866. The revisions would include new emission limits for certain grain elevators; additional testing, monitoring, recordkeeping and reporting requirements; different compliance requirements for periods of startup, shutdown and malfunction; and a new method for calculating emissions from temporary storage facilities. The final rule would apply to grain handling facilities on which construction, modification or reconstruction began after July 9, 2014 - the date the proposed amendments were published in the *Federal Register*. This rule package was not finalized by EPA, and on January 24, 2017, the rule was officially withdrawn from OMB. (See: https://www.reginfo.gov/public/do/eoDetails?rrid=126938) At this point in time, we are uncertain if this rule is going to be resubmitted to EPA for review or if EPA will no longer pursue revision of NSPS Subpart DD. That said, in order to not subject new grain elevators to these burdens, it is critical that EPA:

1) not finalize the proposed amendments to NSPS Subpart DD; and 2) formally rescind the July 9, 2014 proposed amendments to NSPS Subpart DD. By formally rescinding this rule, EPA would be able to "bank" the costs of this rule in order to offset the costs of a future rule, as detailed in E.O. 13771 - Reducing Regulations and Controlling Regulatory Costs. Furthermore, we encourage EPA to look to the possibility of rescinding this NSPS, and other outdated NSPS, as part of a larger Regulatory Reform effort.

Jess McCluer, my counterpart at NGFA, briefed Josh Lewis on this issue at the OSDBU stakeholder meeting last month, and requested a meeting. Josh's response was that he is talking to colleagues in the air office and will be in touch soon to discuss next steps.

The coalition will be submitting more detailed comments on this issue to the docket next week, and we are happy to meet with you or the relevant contact person to discuss this issue in more detail.

(As an aside, I was encouraged to hear about EPA's intentions to bring back the Sector Strategies program. I was involved in that effort, and the CAAAC multipollutant sector strategy effort as well, when I was with the American Chemistry Council and found value in both efforts. And I also support EPA educational visits to regulated facilities. I worked with Penny Lassiter in OAQPS to have several of her technical staff accompany me to ethylene production facilities in advance of the RTR efforts.)

Please do not hesitate to contact me if I can be of further assistance.

Best,

Lorraine Gershman

Lorraine Gershman, P.E.

Vice President, Regulatory Affairs

National Oilseed Processors Association

1300 L Street, NW, Suite 1020

Washington, DC 20005

Email: lgershman@nopa.org

202.864.4368 (direct)

202.842.0463 (office)

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Craig Glidden
Sent: Fri 4/28/2017 9:34:48 PM
Subject: Follow Up to Meeting with Administrator Pruitt
Attachment 1 - Gov Brown Letter to Auto Manufacturers.pdf
Attachment 2 - CARB 24MAR17 Board hearing transcript.pdf
Attachment 3 - 24MAR17 CARB Board hearing 2022-2025 press release.pdf

Dear Samantha – Please convey my thanks to Administrator Pruitt for the good discussion we had on Wednesday regarding issues impacting the automotive industry. I wanted to provide you with three items referred to during that meeting:

1. Attachment 1 - March 15, 2017 letter from Gov. Brown to Alliance of Automobile Manufacturers;

2. Attachment 2 - Transcript of the March 24, 2017 public hearing of the California Air Resources (the pinpoint cite referred to is on page 184-5 of 347); and

3. Attachment 3 - Copy of the California Air Resources Board News Release of March 24, 2017.

To facilitate the recommencement of action on the Midterm Review of the 2022 – 2025 standards, we suggest the following immediate next steps.

- We suggest that the EPA, in coordination with NHTSA, re-open the public docket (EPA-HQ-OAR-2015-0827) on the draft Technical Assessment Report for 60 days and commence the process for reconsidering the Final Determination on a public timeline. We stand ready to work with your team as you coordinate with NHTSA.

- We suggest that Administrator Pruitt, along with Secretary Chao, convene a meeting of relevant stakeholders, including California, to find common ground as we simultaneously advance the formal process of the Midterm Review.

We appreciate very much the time of the Administrator and his team for our discussion and we look forward to working with you and all relevant stakeholders to advance the process. Many thanks, Craig

Craig B. Glidden

Executive Vice President & General Counsel
General Motors LLC

300 Renaissance Center, Detroit, MI 48265-3000
' tel: 313.665.8331 e-mail: craig.glidden@gm.com
+ fax: 313.221.9735 mail code: 482-C39-B40

GENERAL MOTORS

Nothing in this message is intended to constitute an electronic signature unless a specific statement to the contrary is included in this message.

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OFFICE OF THE GOVERNOR

March 15, 2017

Mitch Bainwol
President and CEO
Alliance of Automobile Manufacturers
803 7th Street NW
Washington, D.C. 20001

John Bozzella
President and CEO
Association of Global Automakers
1050 K Street NW
Washington, D.C. 20001

Dear Mr. Bainwol and Mr. Bozzella:

Your action to weaken vehicle pollution standards – standards your own members agreed to – breaks your promise to the American people.

Advances in fuel efficiency technology have worked for everyone. They have saved Americans money at the pump, cut oil consumption, reduced air pollution and helped fight climate change.

Putting this progress at risk is reckless. Your actions could cost the average car owner more than $1,650 per vehicle and make Americans consume billions more gallons of gasoline. This would increase our dependence on foreign oil and could raise greenhouse gas emissions by 540 million metric tons.

Please be advised that California will take the necessary steps to preserve the current standards and protect the health of our people and the stability of our climate.

Sincerely,

Edmund G. Brown Jr.

GOVERNOR EDMUND G. BROWN JR. • SACRAMENTO, CALIFORNIA 95814 • (916) 445-2841

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Shea, Quin
Sent: Tue 4/4/2017 1:48:04 PM
Subject: RE: Following Up on EEI Board Meeting

Thanks Samantha. I'll have a group of Environmental SVPs/VPs coming in from out of town, so a little advance planning definitely is needed. How is your schedule on April 12, 13 and 14? If you give me some windows that work for you, I can then check OG&E and other schedules to maximize turnout. (As a point of reference, our environmental leadership team is about eight companies.) It also would be useful if you and I chat in advance regarding the anticipated scope of that session. Quin

From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Tuesday, April 04, 2017 9:30 AM
To: Shea, Quin
Subject: RE: Following Up on EEI Board Meeting

This email originated from an external sender. Use caution before clicking links or opening attachments. For more information, visit The Grid. Questions? Please contact ITSupport@eei.org or ext. 5100.

Quin, I am glad to hear RJ is facilitating that meeting. Let's definitely set a meeting with me and some of my colleagues soon. Is there day next week that works well for you on that front?

From: Shea, Quin [mailto:QShea@eei.org]
Sent: Tuesday, April 4, 2017 9:27 AM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Subject: RE: Following Up on EEI Board Meeting

Good morning Samantha. Recognizing that the overall situation at the agency remains fluid and a beehive of activity, I nonetheless trust that you are easing in and fully in control!

We've been communicating regularly with OG&E's Sean Trauschke, who in turn spoke recently with Ryan about scheduling a meeting between the Administrator and EEI's environmental leadership CEOs. We'll work directly with Ryan on the specifics of that session. In the interim,

however, these same CEOs are requesting that EEI assemble a small group of their senior company staff to come in and meet with you and your colleagues. From our perspective, this session would focus on key substantive and process (e.g., permitting and siting) issues, as well as the general EPA institutional landscape. When you get a moment, could you call me to discuss this item?

Thanks again for your past courtesies and I look forward to speaking with you soon. Best, Quin

From: Shea, Quin
Sent: Monday, March 27, 2017 4:47 PM
To: Dravis, Samantha (dravis.samantha@epa.gov)
Cc: Hupp, Millan (hupp.millan@epa.gov)
Subject: Following Up on EEI Board Meeting

Samantha: Thanks again for efforts by you, Millan and others on the EPA team in arranging for Administrator Pruitt to address the EEI Board of Directors. The Administrator's remarks were extremely well received and provided ample food for thought going forward. In that vein, during the Q&A session the Administrator requested a list of current and pending milestones in cases impacting EEI's members. An initial list is attached. Importantly, it focuses on items that EEI has traditionally engaged and/or where industry unanimity has been established. Individual EEI member companies may supplement this list with additional priorities related to their local operations.

I hope you find this note responsive to the Administrator's request. I will follow up with you relative to this and other matters we discussed at the EEI meeting.

Quinlan J. Shea, III (Quin)

Vice President, Environment

Edison Electric Institute

701 Pennsylvania Avenue, NW

Washington, DC 20004

202-508-5027

qshea@eei.org

To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Landis-Marinello, Kyle[kyle.landis-marinello@vermont.gov]
From: Idrovo, Jennifer
Sent: Mon 5/15/2017 3:17:44 PM
Subject: 25th Fall Conference- Speaker Confirmation
fallregform_speaker.pdf

Dear Samantha:

Thank you for agreeing to share your knowledge and expertise at the **25th Fall Conference** to be held **October 18-20, 2017**, at the **Baltimore Marriott Waterfront** in **Baltimore, Maryland**. This Section strives to be the premier forum and community for dialogues about the challenges in environmental, energy and resources law. We appreciate your participation in this national conference.

The details of your presentation are below:

Date: Friday, October 20, 2017

Time: 2:15pm - 3:45pm

Topic: Who's In Charge? The Evolving Role of Tribal, State, and Local Governments in Environmental, Energy, and Resources Regulation and Enforcement

Contact Information

Your contact information will appear as is in the brochure, onsite schedule, program webpage, and speaker/moderator biography page unless changes are indicated. **Please reply to this email to APPROVE or provide changes to your contact information by Thursday, May 18, 2017.**

First Name: Samantha

Last Name: Darvis

Badge Name:

Title:

Organization:

Address:

City, State, Zip Code:

Phone Number:

Email Address: dravis.samantha@epa.gov

Speaker/Moderator Responsibilities

Your speaker responsibilities for the program are outlined on the following link:
---

https://www.americanbar.org/content/ebus/events/2017/25th-fall-conference/speakers.html

Due Dates and Milestones:
Please work with your moderator to prepare a publication-quality paper in accordance with the following due dates and milestones:

Contact information confirmed by

Thursday, May 18, 2017

Submit Speaker Release Form, Biography, and Electronic Photo
Friday, July 21, 2017

Draft Abstract/Paper due to Moderator
Wednesday, September 13, 2017

Final Abstract/Paper Submission due to Program Assistant
Thursday, September 28, 2017

See you in Baltimore, MD!
October 18-20, 2017

Registration

Speakers are invited to attend the meeting free of charge on the day of their panel presentation only and will be registered internally by ABA staff. If you are planning to attend the entire conference, we have developed a special rate of $450. Please complete the attached registration form and return to:

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Registrations Department

321 N. Clark St., Floor 16

Chicago, IL 60654

SECURE FAX: (312) 988-5850

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Jennifer Idrovo

Program Assistant

Section of Environment, Energy, and Resources

American Bar Association | 321 N. Clark Street | Chicago, IL 60654

T: (312) 988-5625 | F: (312) 988-5572

Jennifer.Idrovo@americanbar.org

www.americanbar.org/environ

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25th Fall Conference

October 18-21, 2017 • Baltimore Waterfront Marriott • Baltimore, MD

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QUESTIONS? CALL: (312) 988-5625

REGISTRATION DEADLINE: on or before WEDNESDAY, OCTOBER 4, 2017

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Speakers and moderators are invited to attend the meeting free of charge on the day of their panel presentation **only**. If you are planning to attend the entire Fall Conference, we have developed the following special registration rate.

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** one dinner ticket already included in registration fee*

☐ **$20 Friday Run Club**

☐ **$25 (suggested) or $_____ ABA FJE Contribution**
Voluntary contribution to support the Section of Environment, Energy, and Resources Project Support Fund. Contributions to the FJE are tax deductible to the full extent allowed by law.

☐ **$20 Achieving Carbon Neutrality**
Calculated with great care, the Section estimates that the average attendee's participation will generate approximately one metric ton of carbon emissions. Help offset your carbon footprint by adding the cost of a one-ton carbon credit and help pay for tree plantings and service projects that will reduce greenhouse gases. Contributions to the FJE are tax deductible to the full extent allowed by law.

☐ **Dietary Restrictions?** Please specify: _____

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TOTAL ENCLOSED $_____

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To: david.wilkins@nelsonmullins.com[david.wilkins@nelsonmullins.com]
Cc: awilson@scag.gov[awilson@scag.gov]; Dravis, Samantha[dravis.samantha@epa.gov]
From: Hupp, Sydney
Sent: Mon 3/27/2017 8:07:29 PM
Subject: Meeting with Administrator Pruitt

Good afternoon Ambassador Wilkins,

Reaching out to you today regarding a meeting with Administrator Pruitt in early April. My apologies for the delay in getting back to you. Would 2PM on April 4th work for you all?

Thank you!

Sydney Hupp

Office of the Administrator- Scheduling

202.816.1659

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Billy Johnson
Sent: Tue 5/9/2017 6:02:47 PM
Subject: Nice to speak with you this morning

Samantha: It was a pleasure to chat with you at the end of the meeting this morning. As I mentioned, we have a couple of issues that we will include in our comments during the regulatory reform exercise. However, one issue that concerns regulatory certainty is the crumb rubber used on synthetic fields and playgrounds. The proposed two year extension for the study is resulting in uncertainty among parents, teachers, school administrators, and the manufacturers of crumb rubber and synthetic turfs. There have been almost 100 studies and reports that show no causation between crumb rubber and cancer. (You can find more information and links to the studies at https://www.safefieldsalliance.com). This latest study was initiated by Senator Blumenthal last year and we have helped EPA, CPSC, CDC, ATSDR as much as possible including summaries of the studies and tours of crumb rubber facilities. We do want EPA to complete this study but in the interim, having EPA state the findings from all these studies (including the current and earlier EPA studies) to reassure the public about the safety of this material. I am happy to discuss this issue with you further at your convenience. And, I am happy to take you and your colleagues to watch cars get shredded anytime! Thank you so much, Billy

William H. Johnson

Chief Lobbyist

1250 H Street, NW

Suite 400

Washington, DC 20005

(202) 662-8548 - direct

(202) 714-4259 - cell

***The Institute of Scrap Recycling Industries, Inc**. (ISRI) is the "Voice of the Recycling Industry." ISRI and its 21 chapters represent approximately 1,300 companies operating in nearly 4,000 locations in the U.S. and 34 countries worldwide that process, broker, and consume scrap commodities, including metals, paper, plastics, glass, rubber, electronics, and textiles. With headquarters in Washington, DC, ISRI provides education, advocacy, safety and compliance training, and promotes public awareness of the vital role recycling plays in the U.S. economy, global trade, the environment and sustainable development. Generating more than $105 billion annually in U.S. economic activity, the scrap recycling industry provides nearly half a million Americans with good jobs. For more information about ISRI, please visit www.isri.org.*

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Shea, Quin
Sent: Tue 4/4/2017 1:26:46 PM
Subject: RE: Following Up on EEI Board Meeting

Good morning Samantha. Recognizing that the overall situation at the agency remains fluid and a beehive of activity, I nonetheless trust that you are easing in and fully in control!

We've been communicating regularly with OG&E's Sean Trauschke, who in turn spoke recently with Ryan about scheduling a meeting between the Administrator and EEI's environmental leadership CEOs. We'll work directly with Ryan on the specifics of that session. In the interim, however, these same CEOs are requesting that EEI assemble a small group of their senior company staff to come in and meet with you and your colleagues. From our perspective, this session would focus on key substantive and process (e.g., permitting and siting) issues, as well as the general EPA institutional landscape. When you get a moment, could you call me to discuss this item?

Thanks again for your past courtesies and I look forward to speaking with you soon. Best, Quin

From: Shea, Quin
Sent: Monday, March 27, 2017 4:47 PM
To: Dravis, Samantha (dravis.samantha@epa.gov)
Cc: Hupp, Millan (hupp.millan@epa.gov)
Subject: Following Up on EEI Board Meeting

Samantha: Thanks again for efforts by you, Millan and others on the EPA team in arranging for Administrator Pruitt to address the EEI Board of Directors. The Administrator's remarks were extremely well received and provided ample food for thought going forward. In that vein, during the Q&A session the Administrator requested a list of current and pending milestones in cases impacting EEI's members. An initial list is attached. Importantly, it focuses on items that EEI has traditionally engaged and/or where industry unanimity has been established. Individual EEI member companies may supplement this list with additional priorities related to their local operations.

I hope you find this note responsive to the Administrator's request. I will follow up with you relative to this and other matters we discussed at the EEI meeting.

Quinlan J. Shea, III (Quin)

Vice President, Environment

Edison Electric Institute

701 Pennsylvania Avenue, NW

Washington, DC 20004

202-508-5027

qshea@eei.org

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Benjamin Klein
Sent: Wed 5/17/2017 9:14:43 PM
Subject: Part 192 uranium rulemaking - meeting request
UPA Comments - EPA Regulatory Review.pdf

Samantha,

On behalf of the Uranium Producers of America, I'm writing to see if you have time to sit down in the coming weeks with UPA and the National Mining Association to discuss the Part 192 uranium rulemaking that was initiated under the Obama Administration (see attached for more details).

Depending on the timing, we would ideally have a few of our members come to DC and others join by phone if that works on your end.

Thanks for your consideration.

Ben

Benjamin Klein

Invariant

202.742.1929 O

202.309.2290 M

klein@invariantgr.com

-

(Heather Podesta + Partners is now Invariant)

URANIUM PRODUCERS OF AMERICA
141 EAST PALACE AVENUE, POST OFFICE BOX 669, SANTA FE, NEW MEXICO 87504-0669
TELEPHONE (505) 982-4611; FAX (505) 988-2987; WWW.URANIUMPRODUCERSAMERICA.COM

May 15, 2017

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

RE: Uranium Producers of America Recommendations for Regulations to Repeal/Modify (Docket: EPA-HQ-OA-2017-0190)

Dear Administrator Pruitt:

On behalf of the Uranium Producers of America (UPA), we applaud the Environmental Protection Agency's (EPA) effort to solicit public input on regulations that may be appropriate for repeal, replacement, or modification, consistent with Executive Order 13777.

As you conduct your review, we encourage EPA to also examine rules proposed at the end of the Obama Administration, particularly the proposed rule (Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings under 40 CFR Part 192) related to EPA's regulation of in situ uranium recovery (ISR). The agency initially proposed a similar rule in January 2015, but the original proposal was withdrawn after significant concerns were raised by the Nuclear Regulatory Commission (NRC), which is the primary regulator of ISR uranium recovery, as well as by state regulators and the industry. Unfortunately, the new version of the proposed rule, which was issued on January 19, 2017, is equally problematic and should be immediately withdrawn.

EPA provides no scientific justification for the proposed rule, fails to fully account for the significant costs of complying with the rule, overlooks the small business impact, and ignores its Science Advisory Board's recommendation to review the extensive groundwater data available for current and previous ISR projects.

Executive Order 13777 directs agencies to identify regulations that, among other things (1) eliminate jobs, or inhibit job creation; (2) are outdated, unnecessary, or ineffective; (3) impose costs that exceed benefits; or (4) create a serious inconsistency or otherwise interfere with regulatory reform initiatives and policies. The EPA's flawed Part 192 rulemaking clearly meets these criteria and should be eliminated.

- **Part 192 Rulemaking will Cost Jobs and Puts the Domestic Industry at Risk -** If finalized, EPA's Part 192 rule would likely mark the end of ISR uranium recovery in the United States and lead to significant workforce reductions. At a time when the United States is importing 94 percent of the uranium needed to fuel our domestic nuclear reactors, the Administration should be working to strengthen the industry rather than putting us out of business with unnecessary and unjustified regulations.

- **Part 192 Rule is Unnecessary and Unjustified -** EPA provides no evidence that the current regulatory framework is insufficient. ISR uranium operations are already highly regulated by the EPA, NRC and state regulators. The proposed rule will simply add another layer of unnecessary, duplicative and, in some cases, contradictive regulation to current federal and state regulations. EPA has publicly acknowledged that the agency is not aware of a single example of an ISR uranium project leading to groundwater contamination of any non-exempt aquifer. The basis for a rulemaking must be supported by facts and not "what if" scenarios. There is no scientific evidence supportive of this rule.

- **Part 192 Rule Imposes Significant Costs with No Measurable Benefits -** EPA's Part 192 rule would impose significant costs on the industry, far beyond the estimates included in the proposed rule. UPA members estimate the costs associated with complying with the rule would range from 20-100 percent of total revenue. This means the rulemaking would put most, if not all, of the domestic producers out of business, and yet the EPA has failed to quantify any measurable benefit. Instead, the EPA simply speculates that this rule may potentially reduce risk of contamination, without providing any evidence or justification.

- **EPA Lacks the Legal Authority for Part 192 Rulemaking -** The Uranium Mill Tailings Radiation Control Act (UMTRCA) provides EPA the authority to set generally applicable standards for uranium mill tailings sites (40 CFR Part 192, Subpart D). However, the Nuclear Regulatory Commission remains the primary regulator and is charged with implementing the standards. The EPA's proposed rule goes far beyond setting generally applicable standards and proposes specific implementation criteria (*e.g.,* requirement for specific groundwater stability monitoring periods). The pursuit of this rule creates a serious inconsistency between the various agencies and rules already regulating ISR operations.

- **EPA Failed to Consult State Regulators -** The EPA failed to consult state regulators in developing its initial and revised proposed rule, and the EPA ignored offers from states to provide technical expertise. The Texas Commission on Environmental Quality and the industry offered to assist EPA in reviewing data on actual groundwater conditions at Texas sites, including conducting additional sampling if warranted. EPA ignored that offer. The industry also provided EPA an alternative approach to address concerns about ISR standards not being codified. Again, the EPA never responded.

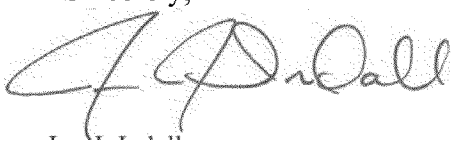
- **EPA Failed to Consider Existing Groundwater Data and Peer-Reviewed Research** – The Part 192 rulemaking is based on an EPA-generated hypothesis. EPA ignored the reams of data available for current and historic uranium projects, and EPA failed to consider any of the peer-reviewed research in this area. EPA ignores a 2009 NRC assessment which concluded there is no evidence an ISR uranium project has contaminated or degraded the quality of groundwater at a nearby water supply well. Instead, EPA appears to rely heavily on a report from the Natural Resources Defense Council that was not peer-reviewed and includes suppositions that have been rejected in several judicial proceedings.

We encourage the EPA to immediately withdraw this flawed and unnecessary rulemaking. At a time when we are importing 94 percent of the uranium needed to power our nuclear reactors, we should be doing everything we can to support and grow the domestic uranium industry. The consequences of this proposed rule would likely result in further job contraction and virtual elimination of the domestic ISR uranium industry.

In addition to withdrawing the Part 192 rulemaking, we encourage the EPA to also revisit and repeal a rule finalized on January 17, 2017, setting a radon emission standard for operating uranium mill tailings (revision of 40 CFR Part 61 Subpart was published in 82 FR 5142). The rule adds considerable costs to the domestic industry, and yet the science shows radon emissions from uranium mill tailings impoundments are minimal to none. Further, there is no legal or regulatory basis to apply Subpart W to evaporation ponds at uranium recovery facilities.

We would welcome the opportunity to meet with you or your team to discuss our concerns in greater detail. Thank you again for making this regulatory review a priority. We look forward to working with you to address these barriers that limit our ability to compete in a global market.

Sincerely,



Jon J. Indall
Counsel for Uranium Producers of America

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Anne Korin
Sent: Mon 3/27/2017 2:39:28 PM
Subject: RE: Marc Goldman followup

Samantha,
I understood from Carolyn our meeting last week was cancelled and could not be rescheduled later that day or Friday. I am currently out of town and will be traveling non-stop for the next several weeks. To keep the ball rolling, I'll prep and send over a short memo on how fuel choice could add to the CAFE reform toolkit and dovetail with the President's goals on jobs, lifting of the regulatory burden, and energy security.
best, Anne

On Thu 23/03/17 2:43 PM , "Inge, Carolyn" Inge.Carolyn@epa.gov sent:

Subject: You 3:00pm meeting with Samantha has been cancel

To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Brittany Bollen[bollen.brittany@epa.gov]
From: Jennifer Thomas
Sent: Tue 4/25/2017 9:23:00 PM
Subject: Fwd: Auto Alliance Materials for Thursday Meeting with Administrator Pruitt
Alliance Board_Slides Pruitt.pptx
ATT00001.htm

See below and attached

Sent from my iPhone

Begin forwarded message:

From: "David Schwietert" <DSchwietert@autoalliance.org>
To: "Jackson, Ryan" <jackson.ryan@epa.gov>, "bollen.brittany@epa.gov" <bollen.brittany@epa.gov>
Cc: "Jennifer Thomas" <JThomas@autoalliance.org>, "Mitch Bainwol" <MBainwol@autoalliance.org>
Subject: Auto Alliance Materials for Thursday Meeting with Administrator Pruitt

Ryan and Brittany,

We wanted to give you and the Administrator an advance copy of the slides and issue outline that we would like to discuss during Thursday meeting.

Below you will find a confirmed list of the 12 Alliance Members and staff in alphabetical order.

Also, attached you will find various slides that Mitch Bainwol plans to use to outline current trends in the auto sector and how that interacts with EPA/DOT and California regulations regarding fuel economy and greenhouse gas regulations.

Our current Chairman of the Board, Dietmar Exler (**Mercedes-Benz**) plans to kick off the meeting and then turn things over to Mr. Bainwol. Following Mitch's overview of the attached slides, the following Board members will focus on two primary issue areas – understanding that we have 30 minutes with the

Administrator:

•□□□□□□□□ Ludwig Willisch and Tan Turton – **BMW and GM** (Greenhouse Gas Regulation, Harmonization, and Mid Term Review)

•□□□□□□□□ Dietmar Exler **- Mercedes-Benz** -- Zero Emission Vehicle (ZEV) Standards

Other Board members also plan to weigh-in during the discussion with the Administrator but we hope this format is useful for planning purposes. Understanding that between remarks from the Administrator and discussion on the two issue areas above, we also plan to express our support for the regulatory review that is currently underway at EPA.

Please let us know if you have any questions and feel free to share internally as you see fit.

We'll ensure our group is on-time at EPA Headquarters to get through security in advance of the 11:45-12:15 p.m. meeting Thursday.

Prior to our meeting with the Administrator, our Board will be meeting with Secretary Chao at DOT between 10:00-11:00 A.M.

Thanks so much,

Dave

BMW
Ludwig Willisch
Bryan Jacobs

FCA
Shane Karr
Mark Chernoby

FORD
Z. Ojakli
Curt Magleby
Kim Pittel

GENERAL MOTORS
Dan Turton
Tori Emerson Barnes
Bryan Roosa

JAGUAR LAND ROVER
Clinton Blair

MAZDA
Shawn Murphy
Dan Ryan

MERCEDES-BENZ USA
Dietmar Exler
Jake Jones

MITSUBISHI
Don Swearingen
George Takahashi

PORSCHE
Joe Lawrence
Joseph Folz

TOYOTA
Bob Carter
Stephen Ciccone
Tom Stricker

VOLVO
Lex Kerssemakers
Katie Yehl

VOLKSWAGEN
David Geanacopoulos

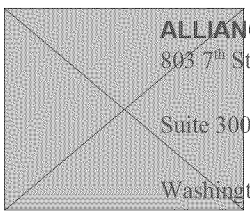
ALLIANCE STAFF
Mitch Bainwol
John Whatley
David Schwietert
Chris Nevers
Jonathan Weinberger
Jennifer Thomas

TOTAL: 31

David Schwietert

Executive Vice President, Federal Government Relations & Public Policy

P: 202-326-5521 | dschwietert@autoalliance.org



ALLIANCE OF AUTOMOBILE MANUFACTURERS
803 7th Street, NW Main Phone: 202-326-5500

Suite 300 Main Fax: 202-326-5567

Washington, DC
20001

https://autoalliance.org/

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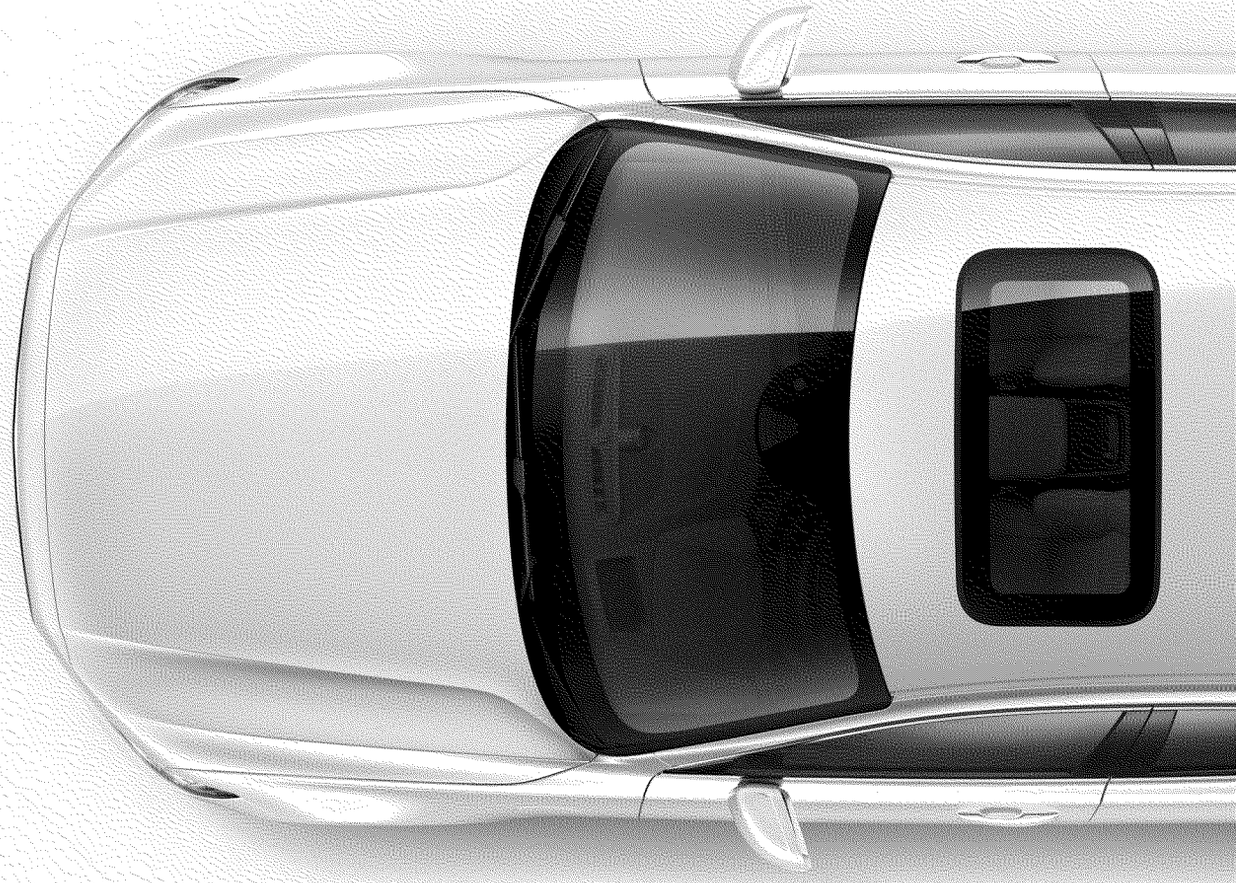
Alliance Board

April 27, 2017



AUTO ALLIANCE

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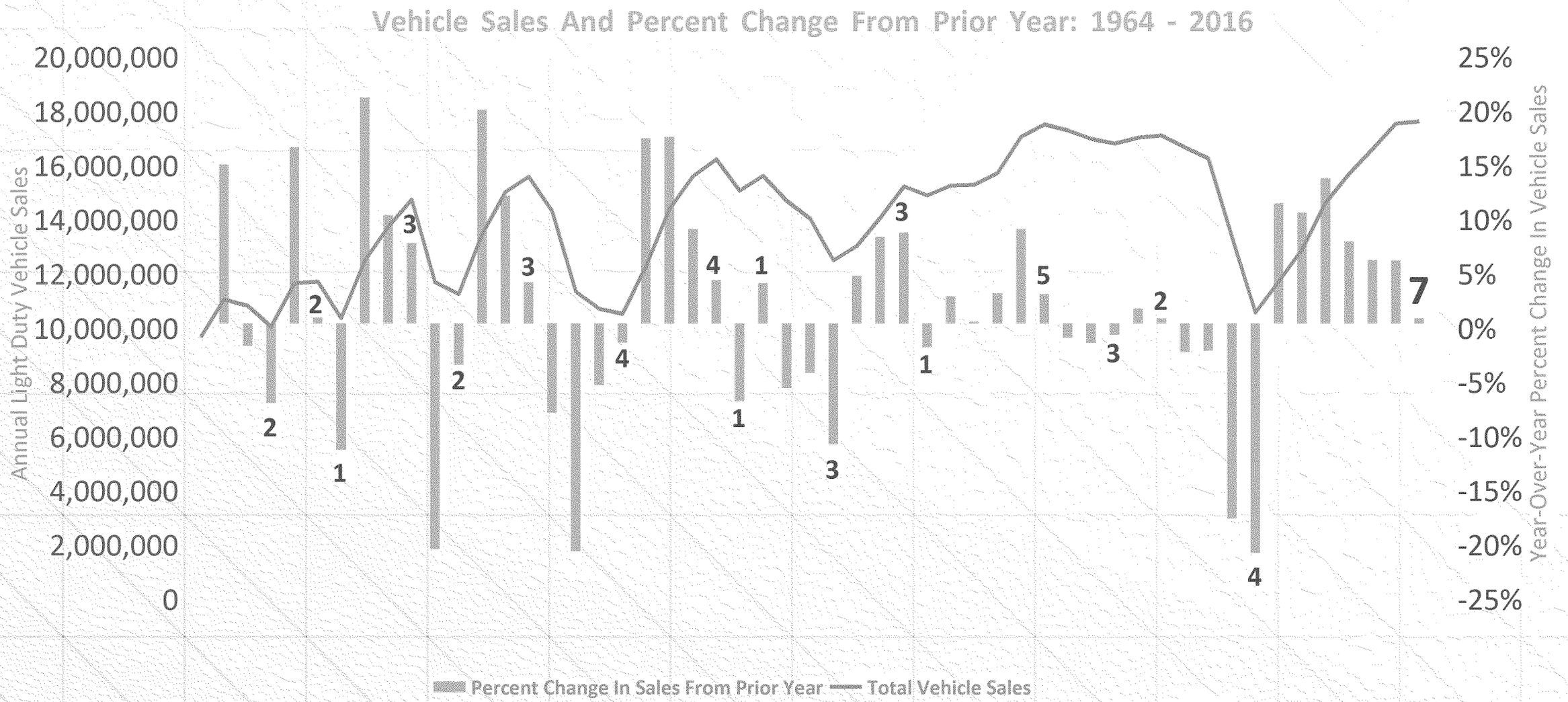
Meeting with EPA Administrator Scott Pruitt

AGENDA

1. Welcome	Administrator Pruitt
2. Introduction	Dietmar Exler – **Mercedes-Benz**
3. Situation Review	Mitch Bainwol **– Auto Alliance**
4. GHG / Harmonization	Ludwig Willisch / Dan Turton **BMW / GM**
5. ZEV	Dietmar Exler **– Mercedes-Benz**

Seven Years of Growth Historic - But Leveling Off

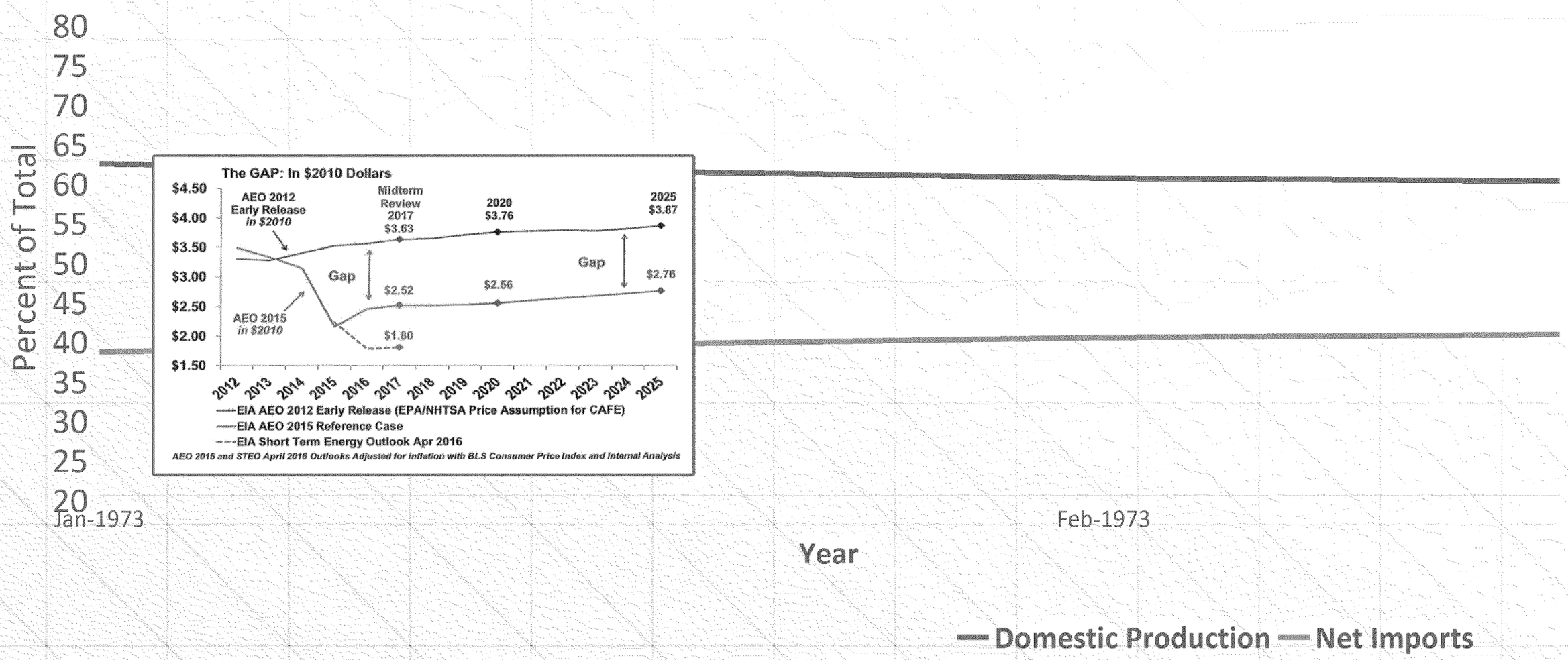


	Consecutive Up Years
	Consecutive Down Years

Sourced and Compiled from Ward's Automotive

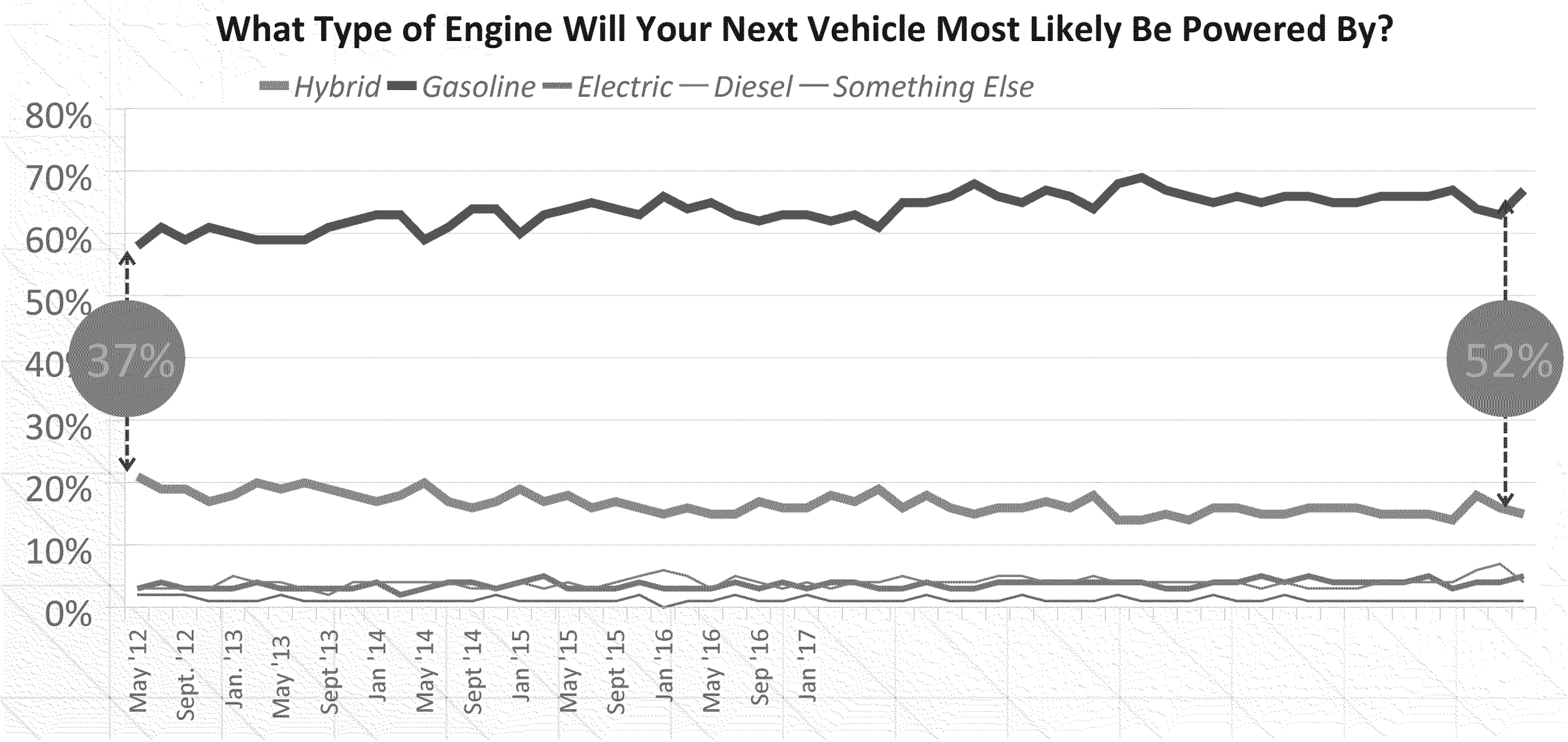
Price of Gas Way Below Original Projections

U.S. Crude Oil Production vs. Net Imports (Thousand Barrels per Day)

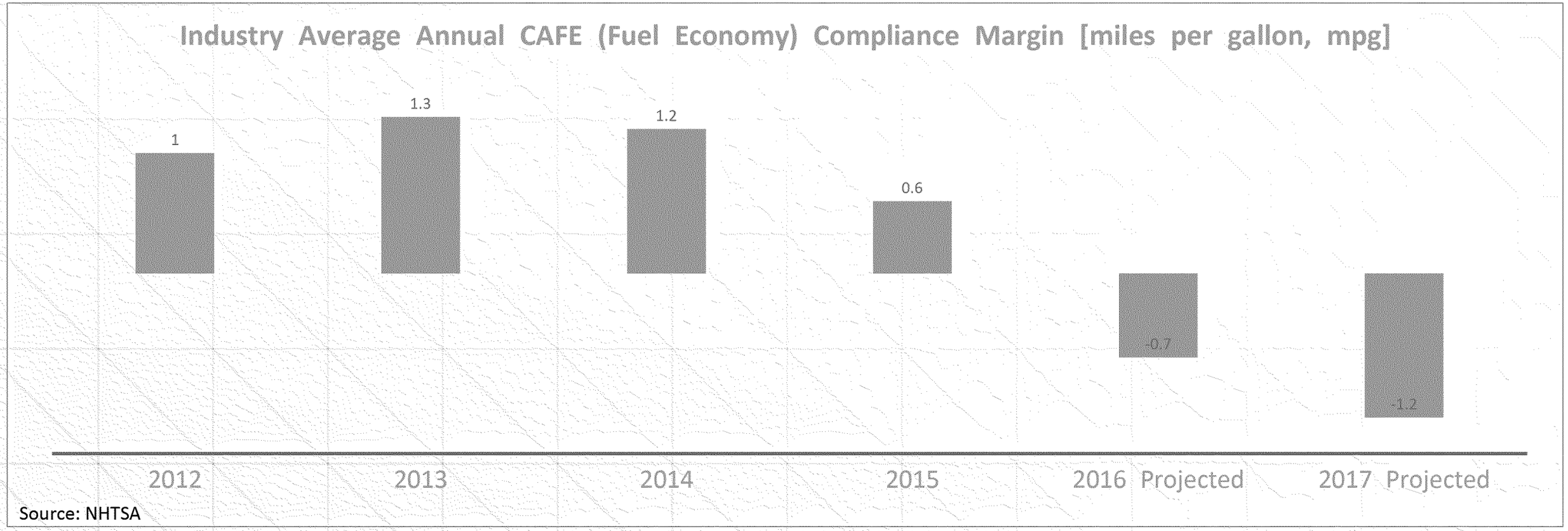


Source: EIA 2016

Low Gas $ + Early CAFE = Impact on Consumers



Compliance Trend Contradicts Theory

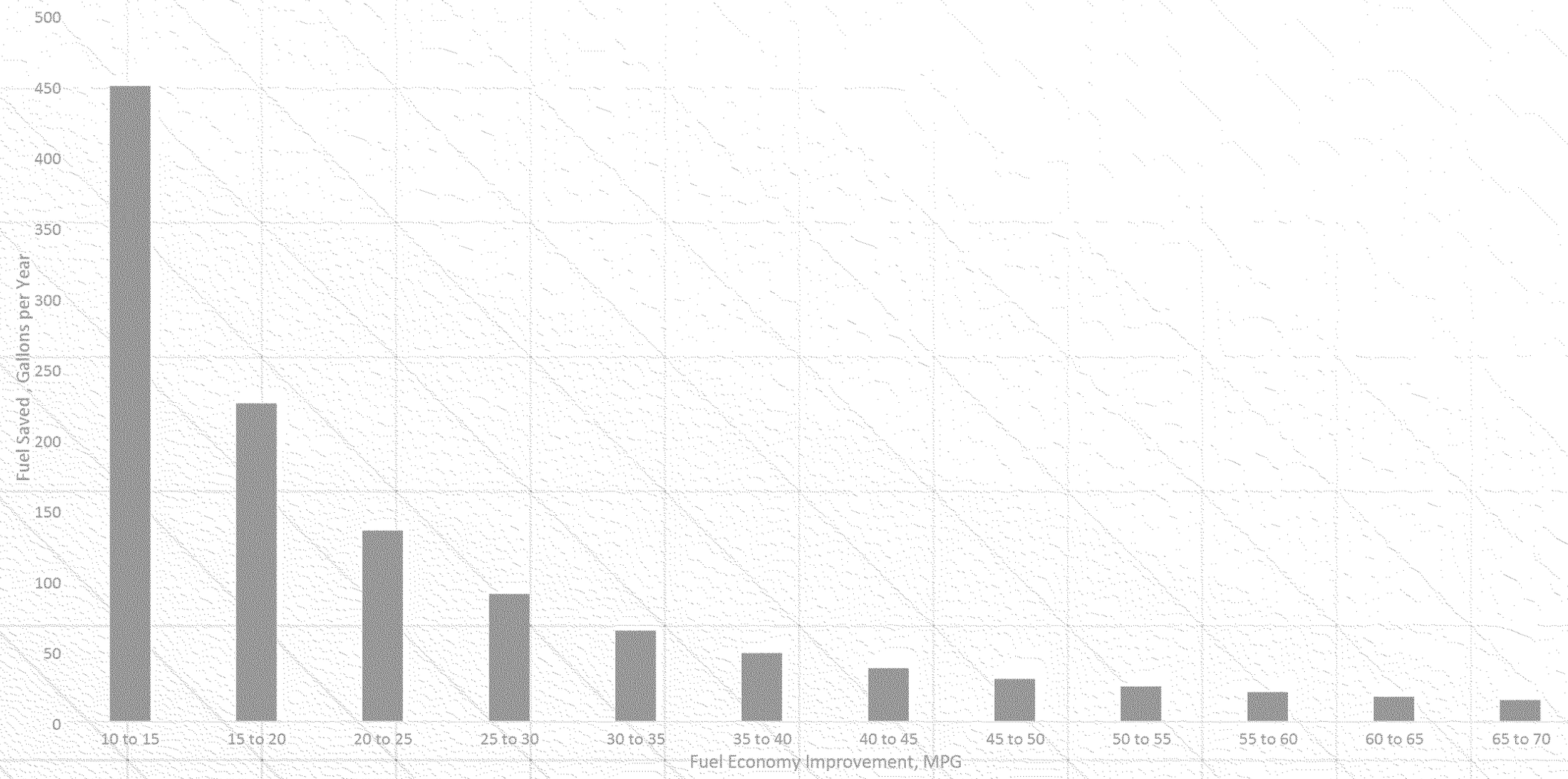


Source: NHTSA

Similar trends are observed for CAFE (fuel economy) compliance

- Between 2012 and 2014, manufacturers averaged 1.0 to 1.3 miles per gallon (mpg) better fuel economy than their standards
- In 2015, this compliance margin dropped in half to 0.6 mpg
- NHTSA projects that manufacturers on average will fail to meet the CAFE standards in 2016 and 2017

Fuel Savings (and Carbon Reduction) Substantially Frontloaded



California Unique in Many Ways

Hybrids
- 29 of top 35 CDs for hybrids sold in 2016
- 33 of top 50 CDs for registered hybrids

Electrics
- 18 of top 20 CDs for EVs sold in 2016
- Top 14 CDs for EVs sold all in California
- 17 of top 20 CDs for registered EVs

PHEVs
- 18 of top 19 CDs for PHEVs sold in 2016
- 24 of top 25 CDs for registered PHEVs

SUVs
- 0 of 221 CDs with SUV sales of 40% or more

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Mercedes-Benz · MITSUBISHI MOTORS · PORSCHE · TOYOTA · VOLKSWAGEN GROUP OF AMERICA · VOLVO

AutoAlliance.org · /auto_alliance · /autoalliance

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Jay Vroom
Sent: Tue 4/4/2017 12:25:18 PM
Subject: Re: Thank You
removed.txt

Hi Samantha,

I tried to tweak both my Facebook post and the Retweets to include @EPA so you might be able to find both-- and I just sent you a Facebook friend request so that might be another avenue. I'll also get a few minutes at my computer today to copy both the social media posts into an email to send you.

I spoke yesterday with Kim Reed who I mentioned chairs the Republican Lawyers Association about connecting with you--I will do that separately in another email.

Finally I would like to introduce you to a former EPA Bush political appointee who is coming into DC this afternoon for a couple days. What's your calendar look like late today thru Thursday?

Jay

Sent from my iPhone

On Mar 31, 2017, at 9:14 AM, Dravis, Samantha <dravis.samantha@epa.gov> wrote:

> Thanks for the photo! Can you link me to the facebook page? I tried searching and didn't find it!
>
> **From:** Jay Vroom [mailto:JVroom@croplifeamerica.org]
> **Sent:** Friday, March 31, 2017 8:03 AM
> **To:** Dravis, Samantha <dravis.samantha@epa.gov>
> **Cc:** Mary Jo Tomalewski <mjtomalewski@croplifeamerica.org>
> **Subject:** Re: Thank You
>
> Samantha-
>
> Great to meet you and the team. The Administrator was very gracious with his time-- and his message inspiring to all of us. A proper thank you letter from us is to follow, but know

how much we appreciate all of you!

Mary Jo is my assistant -- copied here-- and her direct line is 202 872 3849. She can always find me.

Attached is our group photo. It's been Tweeted and posted to Facebook. Our smiles pretty much tell the whole story!

Jay

<image001.jpg>

Sent from my iPhone

On Mar 31, 2017, at 7:50 AM, Dravis, Samantha <dravis.samantha@epa.gov> wrote:

> All:
>
> Thanks for coming in yesterday to meet with Administrator Pruitt. We really enjoyed the conversation and look forward to being in touch. Thanks for sharing your perspective on issues of concern.
>
> My contact info is below and I look forward to hearing from you!
>
> Best,
>
> Samantha

Samantha Dravis

Senior Counsel/Associate Administrator for Policy

dravis.samantha@epa.gov

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Dennis Hedke
Sent: Sun 3/26/2017 11:05:36 PM
Subject: Re: Position

Samantha,

Thank you very much for the prompt response. I will await your response, and look forward hearing whatever you may discover.

Sincerely,

Dennis

On Sun, Mar 26, 2017 at 4:18 PM, Dravis, Samantha <dravis.samantha@epa.gov> wrote:

Thank you for the resume, Dennis. A threshold question is what is involved in getting an exception to the federal hiring freeze, and I will have to look into that.

Best,

Samantha

From: Dennis Hedke **Ex. 5 - Deliberative Process**
Sent: Saturday, March 25, 2017 8:51 PM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Subject: Position

Dear Samantha,

I hope you are now getting settled into your new position as Associate Administrator, Office of Policy. No doubt, the challenges ahead are significant.

In the recent past, I have been encouraged by numerous people to give serious consideration to attempting to become directly involved in the new EPA administration, and that is the purpose of this communication.

As you will see in the attached documents, I am currently engaged as a partner in the firm Hedke-Saenger Geoscience, Ltd, a firm I and partner Richard Saenger initiated in November 2007. In addition, I have communicated with various officials in the EPA and the Energy Department in years past. Samples are included.

Also, I recently 'retired' from the Kansas House of Representatives. I never planned to be a career politician, but I did want to make my mark, if at all possible, and that did work out. My term began in January 2011, and by my self-imposed term limit, I served my last day January 9, 2017. My last 4 years I was Chairman of the Energy & Environment Committee, and in my 5th year we repealed the Renewable Mandates that were passed by the Kansas legislature in the spring 2009. That legislation was initiated in my Committee.

I have just returned from Washington, as a presenter the the 12th International Conference on Climate Change, held March 23-24 at the Grand Hyatt. I spoke the afternoon of March 23, on a panel entitled Climate Politics and Policy. It was well attended, and my co-panelists did a great job. It was my first time attending, and my presentation was well received.

My first submittal related to the new EPA was delivered to the Trump-Pence transition team a number of weeks ago, and it included my desire to be considered for the following positions:

Office of the Administrator

Special Assistant to the Senior Climate Policy Counsel

Senior Advisor to the Administrator

Office of External Affairs and Environmental Education

Associate Administrator

Director, Office of Environmental Education

Office of Environmental Information

Assistant Administrator

However, I did have occasion to visit briefly yesterday with David Kreutzer, and

after that meeting, I took a closer look at the possible open positions within your **Office of Policy**, and I would very much like to be considered for a couple of other slots that I believe are likely to be unfilled:

Senior Advisor

Director, Office of Strategic Environmental Management

Director, Office of Regulatory Policy and Management

I realize that the various names of positions may be under change ad review, but these are taken form the December 1, 2012 Policy & Supporting Positions 'Manual'.

If you find that my background fits with possible policy making in the Pruitt administration, I would love to have the chance to visit further.

Should you have any questions, please don't hesitate to contact me at 316-737-2600, or at my office, 316-295-4675.

Thank you very much for your time.

Sincerely,

Dennis Hedke

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Deiro, Paul J
Sent: Tue 4/25/2017 5:28:02 PM
Subject: meeting May 10 or 11

Hi Samantha,

Thanks for the quick chat on the phone. I will be in Washington DC on May 10 and the morning of May 11 as I have several Congressional meetings, including Congressman McCarthy.

As I mentioned on the phone, CRC is the largest oil and natural gas operator in California.

It would be great to spend 15 mins with you to discuss the following issues:

Region 9
Methane Rule
Aquifer Exemptions

Thanks in advance Samantha and I look forward to meeting you.

Sincerely,

Paul

Paul J. Deiro
Vice President, Government Affairs
California Resources Corporation
1215 K. Street. Suite 1705
Sacramento, California
Office 916-503-3602
Cell 916-753-0536

To: Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]
Cc: Dravis, Samantha[dravis.samantha@epa.gov]; Wagner, Kenneth[wagner.kenneth@epa.gov]
From: Heine, Bruce
Sent: Tue 4/4/2017 2:15:00 AM
Subject: Re: Follow-up

Good evening Mandy and thank you for the note. I am available for a call anytime tomorrow. Please let me know if might work with your schedule.

Thanks

Bruce

Sent from my iPhone

On Apr 3, 2017, at 6:52 PM, Gunasekara, Mandy <Gunasekara.Mandy@epa.gov> wrote:

> Sent by an external sender. Use caution opening attachments, clicking web links, or replying unless you have verified this email is legitimate.
>
> Hi Bruce,
>
> I hate that we missed you this afternoon, but Ken said that you had a very productive meeting with the Administrator. It would be great to set-up a call with myself and Samantha to discuss pertinent RFS issues. Let me know when you have some time over the next few days to discuss.
>
> Safe travels back and I hope all is well!
>
> Best,
>
> Mandy

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Sechrist, Erica Ann
Sent: Sun 3/26/2017 2:49:48 PM
Subject: Re: Meeting request

He's available anytime on Thursday up to 3:00.

Sent from my iPhone

> On Mar 26, 2017, at 7:17 AM, Dravis, Samantha <dravis.samantha@epa.gov> wrote:
>
> We have a big day Monday/Tuesday so it would have to be after that, probably Thursday.
>
> Sent from my iPhone
>
>> On Mar 24, 2017, at 4:18 PM, Sechrist, Erica Ann <esechrist@orrick.com> wrote:
>>
>> Hi Samantha,
>> Paul Bailey with ACCCE was wondering if you have any time to meet next week. He's pretty open except Wednesday afternoon.
>>
>> Thanks,
>> Erica
>>
>> Sent from my iPhone
>>
>> NOTICE TO RECIPIENT | This e-mail is meant for only the intended recipient of the transmission, and may be a communication privileged by law. If you received this e-mail in error, any review, use, dissemination, distribution, or copying of this e-mail is strictly prohibited. Please notify us immediately of the error by return e-mail and please delete this message from your system. Thank you in advance for your cooperation.
>>
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>>
>

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To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Jay Vroom[JVroom@croplifeamerica.org]
From: Mary Jo Tomalewski
Sent: Tue 4/25/2017 2:57:49 PM
Subject: RE: Phone call with Jay Vroom
removed.txt

I'm sorry, I thought you and Jay had had brief conversation about the content! I've copied him here, and I believe he wants to touch base about recent and upcoming events that would be helpful to you.

Mary Jo Tomalewski

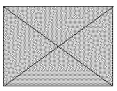
Executive Assistant to the President & CEO

CropLife America

Direct Dial (202) 872-3849

Mobile (703) 943-9705

Email mjtomalewski@croplifeamerica.org


How can I serve you today?

Future Meetings

2017 Spring Regulator Conference – April 6-7, Arlington, VA

2017 Annual Meeting – September 22-27, Dana Point, CA

2018 Winter Board of Directors Meeting – March 5-7, Washington, DC

2018 Annual Meeting – September 21-26, The Ritz-Carlton Amelia Island

From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Tuesday, April 25, 2017 10:49 AM
To: Mary Jo Tomalewski <mjtomalewski@croplifeamerica.org>
Subject: RE: Phone call with Jay Vroom

What is the call request regarding?

From: Mary Jo Tomalewski [mailto:mjtomalewski@croplifeamerica.org]
Sent: Tuesday, April 25, 2017 10:10 AM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Subject: Phone call with Jay Vroom

Hi, Samantha,

Jay texted me just now, to ping you again about setting up a call. Do you have some time this afternoon? Jay is available any time after 1:00p (with the exception of a 30-minute call today at 4:00p). He's also free tomorrow between 2 and 3p.m., or Thursday between 11:00a and 2:00p.

MJ

Mary Jo Tomalewski

Executive Assistant to the President & CEO

CropLife America

1156 15th Street, NW

Suite 400

Washington, DC 20005

Direct Dial (202) 872-3849

Main Switchboard (202) 296-1585

Mobile (703) 943-9705

Fax (202) 466-5832

Email mjtomalewski@croplifeamerica.org

Web www.croplifeamerica.org

How can I serve you today?

Future Meetings

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2017 Annual Meeting – September 22-27, Dana Point, CA

2018 Winter Board of Directors Meeting – March 5-7, Washington, DC

2018 Annual Meeting – September 21-26, The Ritz-Carlton Amelia Island

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Dennis Hedke
Sent: Tue 4/4/2017 12:07:52 AM
Subject: Re: Comments

Samantha, you are most welcome.

Warmest regards,

Dennis

On Mon, Apr 3, 2017 at 6:20 PM, Dravis, Samantha <dravis.samantha@epa.gov> wrote:

Dennis,

Thank you so much for this. I will try to be in touch as soon as I can.

Samantha

Sent from my iPhone

> On Apr 3, 2017, at 7:10 PM, Dennis Hedke < Ex. 5 - Deliberative Process wrote:
>
> Dear Samantha,
>
> I wanted to offer some additional comments as you consider some of your staff building within the Office of Policy.
>
> Please see the attached memo.
>
>
> Warmest regards,
>
>
> Dennis
> <DEH-Dravis.doc>

To: Thomas, Deb[thomas.debrah@epa.gov]; Starfield, Lawrence[Starfield.Lawrence@epa.gov]; Pruitt, Scott[Pruitt.Scott@epa.gov]; Bohan, Suzanne[bohan.suzanne@epa.gov]; Bolen, Brittany[bolen.brittany@epa.gov]; Dravis, Samantha[dravis.samantha@epa.gov]
From: Angie Binder
Sent: Mon 4/24/2017 7:49:25 PM
Subject: Colorado Petroleum Association letter regarding EPA Region 8
EPA Final 4-24-17.pdf

Dear Ms. Thomas and Mr. Starfield:

Please see the attached letter from the Colorado Petroleum Association requesting clarification on behalf of CPA membership as to whether you support the continuation of EPA Region 8's ongoing enforcement campaign against oil and gas operators in Colorado regarding alleged violations of *state air quality regulations* affecting storage tank emissions and design.

Thank you for your consideration.

Angie Binder

Executive Director,

Colorado Petroleum Association

303-860-0099 office

303-519-3914 mobile

angie@coloradopetroleumassociation.org

COLORADO PETROLEUM
ASSOCIATION
1700 Lincoln Street, Suite 1530
Denver, Colorado 80203
303-860-0099 (office)

AA- 94 9$

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-. J0 6,) - 6 7 .) -(. F . , . (,E A ((6 ,@ . (,-) (F . F) 7 . (,. 7 AAB6 7 RAB,) “7. , 6 7 B 7 0AH6-7 6 A-) A) B 7 7. (B) B) - 6 6J . (6(,) B) - ,@ A7F B,-6,) -’B-. 4 H”,@ B , F B,@, “H) 0 7 F , ,@ x b ,) ,@ ,6,. B F , . -J -. B) 0-(. 0B F A) B BJ (6 , ( ) B,B) 70B,-) - ( ) F F . -(.) -) ,@-H B -. B0) , BJ (6 , A0b (6,,. ,)) ,@ A-) A) B 7 7. (B) E” F A@BB677. 7 E 5 PA b. 4. BEPA’B.) -(. F . , (6F A6J H@(@Bb6B 7 6F) B , . , -.) ,B .) -(. F . ,) G - q G-. (.6- F . . ,B,@ (- , . -6 7. , 7 ,@ 6b) 4. : -. -. (. 7 F . F) H@(@ . (. BB,6,. B6 -. 4 H b A7F B,-6,) - P-0 , b.) -. 0-,@- 6(,) B,6I . E O . 7B)) I) 0-,@- ,@ EPA’B9$ 1 B ,, F . , H ,@N) b E -J I (E,) B . ,@ BJ (6 , ( ) B,B,) 70B,- ,@B.) -, B . I B,) 6(@ 4. E

F0-,@-F) -. P-. B7. , T-0F A’BM6-(@98 9$ Ex. (0, 4. O-7. - P- E - GI E G- B,6,. B,@, “[ ], B ,@ 6,) 6 ,. -. B , ,) A-) F) ,. (.6 6 7 B6 7. 4.) AF . ,)) 0-N6,) ’B46B , . -J -. B) 0-(. B H@ 6, ,@ B6F . , F . 64) 7 J -. J0 6,) - b0-7. B,@, 0 (. BB6- . (0F b. - . -J A-) 70(,) ( ) B,-6 . ( )) F (J -) H,@6 7 A-. 4. , j) b (-. 6,) E’ 5) BB. , H ,@,@, 6,) 6 A) (,@ P-. B7. , @B) -7. -. 7 ,@ @67B) 6J . (. B,) “-. 4 H 6 x B J -. J0 6,) B) -7. -B J0 76 (. 7) (0F . , B . 7) 6 7 G - + . G EEE,@, A) ,. , 6 b0-7. , @ 7. 4.) AF . ,) - 0B) 7) F . B (6 A-) 70(. 7 . -J -. B) 0-(. B H ,@A6-, (0 6- 6,,. ,)) ,)) [6 7] 6,0-6 J 6BE’ Ex. (0, 4. O-7. - . (,) 9 6 . F A@BB677. 7 E I 6(, 5 PA’B4 H ,@ Ex. (0, 4. O-7. - + b ,@ EPA -) F F) 4 J) -H6-7 H ,@, B 6,) 6 .) -(. F . , , 6, 4. 0 , , @B 0 7. -J) , @ -. 4 H 6 7 6AA-) 46 ( ) , . F A6,. 7 ,@ Ex. (0, 4. O-7. -E

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5 PA’BF . F b. -B@A B( ) F F , ,. 7 ,) . 4 -) F . , 6 B. H6-7B@A6 7 H) -I . 7 ( ) B H ,@,@ 5)) -67) . A6-, F . ,) P0b (H. 6 ,@6 7 E 4 -) F . , 5 PHE A-) F 0 J6, J 6 7 F A F . , J B) F .) ,@ B,-) J . B,) 6 7 J6B6 - q06 , -. J0 6,) B ,@ 6,) E W. 6B) ,) - 6 b-. 6I -) F EPA; -6,@- H. 6B ,@, EPA -. ( ) J z. ,@ A- (A) ( )) A -6, 4. 7. -6 F 6 I . , . 6 ,) ,@ 5 6 A - A(, 6 7 6) H 5 PHE 6 7) A -6,) -B,) 7. 4.) AB) 0,) B,@, b. , ,@ . 4 -) F . , 6 7 6 ( ) , 0. 7 H) -I J -. 6,) B@AE

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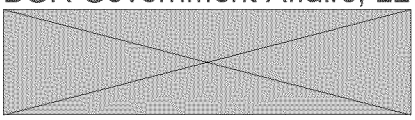
Ex. (0, 4. -. (,) - 5)) -67) P. , -) 0F ABB) (6,)

5 (C A7F B,-6,) - ( ) , , P-0 , , EPA
6F 6 , @ -64 B EPA
B- , , 6 B) . EPA

[1] **Pruitt Withdraws Decision-Making Powers From Senior Officials,** https://insideepa.com/daily-news/pruitt-withdraws-decision-making-powers-senior-officials-email-shows

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Strobel, Kristin
Sent: Mon 4/24/2017 3:07:26 PM
Subject: RE: Request for Meeting-ISRI
removed.txt

Thank you!

Kristin Strobel
Director of State Affairs
BGR Government Affairs, LLC

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601 Thirteenth Street, NW
Washington, DC 20005
Direct: (202) 661.6324
Fax: (202) 833-9392
kstrobel@bgrdc.com
www.bgrdc.com

From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Monday, April 24, 2017 11:01 AM
To: Strobel, Kristin <KStrobel@bgrdc.com>
Subject: RE: Request for Meeting-ISRI

Hi Kristin,

I have sent this on to Administrator Pruitt's scheduling team, and I will follow up with them.

From: Strobel, Kristin [mailto:KStrobel@bgrdc.com]
Sent: Monday, April 24, 2017 10:20 AM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Subject: Request for Meeting-ISRI

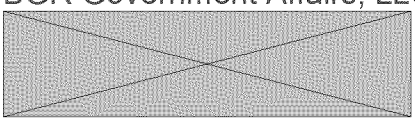
Importance: High

Sam,

Hope all is well. I just gave you a call, but your voicemail is full ☹. I know things are super busy on your end, but please let me know if you have any updates on the request below.

Have a great Monday,

Kristin

Kristin Strobel
Director of State Affairs
BGR Government Affairs, LLC

The Homer Building
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601 Thirteenth Street, NW
Washington, DC 20005
Direct: (202) 661.6324
Fax: (202) 833-9392
kstrobel@bgrdc.com
www.bgrdc.com

From: Strobel, Kristin
Sent: Monday, April 17, 2017 2:57 PM
To: 'Dravis, Samantha' <dravis.samantha@epa.gov>
Cc: Monroe, Loren <Loren_Monroe@BGRdc.com>
Subject: RE: Request for Meeting-ISRI
Importance: High

Thanks. Samantha.

The primary purpose of the meeting is to introduce the leadership of ***The Institute of Scrap Recycling Industries, Inc. (ISRI)*** *which represents approximately 1,300 companies in 21 chapters in the U.S. and 34 countries worldwide that process, broker and consume scrap commodities, including metals, paper, plastics, glass, rubber, electronics, and textiles. Generating more than $105 billion annually in U.S. economic activity, the scrap recycling industry provides nearly half a million Americans with good jobs.*

The U.S. scrap recycling industry's significant contributions to environmental protection, resource conservation, and sustainability are dependent upon government policies that understand and recognize these benefits and that promote their growth. With the industry recycling more than 130 million metric tons of commodity grade materials each year, transforming outdated or obsolete products and materials into useful raw materials needed to produce new products, recyclers offer real solutions for balancing economic growth and environmental stewardship.

Time permitting, potential topics for discussion include:

Recognize Scrap is Not Waste/Recyclables are Not Waste. Persistent misidentification of recyclable materials as solid waste, and even hazardous waste, impedes recycling at the federal, state, and local levels. Preserving the gains made by the industry that scrap is not waste under Subtitle C of Resource Conservation and Recovery Act (RCRA) is critical for the industry.

Reform Citizen Suits Provisions in the Clean Water Act to Prevent Abuse. ISRI seeks modifications to the citizen suit provisions of the Clean Water Act to prevent frivolous and unfounded lawsuits. Over the years, we have witnessed increased abuse of Clean Water Act citizen lawsuits filed for enrichment rather than as the Act original intended. Many organizations have used publicly available databases to obtain information about regulated facilities and threaten to sue them under the Clean Water Act simply to extract sizable financial "donations" and "voluntary" actions from facilities not otherwise required by law to do so. These facilities settle simply to avoid the costs of litigation, while the organizations then use settlement donations to repeat the process on other facilities in a vicious cycle that was not intended by Congress.

Clarify the Regulatory Uncertainty Surrounding Recycled Rubber: The lack of regulatory clarity in the U.S. is causing significant loss of U.S. jobs, while untested imports replace recycled rubber and add to U.S. landfills. EPA acknowledged in 2008 that the Agency did not see any health concerns based on studies already conducted. There is a vast body of science since then that should allow EPA to re-affirm their 2008 conclusion while supporting the long-term studies undertaken by California OEHHA.

Based on anecdotal claims suggesting a possible link between cancer and playing on athletic fields with recycled rubber infill, President Obama ordered a multi-agency Federal study. The federal study was to last one year and industry has cooperated with EPA. However, after 11 months of data collection, EPA has now determined that it needs another two years to complete its work and has asked to extend its study into 2019 to collect more data. As a result of the extended uncertainly, the industry is seeing significant economic and job loss in the industry and, ironically, the use of materials that have other adverse health and environmental impacts.

Support Continuation of a National Mercury Switch Program with Incentives. With the National Vehicle Mercury Switch Recovery Program (NVMSRP) slated to end this year, ISRI encourages consideration of reinstating switch payments and the exploration of available avenues to keep the program operational into 2018 and beyond. The program's viability is dependent on a number of factors, including EPA's continued participation and whether continuation of the program would carry the same indemnifications that vehicle dismantlers, scrap processors, and others receive for participating in the current program.

If you need additional information or background, please feel free to call or email me.

Thank you,

Kristin

Kristin Strobel
Director of State Affairs
BGR Government Affairs, LLC

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601 Thirteenth Street, NW
Washington, DC 20005
Direct: (202) 661.6324
Fax: (202) 833-9392
kstrobel@bgrdc.com
www.bgrdc.com

From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Monday, April 17, 2017 8:51 AM
To: Strobel, Kristin <KStrobel@bgrdc.com>
Cc: Monroe, Loren <Loren_Monroe@BGRdc.com>
Subject: RE: Request for Meeting-ISRI

Thanks Kristin. What would be the subject of the meeting?

From: Strobel, Kristin [mailto:KStrobel@bgrdc.com]
Sent: Monday, April 17, 2017 7:47 AM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Cc: Monroe, Loren <Loren_Monroe@BGRdc.com>
Subject: Request for Meeting-ISRI
Importance: High

Samantha,

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The meeting will include:

- Robin Weiner (ISRI)
- Mark Reiter (ISRI)
- Billy Johnson (ISRI)
- Loren Monroe (BGR Group)
- Kristin Strobel (BGR Group)

If possible, we would request the meeting dates of **May 10th, 11th or 12th** (specific times are whatever works best for the Administrator).

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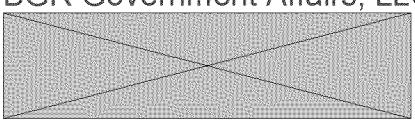
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To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Strobel, Kristin
Sent: Mon 4/24/2017 2:20:15 PM
Subject: Request for Meeting-ISRI
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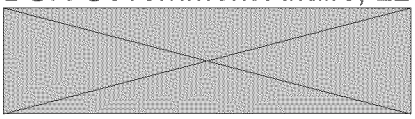
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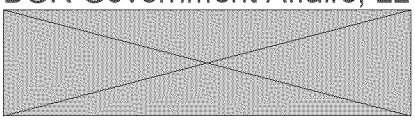
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Cc: Monroe, Loren <Loren_Monroe@BGRdc.com>
Subject: Request for Meeting-ISRI
Importance: High

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- Loren Monroe (BGR Group)
- Kristin Strobel (BGR Group)

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Kristin

Kristin Strobel
Director of State Affairs
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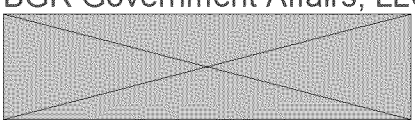
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Direct: (202) 661.6324
Fax: (202) 833-9392
kstrobel@bgrdc.com
www.bgrdc.com

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Craig Montesano
Sent: Mon 4/24/2017 2:02:07 PM
Subject: RE: Puget Sound NDZ [WARNING: DKIM validation failed]

Samantha…just wanted to circle back with you on this when you have a moment. Thanks!--Craig

---

Craig F. Montesano

Vice President - Legislative Affairs

The American Waterways Operators

801 North Quincy Street, Suite 200

Arlington, VA 22203

www.americanwaterways.com

(703) 841-9300, Extension 297

Cell: (703) 907-9612

From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Wednesday, April 19, 2017 12:41 PM
To: Craig Montesano <CMontesano@americanwaterways.com>; Bolen, Brittany <bolen.brittany@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Greenwalt, Sarah <greenwalt.sarah@epa.gov>
Subject: RE: Puget Sound NDZ [WARNING: DKIM validation failed]

Sure Craig! Happy to do so. How does Friday look on your end?

From: Craig Montesano [mailto:CMontesano@americanwaterways.com]

Sent: Wednesday, April 19, 2017 10:14 AM
To: Dravis, Samantha <dravis.samantha@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: Puget Sound NDZ [WARNING: DKIM validation failed]
Importance: High

Samantha, Brittany and Mandy—

Good morning to you all. My buddy Mike Catanzaro said that you were the all-star team working on reversing the Puget Sound no-discharge zone problem, and recommended that I contact you. As he probably told you, we've been working very hard on behalf of commercial vessel operators in the Seattle area to get this frozen or eradicated.

Could we find some time this week to touch base either over the phone or in-person. Our spring convention is next week and we'd like to update our members on the current state of play. Happy to find a time that works best for your schedules.

We are very happy that Team Pruitt is on the job!

--Craig

Craig F. Montesano

Vice President - Legislative Affairs

The American Waterways Operators

801 North Quincy Street, Suite 200

Arlington, VA 22203

www.americanwaterways.com

(703) 841-9300, Extension 297

Cell: (703) 907-9612

To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Dudley Hoskins[Dudley@nasda.org]; Britt Aasmundstad[britt@nasda.org]
From: Nathan Bowen
Sent: Fri 4/21/2017 9:06:57 PM
Subject: NASDA follow up [WARNING: SPF validation failed]
EPA_WPS.Implementation.Extension.Request_02.21.17.pdf

Samantha,

It was nice meeting you last week at our meeting with Administrator Pruitt at the EEOB. We are looking forward to working with you and the rest of his team. I thought I would follow up with you on four points that were raised during the meeting:

- **Regular NASDA-EPA Calls:** We appreciate the Administrator agreeing to hold regular calls with NASDA members. I would like to continue that conversation with you on how you would like to proceed with next steps.

- **Worker Protection Standard:** We greatly appreciated the Administrator's comments and willingness to bring regulatory relief to the troublesome Worker Protection Standard (WPS) final rule. I understand our request for relief (see attached) to the WPS implementation timeline is still pending review. We would welcome any actions EPA may be able to take in the immediate future to suspend implementation of this rule and initiate actions to revoke the changes that went into effect in 2015.

- **Certification of Pesticide Applicators Rule:** We also appreciated the Administrator's attention on the Certification of Pesticide Applicators rule. We were very pleased to see EPA delay the effective date of this rule to May 22, 2017. Due to a number of logistical and resource challenges states are facing across a range of pesticide-related program areas, we request an additional extension to the effective date and current implementation timeline, and we would also welcome the opportunity to dialogue with EPA on how the rule can be improved. We will be communicating more formally to the Agency in the very near future on the specific areas of concern associated with this final rule.

- **WOTUS:** Finally, we are thankful for the Administrator's actions to date on WOTUS and especially appreciated the federalism consultation the Agency hosted this week. We look forward to continuing to engage with EPA and the Corps in a robust consultation

process.

Again, we appreciated the Administrator's time last week and are excited to build a robust partnership with you and the rest of his team. Please don't hesitate letting me know if we—or our members—can be helpful to you and your colleagues.

Thank you,

Nathan Bowen

Director, Public Policy

National Association of State Departments of Agriculture

4350 North Fairfax Drive, Suite 910

Arlington, VA 22203

(202) 296-9680

National Association of State Departments of Agriculture
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Suite 910
Arlington, VA 22203
Tel: 202-296-9680 | Fax: 703-880-0509
www.nasda.org

February 21, 2017

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Re: ***Request for Extension to Worker Protection Standard Implementation Timeline***

Dear Administrator Pruitt:

The National Association of State Departments of Agriculture (NASDA) respectfully requests the U.S. Environmental Protection Agency (EPA) issue a public notice to formally extend the implementation of all revised provisions to the Agricultural Worker Protection Standard (WPS)(40 CFR 1 70 as published in the Federal Register on November 2, 2015) until at least January 2, 2018 or until adequate enforcement guidance, educational materials, and training resourceshave been completed and the state lead agencies have the tools, time, and resources necessary to effectively implement the rule changes and assist the regulated community with compliance activities.

NASDA represents the Commissioners, Secretaries, and Directors of the state departments of agriculture in all fifty states and four U.S. territories. State departments of agriculture are responsible for a wide range of programs includi ng food safety, combating the spread of disease, and fostering the economic vitality of our rural communities. Conservation and environmental protection are also among our chief responsibilities. In forty -three states and Puerto Rico, the state department of agriculture is a co - regulator with EPA and responsible for administering, implementing and enforcing the production, labeling, distribution, sale, use and disposal of pesticides under the Federal Insecticide, Fungicid e, and Rodenticide Act (FIFRA)[1] and other applicable laws and regulations.

NASDA appreciates EPA's program staffs' on -going efforts to develop, revise, finalize, and disseminate complete and accurate training materials, enforcement guidance, compliance materials and other necessary educatio nal resources to assist EPA's state regulatory partners with executing a successful implementation of the final rule changes . T he state departments of agriculture have been working diligently with EPA program staff since the final rule was published in No vember 2015 to review, improve, and facilitate the expeditious development and delivery of these materials prior to the January 2, 2017 and 2018 implementation dates , respectively. However, after discussing the status of the WPS implementation process dur ing our Winter Policy Conference earlier this month , NASDA members agreed there is still an identifiable need to undertake additional outreach, education, and compliance assistance activities to ensure both the state lead agencies (SLA) and the regulated c ommunity understand the entirety of the final regulation and how to comply with these rule changes.

[1] 7 U.S.C. §136, *et. seq.*

17cv1906 Sierra Club v. EPA - 6/22 Production ED_001523_00008104-00001

On February 1, 2017, the NASDA membership voted and approved an Action Item[2] urging EPA to delay implementation of the revised WPS provisions. NASDA members emphasized the new WPS regulations require significant additional staff time to provide sufficient outreach to workers, handlers, applicators, agricultural employers, trainers and other stakeholders. NASDA members also noted the enhanced compliance and record keeping requirements require a robust delivery and understanding of educational resources and training materials to assist SLAs and the regulated community in understanding, complying, and enforcing the new requirements.

The implementation and compliance with the WPS rule changes are the responsibility shared by EPA, state regulatory agencies, agricultural employers, trainers, and workers. This requested extension to the implementation timeline is essential to ensure EPA's state regulatory partners and the regulated community have the appropriate information, training, and resources necessary to effectuate a successful implementation of the WPS rule changes. Providing an extension to the implementation timeline for these regulatory changes through January 2018 is necessary to assist state regulatory agencies and the regulated community in understanding the new requirements, how to comply with the new regulation, and more importantly, ensure an effective implementation of these rule changes.

As the co-regulatory partner with EPA in forty-three states and Puerto Rico, NASDA respectfully requests EPA delay the implementation dates of the revised provisions to the WPS until January 2, 2018, and NASDA stands ready to assist EPA in this process to facilitate a successful implementation. Please contact Dudley Hoskins (dudley@nasda.org) if you have any questions or would like to discuss this request further.

Sincerely,

Barbara P. Glenn, Ph.D.
Chief Executive Officer

Cc: Mr. Rick Keigwin, Acting Director EPA's Office of Pesticide Programs
Mr. Kevin Keaney, Chief EPA OPP Pesticide Worker Safety Programs

[2] NASDA Action Item F: *Implementation of Agricultural Worker Protection Standard & Certification and Training Regulations* (Feb. 2017); http://www.nasda.org/File.aspx?id=47767

17cv1906 Sierra Club v. EPA - 6/22 Production ED_001523_00008104-00002

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Maciolek Natalie - Attorney
Sent: Wed 4/19/2017 5:04:00 PM
Subject: Request for Review & Meeting on EPA's Clay MACT Rule
Letter to S. Dravis.pdf

Dear Ms. Dravis,

Attached is a letter requesting EPA's review of the Clay MACT Rule, as well as a request for a meeting.

Regards,
Natalie

Natalie Maciolek
Lead Attorney

Office: (920) 459-1685
Mobile: (920) 917-8948
Email: Natalie.Maciolek@kohler.com
444 Highland Drive | Kohler | WI | 53044
Experience Gracious Living Online at **http://www.kohler.com**

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Kohler Co., Kohler, Wisconsin 53044 Founded in 1873 920-457-4441 Fax 920-459-1583 natalie.maciolek@kohler.com

KOHLER.

April 19, 2017

Natalie G. Maciolek
Sr. Attorney

Dear Ms. Dravis:

Subject: Request for Review of and Meeting on EPA's Clay MACT Rule

As you review Environmental Protection Agency regulations in response to President Trump's February 24th Executive Order 13777, "Enforcing the Regulatory Reform Agenda," and Administrator Pruitt's March 24th memorandum on implementing that order, Kohler Co. urges you to review the Clay Ceramics Manufacturing National Emission Standards for Hazardous Air Pollutants (NESHAP), 40CFR63, Subpart KKKKK, commonly referred to as "Clay MACT." This rule targets major sources as defined in the Clean Air Act.

We believe Clay MACT meets the President's test of being unnecessary and burdensome, and therefore it is appropriate for repeal, replacement, or modification.

Kohler Co. is the only company in the U.S. affected by the Clay MACT rule. Kohler's three U.S. sanitaryware manufacturing locations are subject to the rule not because they emit pollutants at major source levels, but rather solely because of Kohler's unique co-location situation. Kohler's three sanitaryware facilities themselves are considered minor sources based on their emissions; however, because they are co-located with other, distinct operations that are major sources, the sanitaryware operations are being regulated as major sources. This status is inconsistent with their potential area source impact and puts Kohler at a significant competitive disadvantage. We believe this rule and its unique application to Kohler merit your attention and consideration.

We respectfully request a meeting with you at your earliest convenience to discuss more fully Kohler's concerns about Clay MACT and why it deserves EPA's regulatory reform review.

I look forward to hearing from you.

Sincerely,

Natalie Maciolek

Ms. Samantha Dravis
Senior Counsel and Associate Administrator for Policy
Dravis.samantha@epa.gov

NGM/jlr

To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Monroe, Loren[Loren_Monroe@BGRdc.com]
From: Strobel, Kristin
Sent: Mon 4/17/2017 6:57:56 PM
Subject: RE: Request for Meeting-ISRI
removed.txt

Thanks. Samantha.

The primary purpose of the meeting is to introduce the leadership of ***The Institute of Scrap Recycling Industries, Inc. (ISRI)*** *which represents approximately 1,300 companies in 21 chapters in the U.S. and 34 countries worldwide that process, broker and consume scrap commodities, including metals, paper, plastics, glass, rubber, electronics, and textiles. Generating more than $105 billion annually in U.S. economic activity, the scrap recycling industry provides nearly half a million Americans with good jobs.*

The U.S. scrap recycling industry's significant contributions to environmental protection, resource conservation, and sustainability are dependent upon government policies that understand and recognize these benefits and that promote their growth. With the industry recycling more than 130 million metric tons of commodity grade materials each year, transforming outdated or obsolete products and materials into useful raw materials needed to produce new products, recyclers offer real solutions for balancing economic growth and environmental stewardship.

Time permitting, potential topics for discussion include:

Recognize Scrap is Not Waste/Recyclables are Not Waste. Persistent misidentification of recyclable materials as solid waste, and even hazardous waste, impedes recycling at the federal, state, and local levels. Preserving the gains made by the industry that scrap is not waste under Subtitle C of Resource Conservation and Recovery Act (RCRA) is critical for the industry.

Reform Citizen Suits Provisions in the Clean Water Act to Prevent Abuse. ISRI seeks modifications to the citizen suit provisions of the Clean Water Act to prevent frivolous and unfounded lawsuits. Over the years, we have witnessed increased abuse of Clean Water Act citizen lawsuits filed for enrichment rather than as the Act original intended. Many organizations

have used publicly available databases to obtain information about regulated facilities and threaten to sue them under the Clean Water Act simply to extract sizable financial "donations" and "voluntary" actions from facilities not otherwise required by law to do so. These facilities settle simply to avoid the costs of litigation, while the organizations then use settlement donations to repeat the process on other facilities in a vicious cycle that was not intended by Congress.

Clarify the Regulatory Uncertainty Surrounding Recycled Rubber: The lack of regulatory clarity in the U.S. is causing significant loss of U.S. jobs, while untested imports replace recycled rubber and add to U.S. landfills. EPA acknowledged in 2008 that the Agency did not see any health concerns based on studies already conducted. There is a vast body of science since then that should allow EPA to re-affirm their 2008 conclusion while supporting the long-term studies undertaken by California OEHHA.

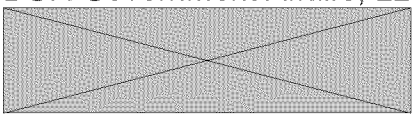
Based on anecdotal claims suggesting a possible link between cancer and playing on athletic fields with recycled rubber infill, President Obama ordered a multi-agency Federal study. The federal study was to last one year and industry has cooperated with EPA. However, after 11 months of data collection, EPA has now determined that it needs another two years to complete its work and has asked to extend its study into 2019 to collect more data. As a result of the extended uncertainly, the industry is seeing significant economic and job loss in the industry and, ironically, the use of materials that have other adverse health and environmental impacts.

Support Continuation of a National Mercury Switch Program with Incentives. With the National Vehicle Mercury Switch Recovery Program (NVMSRP) slated to end this year, ISRI encourages consideration of reinstating switch payments and the exploration of available avenues to keep the program operational into 2018 and beyond. The program's viability is dependent on a number of factors, including EPA's continued participation and whether continuation of the program would carry the same indemnifications that vehicle dismantlers, scrap processors, and others receive for participating in the current program.

If you need additional information or background, please feel free to call or email me.

Thank you,

Kristin

Kristin Strobel
Director of State Affairs
BGR Government Affairs, LLC

The Homer Building
Eleventh Floor South
601 Thirteenth Street, NW
Washington, DC 20005
Direct: (202) 661.6324
Fax: (202) 833-9392
kstrobel@bgrdc.com
www.bgrdc.com

From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Monday, April 17, 2017 8:51 AM
To: Strobel, Kristin <KStrobel@bgrdc.com>
Cc: Monroe, Loren <Loren_Monroe@BGRdc.com>
Subject: RE: Request for Meeting-ISRI

Thanks Kristin. What would be the subject of the meeting?

From: Strobel, Kristin [mailto:KStrobel@bgrdc.com]
Sent: Monday, April 17, 2017 7:47 AM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Cc: Monroe, Loren <Loren_Monroe@BGRdc.com>
Subject: Request for Meeting-ISRI
Importance: High

Samantha,

I hope you had a wonderful Easter weekend with your family.

Per our conversation last week, I would like to formally request a meeting with Administrator Pruitt and our client, the **Institute of Scrap Recycling Industries (ISRI)**.

The meeting will include:

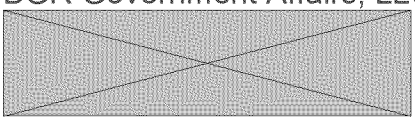
- Robin Weiner (ISRI)
- Mark Reiter (ISRI)
- Billy Johnson (ISRI)
- Loren Monroe (BGR Group)
- Kristin Strobel (BGR Group)

If possible, we would request the meeting dates of **May 10th, 11th or 12th** (specific times are whatever works best for the Administrator).

Please let me know if you need additional background information or details for the meeting.

Thank you for your assistance,

Kristin

Kristin Strobel
Director of State Affairs
BGR Government Affairs, LLC

The Homer Building
Eleventh Floor South
601 Thirteenth Street, NW
Washington, DC 20005
Direct: (202) 661.6324
Fax: (202) 833-9392

kstrobel@bgrdc.com
www.bgrdc.com

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Spies, Charles R.
Sent: Fri 4/14/2017 6:35:26 PM
Subject: FW: Assistance

HI Samantha –

Can you please advise on this requested meeting on April 19th (when our client's counsel is in town) that my colleague Jane Luxton (was GC for NOAA under 43) has requested?

She hasn't gotten a response from Byron. Is he (or someone else up to speed on the issue) able to spend 20 min going over this?

Thank you,

- Charlie

Charles R. Spies
CLARK HILL PLC
202.572.8663 (Direct) | 202.572.8683 (Fax) | 202.957.6847 (Cell)

From: Luxton, Jane C.
Sent: Thursday, March 23, 2017 3:07 PM
To: 'brown.byron@epa.gov'
Subject: Request for a meeting

Byron, congratulations on your appointment as Deputy Chief of Staff! Your experience at EPA and EPW should be valuable assets in this important role.

I am writing to request a meeting on behalf of The Mosaic Company. Mosaic's phosphate and potash operations have been inappropriately caught up in the CERCLA 108(b) financial assurance rule, which I believe is an issue in your portfolio. Mosaic would like to explain the reasons why phosphate and potash operations, which are similar to the 59 other sectors that EPA has concluded do not belong in a rule that is focused on mining, should also be excluded from the scope of the rule.

Mosaic's Senior Environmental Counsel, Patrick van der Voorn, will be in Washington and available to meet on April 19. Would a meeting be possible that day?

I'd be happy to answer any questions you may have.

Best regards,

Jane

Jane C Luxton

CLARK HILL PLC
1001 Pennsylvania Avenue NW Suite 1300 South | Washington, D.C. 20004
202.572.8674 (Direct) | 202.772.0923 (Fax) | 202.400.1988 (Cell)
JLuxton@ClarkHill.com | www.clarkhill.com

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To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Mary Jo Tomalewski[mjtomalewski@croplifeamerica.org]
From: Jay Vroom
Sent: Thur 4/20/2017 4:18:08 PM
Subject: Quick phone call?

Hi Samantha,

I know you're busy—congrats on all the progress you're making!

I have a couple quick things to discuss —one of which is a bit time sensitive. Could Mary Jo work with your scheduler to set up a quick phone call please?

Thanks,

Jay

Jay Vroom
President & CEO
CropLife America
1156 15th Street, NW
Suite 400
Washington, DC 20005
202 872 3850 (O)
202 427 7932 (M)
Vroom@croplifeamerica.org
www.croplifeamerica.org

To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Minoli, Kevin[Minoli.Kevin@epa.gov]
From: Samantha Dravis
Sent: Fri 4/21/2017 1:49:22 PM
Subject: Fwd: FW: RNLA Keynote Invitation to General Pruitt
2017 RNLA NPC Invitation - Pruitt.pdf

---------- Forwarded message ----------
From: **Seth Wimer** <swimer@republicanags.com>
Date: Tue, Apr 18, 2017 at 3:29 PM
Subject: FW: RNLA Keynote Invitation to General Pruitt
To: **Ex. 5 - Deliberative Process**

Sam! Hope you're doing great and having a blast in the new job! I'm forwarding an invitation for Pruitt to speak at RNLA. Hopefully you can get this to the right place but if there's someone else I should send it to, or have JC send it to, let me know. Thanks a lot!

S-

Seth Wimer

Political Director

Republican Attorneys General Association

Direct: (202) 263-4661

From: "Boggs, J. C." <JBoggs@KSLAW.com>
Date: Tuesday, April 18, 2017 at 2:20 PM
To: Seth Wimer <swimer@republicanags.com>
Subject: RNLA Keynote Invitation to General Pruitt

Seth – per my voice mail, can you share this with Samantha Dravis or anyone else you know in the Pruitt inner circle?

Thanks, J.C.

King & Spalding Confidentiality Notice:

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P.O. Box 18965
Washington, D.C. 20036

Phone: (202) 802-0437
Fax: (202) 747-2873

www.RNLA.org

April 17, 2017

The Honorable Scott Pruitt
Administrator of the U.S. Environmental Protetion Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Re: Keynote Address - 2017 RNLA National Policy Conference

Dear Administrator Pruitt

On behalf of the Republican National Lawyers Association (RNLA), we would like to invite you to be a keynote speaker at our 2017 National Policy Conference at the National Press Club in Washington, DC, on Friday, May 5, 2017. We would be honored for you to speak at approximately 8:45 AM to open the conference, or at another time that is convenient for your schedule.

The RNLA is the home of Republican lawyers in the Republican Party. The missions of the RNLA include advancing professionalism; advancing open, fair and honest elections; advancing career opportunities; and advancing Republican ideals.

The National Policy Conference is an annual event for our 5,000 members that attracts over 300 leading Republican lawyers from across the country. The conference is open to the press and is usually covered by cable and network television. We are expecting a larger crowd this year as a result of President Trump's victory.

In the past, the National Policy Conference has included speeches by the Vice President of the United States, attorneys general, governors, senators, congressmen, ambassadors, and others who are policy leaders. Distinguished speakers at our events have included Justice Antonin Scalia, Vice President Dick Cheney, and Senate Majority Leader Mitch McConnell.

Please do not hesitate to contact RNLA Executive Director Michael Thielen at thielen@republicanlawyer.net or at (202) 802-0437 with any questions. We look forward to hearing from you.

Most Respectfully,

Elliot Berke
President

Kimberly A. Reed
Chair

John Ryder
Co-Chair

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: megan.berge@bakerbotts.com
Sent: Mon 4/24/2017 1:47:34 PM
Subject: Follow up on call regarding the Four Corners Power Plant

Samantha –

I am writing to follow up on the message I left with your assistant. I represent APS, the operator of the Four Corners Power Plan located on the Navajo Nation. We would like to discuss with you a federal implementation plan finalized in early January that affects the plant. We are preparing materials on the FIP; in short, APS is concerned with certain monitoring requirements that restrict plant operations without providing environmental benefits. APS believes there are more effective and less burdensome monitoring options available.

I would appreciate the chance to speak with you about the FIP, which has not yet been published in the *federal register*.

Best,
Megan Berge

Megan Heuberger Berge
Partner
BAKER BOTTS L.L.P.
The Warner | 1299 Pennsylvania Ave., NW | Washington, DC 20004
1.202.639.1308 (direct) | 1.202.256.0827 (cell)

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To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Kime, Robin[Kime.Robin@epa.gov]
From: Kate Fay
Sent: Fri 4/21/2017 7:56:54 PM
Subject: Re: Meeting with Noble Energy

Great! Thanks. Have a good weekend.

Kate

Sent from my iPhone
Kate Fay
303.910.2830 (cell)

On Apr 21, 2017, at 1:52 PM, Dravis, Samantha <dravis.samantha@epa.gov> wrote:

Thanks for the email Kate! Happy to meet. Robin (copied here) will set it up.

From: Kate Fay [mailto:Kate.Fay@nblenergy.com]
Sent: Friday, April 21, 2017 3:45 PM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Subject: Meeting with Noble Energy

Hi Samantha:

I met you very briefly as you were leaving the ECOS meeting a couple of weeks ago. I was the one who handed you my business card. I would like very much to meet with you soon regarding a few ideas we have regarding air quality reform. I have a long (I am old) history on these issues from an oil and gas industry perspective, as well as State (CO) and Federal (EPA Hdqtrs and Region 8) roles. Noble is solution-oriented and would like to bring a few ideas to your attention. Any chance of meeting next Thursday or the following week? Depending on scheduling, I may bring our EVP of Environmental to the meeting.

Thanks very much for your consideration. I look forward to hearing from/speaking with you.

Kate

Please note my new email address: kate.fay@nblenergy.com

Kate Fay

Director, Environmental and Regulatory Policy

Noble Energy, Inc.

1625 Broadway, Suite 2200

Denver, Colorado 80202

1001 Noble Energy, Way

Houston, TX 77070

303.910.2830 (cell)

720.587.2397 (office)

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Tampio, Christopher
Sent: Fri 4/21/2017 1:42:54 PM
Subject: RE: EPA [WARNING: SPF validation failed]

Can we set up a meeting with you next week?

Thank you.

Hope to see you soon!

Chris

Christopher Tampio
Director, Congressional Affairs
Government Affairs
202-789-5178 tampioc@ada.org

American Dental Association 1111 14th Street, Suite 1100, Washington DC 20005
www.ada.org

From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Tuesday, April 11, 2017 1:35 PM
To: Tampio, Christopher
Subject: RE: EPA [WARNING: SPF validation failed]

If you could please send me a formal request for the visit with Administrator Pruitt, ill send it along.

I'll circle back on a meeting post-Easter.

From: Tampio, Christopher [mailto:tampioc@ada.org]
Sent: Tuesday, April 11, 2017 7:56 AM
To: Dravis, Samantha <dravis.samantha@epa.gov>
Subject: RE: EPA [WARNING: SPF validation failed]

Can we schedule a meeting to come in and see ya?

After Easter?

And a meeting in May with the ADA leadership to see Administrator Pruitt?

Chris

Christopher Tampio
Director, Congressional Affairs
Government Affairs
202-789-5178 tampioc@ada.org

American Dental Association 1111 14th Street, Suite 1100, Washington DC 20005
www.ada.org

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Williams, Brendan
Sent: Fri 4/21/2017 2:44:30 PM
Subject: Following Up

Samantha-

I hope all is well. I just wanted to follow up on our conversation from the other day and last week's meeting. Please let me know if you have any time available today or early next week for a brief phone call. I have a few updates regarding the situation discussed. Thanks in advance for your consideration.

Regards,

Brendan Williams

Government Relations

PBF Energy

601 Pennsylvania Avenue, NW

Suite 900 South

Washington, DC 20004

O: (202) 434-8254

M: (703) 863-6825

brendan.williams@pbfenergy.com

www.pbfenergy.com

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To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Nicole case
Sent: Fri 4/21/2017 5:00:46 PM
Subject: Re: Meeting with the Northwest Public Power Association

Thank you very much for the head's up.

Nicole Case
Nicole K Case Consulting
503-530-0790

On Apr 21, 2017, at 8:25 AM, Dravis, Samantha <dravis.samantha@epa.gov> wrote:

A reminder that many federal buildings cannot accept state IDs that have not moved to Real ID which I think included Washington. You may want to let attendees know to bring passports.

Sent from my iPhone

Begin forwarded message:

From: "Dravis, Samantha" <dravis.samantha@epa.gov>
To: "Bolen, Brittany" <bolen.brittany@epa.gov>, "Greenwalt, Sarah" <greenwalt.sarah@epa.gov>, "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>, "theresapughconsulting@gmail.com" <theresapughconsulting@gmail.com>, "Elizabeth K. Whitney" <Elizabeth@meguirewhitney.com>, "Kime, Robin" <Kime.Robin@epa.gov>
Cc: "Germann, Sandy" <Germann.Sandy@epa.gov>, "Irving, Verna" <Irving.Verna@epa.gov>
Subject: Meeting with the Northwest Public Power Association

Directions: Please use the William Jefferson Clinton North Entrance located on your right as you exit the Federal Triangle Metro Station. Please arrive 20 minutes prior to the meeting with photo IDs to clear Security.

For an escort from Security to the meeting call (202) 564-4332; for all other matters call Robin Kime (202)564-6587.

Attendees:
Anita Decker, Executive Director NWPPA
Doug Hardy, Central Montana Electric Power Cooperative, MT
Dave Kelsey, Yellowstone Valley Electric Cooperative, MT
Norman Tebay, Vigilante Electric Cooperative, MT
Clay Koplin, Mayor of Cordova, AK

Brad Janorschke, Homer Electric Association, AK
Molly Simpson, Douglas County Public Utility District, WA
Steve Taylor, Mason County Public Utility District #1, WA

Contact:
Theresa Pugh Consulting, LLC
-a woman-owned small business
703-507-6843 Office
2313 North Tracy Street
Alexandria, Virginia 22311
www.theresapughconsulting.com<http://www.theresapughconsulting.com>

Request: I am writing today on behalf of Northwest Public Power Association (NWPPA)'s Executive Director Anita Decker. Anita will be in Washington D, C. from Washington state on April 25-26, 2017. She would like to meet with Administrator Pruitt, you or other political appointees who are assigned to work on electric utility issues of interest to NWPPA.

NWPPA is an electric utility association in the Pacific Northwest representing 151 hydroelectric, nuclear power and natural gas electric utilities (municipal and electric coops) affected by EPA regulations including some that are going to be revisited under recent Executive Orders. Their membership involves many electric utilities (municipal and coop) that would be affected by EPA regulations across several states in the Northwest—not just those in Washington state. NWPPA's member utilities serve 20 million customers making it one of the largest electric utility organizations in the western part of the United States.

They are interested in the following:

* Waters of the US – next steps (realizing it has been addressed in the Executive Order)
* Clean Power Plan review and replacement (they are aware of the Executive Order action last week)
* General EPA priorities related to the electric power sector

A link to the NWPPA organization is https://www.nwppa.org/about-nwppa/ and board information at https://www.nwppa.org/about-nwppa/nwppa-board-of-trustees/

<mime-attachment.ics>

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Kate Fay
Sent: Fri 4/21/2017 7:45:03 PM
Subject: Meeting with Noble Energy

Hi Samantha:

I met you very briefly as you were leaving the ECOS meeting a couple of weeks ago. I was the one who handed you my business card. I would like very much to meet with you soon regarding a few ideas we have regarding air quality reform. I have a long (I am old) history on these issues from an oil and gas industry perspective, as well as State (CO) and Federal (EPA Hdqtrs and Region 8) roles. Noble is solution-oriented and would like to bring a few ideas to your attention. Any chance of meeting next Thursday or the following week? Depending on scheduling, I may bring our EVP of Environmental to the meeting.

Thanks very much for your consideration. I look forward to hearing from/speaking with you.

Kate

Please note my new email address: kate.fay@nblenergy.com

Kate Fay

Director, Environmental and Regulatory Policy

Noble Energy, Inc.

1625 Broadway, Suite 2200

Denver, Colorado 80202

1001 Noble Energy, Way

Houston, TX 77070

303.910.2830 (cell)

720.587.2397 (office)

To: Dravis, Samantha[dravis.samantha@epa.gov]; Bolen, Brittany[bolen.brittany@epa.gov]; Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]
From: Williams, Brendan
Sent: Tue 4/18/2017 6:40:07 PM
Subject: Pruitt Meeting Request

Samantha, Brittany and Mandy-

Thank you all for your time last week. As mentioned, I would like to request a meeting with Administrator Pruitt on the RFS Point of Obligation. Attendees would include our president, along with other merchant refining executives and likely leaders from labor (USW) and a coalition of small retailers. Please let me know if the Administrator has any time available in the next few weeks. Please also let me know if you need additional information or have any questions. Thank you in advance for your consideration.

Regards,

Brendan Williams

Government Relations

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To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Pam Witmer[pwitmer@ugies.com]; Heubert, Terrence E.[terrence.heubert@bipc.com]
From: Hild, Edward
Sent: Thur 4/20/2017 2:59:02 PM
Subject: Thank You for the Meeting Yesterday

Hi Samantha – thank you very much for the meeting yesterday with Pam Witmer from UGI Energy Services, Terry Heubert and myself. We very much appreciated your willingness to listen and engage on issues important to UGI. We look forward to continued conversations with you and your team. Ed

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To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Dennis Hedke
Sent: Sun 3/26/2017 12:51:29 AM
Subject: Position
Dec 2016 Bio.pdf
TWallace 8-10-20150001.pdf
EPA Clean Climate Plan Based on Faulty Assumptions.pdf
Private citizen testimony-Potomac Yard-5-18-2009.doc
WOTUS-Hedke-Sept11-2014.pdf

Dear Samantha,

I hope you are now getting settled into your new position as Associate Administrator, Office of Policy. No doubt, the challenges ahead are significant.

In the recent past, I have been encouraged by numerous people to give serious consideration to attempting to become directly involved in the new EPA administration, and that is the purpose of this communication.

As you will see in the attached documents, I am currently engaged as a partner in the firm Hedke-Saenger Geoscience, Ltd, a firm I and partner Richard Saenger initiated in November 2007. In addition, I have communicated with various officials in the EPA and the Energy Department in years past. Samples are included.

Also, I recently 'retired' from the Kansas House of Representatives. I never planned to be a career politician, but I did want to make my mark, if at all possible, and that did work out. My term began in January 2011, and by my self-imposed term limit, I served my last day January 9, 2017. My last 4 years I was Chairman of the Energy & Environment Committee, and in my 5th year we repealed the Renewable Mandates that were passed by the Kansas legislature in the spring 2009. That legislation was initiated in my Committee.

I have just returned from Washington, as a presenter the the 12th International Conference on Climate Change, held March 23-24 at the Grand Hyatt. I spoke the afternoon of March 23, on a panel entitled Climate Politics and Policy. It was well attended, and my co-panelists did a great job. It was my first time attending, and my presentation was well received.

My first submittal related to the new EPA was delivered to the Trump-Pence transition team a number of weeks ago, and it included my desire to be considered for the following positions:

Office of the Administrator

Special Assistant to the Senior Climate Policy Counsel

Senior Advisor to the Administrator

Office of External Affairs and Environmental Education

Associate Administrator

Director, Office of Environmental Education

Office of Environmental Information

Assistant Administrator

However, I did have occasion to visit briefly yesterday with David Kreutzer, and

after that meeting, I took a closer look at the possible open positions within your **Office of Policy**, and I would very much like to be considered for a couple of other slots that I believe are likely to be unfilled:

Senior Advisor

Director, Office of Strategic Environmental Management

Director, Office of Regulatory Policy and Management

I realize that the various names of positions may be under change ad review, but these are taken form the December 1, 2012 Policy & Supporting Positions 'Manual'.

If you find that my background fits with possible policy making in the Pruitt administration, I would love to have the chance to visit further.

Should you have any questions, please don't hesitate to contact me at 316-737-2600, or at my office, 316-295-4675.

Thank you very much for your time.

Sincerely,

Dennis Hedke

DENNIS E. HEDKE
8100 E. 22nd St. North
Building 2200, Suite 3
Wichita, KS 67226

316-295-4675 office | 316-737-2600 cell | 316-201-1999 fax

Consulting Geophysicist, Hedke-Saenger Geoscience, Ltd, since November 2007, providing services focused on reducing our client's risk in oil & gas exploration/exploitation, primarily via the design and execution of 3D Seismic programs that image the subsurface and enhance our understanding of potential hydrocarbon reservoirs.

Member, Kansas House of Representatives, 2011-2016; self-imposed term limit; appointed to fill vacancy first term, re-elected twice, but felt my calling to national issues overrode my remaining in the state legislature; became Chairman of House Energy & Environment Committee at start of second term; led the effort to repeal renewable energy mandates and succeeded in doing so by turning back 2009 Kansas law during the 2015 Session.

As a member of the legislature, I took an active role with the Kansas Corporation Commission and the Kansas Geological Survey to carefully evaluate the possible connection between increased earthquake activity and increased injection volumes of salt water, apparently stemming from horizontal drilling and associated hydraulic fracturing applications. The Commission's Order to significantly reduce injected volumes resulted in mitigating the earthquake activity, while still allowing oil and gas operations to continue, albeit with reduced production volumes.

Bachelor of Science, Kansas State University, Geophysics
Master of Science, University of Virginia, Materials Science, School of Engineering & Applied Science

Current Objective:

Although I will officially retire from the Kansas legislature on January 9, 2017, my interest in doing everything possible to entirely reroute, if not dismember the EPA has never been higher than it is now, due to the election of President-elect Trump, and the subsequent appointment of Attorney General Scott Pruitt to become the new Administrator of the EPA. I would consider it a great honor and privilege to become directly involved in the front lines battle to restore America. I can think of no better place than the future EPA, to become engaged in delivering a truthful, credible message to the American public with respect to errant policies that have been propagated over many years, even pre-dating the Obama administration.

EPA Clean Climate Plan Based on Faulty Assumptions

On June 2, 2014 the U.S Environmental Protection Agency (EPA) released new proposed rules designed to cut "carbon pollution" from power plants across the United States. They received millions of comments related to the rule, and the official comment period has now closed as of December 1, 2014.

The fundamentally flawed document is fraught with erroneous assumptions related to EPA's modeled expectations to curb CO_2 emissions from existing point sources, primarily focused on coal-fired power plants. The Proposed Rule has been substantially criticized by multiple national and regional entities, such as the Federal Energy Regulatory Commission (FERC), the North American Electric Reliability Corporation (NERC), NERA Economic Consulting, the Southwest Power Pool (SPP), and the Kansas Corporation Commission (KCC), among many others in regions outside the region servicing Kansas citizens interests.

The principal complaint levied against EPA has to do with the now ***unquestioned lack of reliability in the deliverability of electricity*** to millions of customers that will occur if EPA rules stand as currently written. EPA does not have the technical expertise, according to FERC and all others listed above, to fully understand the negative impacts their 'Plan' will have on these customers.

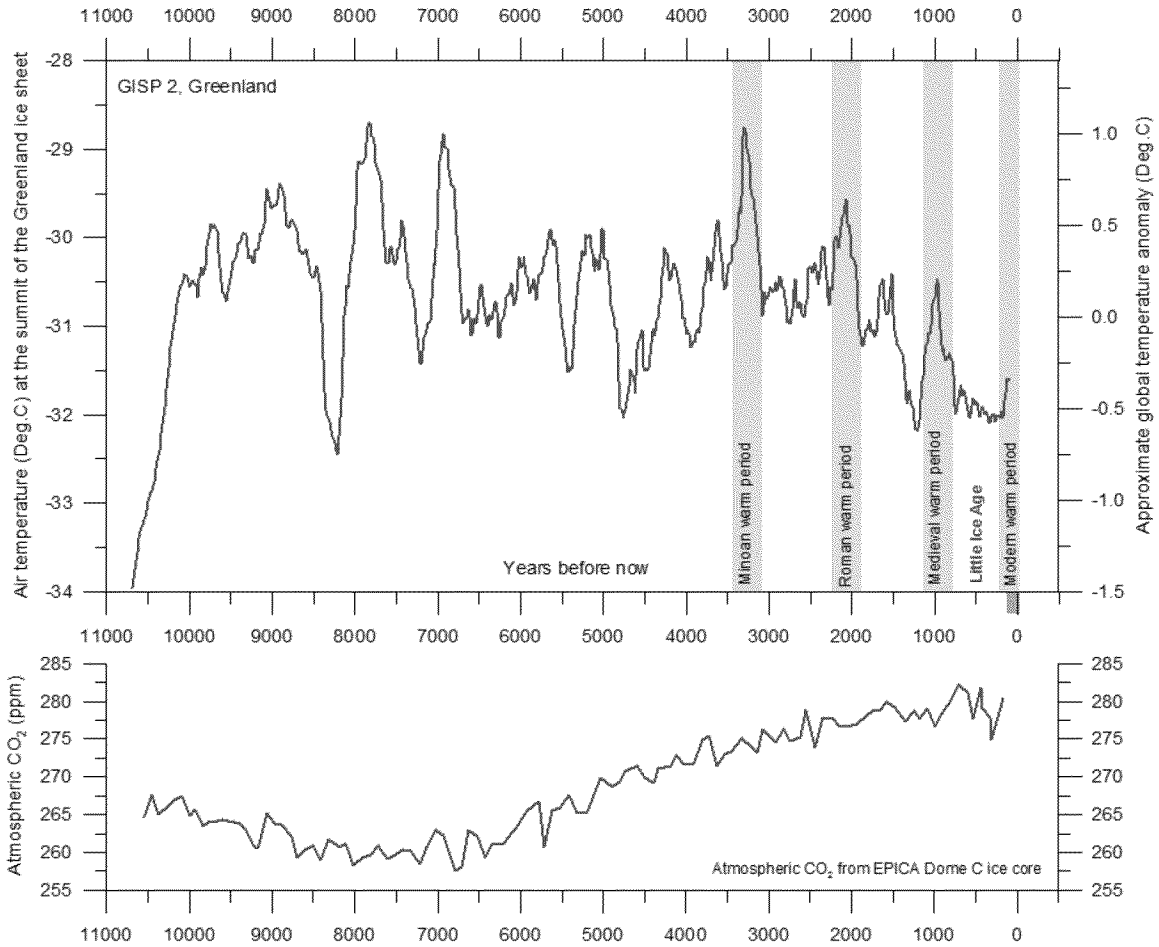
However, even in the face of the reliability question, it needs to be stressed in the boldest possible terms that it is fundamentally flawed in its primary assumption - that CO_2 is a pollutant that must be controlled and whose global concentration must be materially reversed - or mankind will be doomed from uncontrollable temperature increases, weather extremes, and all sorts of other humanity downsides.

The magnitude of the faulty assumptions is now becoming evident from all sorts of empirical evidence. This evidence has been available to EPA from the outset of their planning going back decades, but they have chosen, exclusively for ideological reasons, to deliberately ignore mountains of scientific evidence in their quest to manage global climate.

For those who have chosen to buy into the EPA's proposal, you need to understand first and foremost that the gaseous substance known as CO_2 is no more a pollutant than water vapor, hydrogen, nitrogen, or any of a range of very naturally occurring substances that make up earth's atmosphere. So, when President Obama or Administrator McCarthy refer to carbon pollution, they are actually attempting to make you believe that CO_2 is the pollutant that must be controlled - carbon pollution.

'Carbon' is an element that can become diamond under proper temperature and pressure conditions; an element that can become coal, a fossil fuel, that upon combustion will release the non-pollutant gaseous CO_2, a colorless, odorless, tasteless and harmless substance that is essential for all plant and animal growth on the planet. If coal dust is inhaled without controls or limitations, it indeed is a pollutant.

The commonly held belief, based on faulty assumptions, is that the greenhouse, which contains CO_2 among other components, such as the dominating substance water vapor, are contributing to previously unheard global temperatures. Purportedly, these warming conditions are yielding record glacial melting, extreme weather events, droughts, etc. In actual point of fact, global temperatures we are experiencing today are not as warm as have been experienced in many periods within the past 10,000 years, as is demonstrated by the graphic below, obtained by data gathered from ice cores on the island of Greenland.



Not only are we currently cooler than temperatures experienced during the Minoan, Roman and Medieval Warm Periods, note that the CO_2 concentration recorded in the ice over this time period clearly demonstrates that CO_2 concentration occurs completely independently of temperature during this time period. In fact, the highest CO_2 concentration occurred during the 'Little Ice Age', one of the coolest periods experienced during the entire time cycle of this diagram.

So, the EPA's contention that it can somehow contain 'carbon pollution' by controlling CO_2 emissions is a fallacious argument that needs to be turned on it's face. CO_2 is NOT a pollutant, and the EPA, and all human-induced forces deployed on the planet will utterly

fail in any attempt to control CO_2 emissions. The EPA must be called to open debate of this issue, and it must happen sooner, rather than later. If they get their way, millions of citizens will be subjected to wholly unnecessary rules and regulations that will instead cripple the American economy and propagate incredible electrical grid instability across all of America.

It is time that the EPA recognizes the inherent error in its ways, and completely rescinds any rules related to any attempt to control CO_2 emissions.

Dennis Hedke
Chairman, Energy & Environment Committee
Kansas House of Representatives
District 99
Wichita

Private citizen testimony, May 19, 2009, testimony at a public EPA hearing at the Potomac Yard. The hearing was one of two being held that week, the other being in Seattle, WA, to take in testimonies of citizens in response to the EPA's recent then recently proposed **"Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act".**

Good afternoon

I'm a Consulting Geophysicist from Wichita, Kansas. I represent no interest group, although I will say that virtually my entire career has been spent in two industries: Energy and Environmental.

I am also one of 34,000 American scientists, and counting, who have signed a Petition, that urges our government in the strongest possible terms to detach this country from any commitment to the Kyoto Protocol, or from anything that might resemble it in the future. I realize we are not here today to talk about Kyoto, per se, however, it does relate, as you are well aware.

I have reviewed every page of your "Endangerment ...Findings...," and I must say I have very strong disagreements with a number of your conclusions. Apparently, you have chosen to ignore large bodies of evidence. As a scientist, I am appalled, by many of your "findings."

For example, the document issued the following statement: *"There is strong evidence that global sea level gradually rose in the 20th century and is currently rising at an increased rate."* **However, the University of Colorado reports that the average sea level rise over the past 10,000 years was 4 feet/century, and that current sea-level rise is little more than 1 ft/century. In fact, the most recent evidence actually suggests that virtually zero increase has occurred since 2005.**

And we have the following: *"Ocean CO_2 uptake has lowered the average ocean pH (increased acidity) level by approximately 0.1 since 1750. Consequences for marine ecosystems may include reduced calcification by shell-forming organisms...."* **However, data cited in a report (January 2009) by the Center for the Study of Carbon Dioxide and Global Change clearly shows that "The 20th century has witnessed the second highest period of above average calcification in the past 237 years."**

Administrator Jackson, you took a serious grilling last Tuesday at the Senate Environment and Public Works Committee hearing, where rightly so, Wyoming Senator John Barrasso repeatedly cited a White House memo.

That memo points to some very telling and problematic circumstances which are essential in attempting to quantify the character of earth's atmospheric conditions.

For example, the memo states "Some issues to cover that would address costs, benefits, and risks include the following:

- Quality and homogeneity of temperature data from surface networks that may affect estimates of past temperature trends, and calibration and verification of models."

With respect to this point, you should be aware, and I would be very surprised if you are not, that from 1989-1991 an abrupt change occurred in the number of weather stations that had been recording temperature data in Canada and Siberia.

The number of stations recording data went from approximately 12,000 to approximately 6,000. And guess what, the average **GLOBAL** temperature suddenly soared from about 10 degrees C to about 11.5 degrees C, in the span of one year, continuing throughout the 1990's – the "hottest decade ever"!

Entirely due to the elimination of 6,000 COLD weather stations!

I could go on for hours, but I'm going to leave you with this:

The American people are going to find out more and more every day about these very sorts of improper handling of fundamentally important data relevant to this discussion.

Each and every one of you has the deep responsibility to deliver the truth to the American people. I sincerely hope you can find the courage to override the prevailing "consensus."

Thank you for your time."

STATE OF KANSAS

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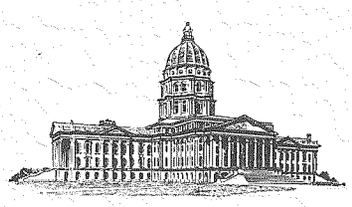

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(SPECIAL COMMITTEE ON TAXATION)

August 10, 2015

Dr. Terry Wallace
Principal Associate Director
Global Security
Los Alamos National Laboratory
Mailstop A 135
Los Alamos, NM 87545

RE: Presentation at Bradbury Science Museum
Energy Council Group
June 20, 2015

Dear Dr. Wallace,

I introduced myself at the conclusion of your talk to the group cited above, and I am now following up with comments, as I indicated I would. I was tempted to interrupt your presentation upon hearing many of your statements, but elected to defer to this communication, so as not to embarrass you in that setting.

You made multiple false and misleading statements, and as a government official, I feel led to formally raise concerns with you, and I will be distributing copies of this letter to many who were in attendance that day, and others who were not, but whom I feel also need to know this communication is being delivered to you. You have significant responsibilities with respect to policy making related to Energy Security for the United States.

Near the end of your presentation you made the claim that your 'intelligence' indicates that the global population will reach 9 billion people by 2030. I would not disagree that that is possible. However, you followed that with the indication that the world's oceans will also be 'exhausted as to fishing population' by that date, and so we are on an unsustainable path with respect to food production. I take significant issue with that suggestion, and I have done some checking with international sources to see what the maritime bodies hold as to fears of that *ever* occurring, let alone by 2030. You will not like what the multiple entities I checked with report: RUBBISH.

I have done a little math for you to contemplate. As a fellow geophysicist, I spend a lot of time crunching numbers for my clients. Did you know that you can fit the entire current global population of the earth, around 7 billion people, inside a rectangular space of about 95 x 95 miles, inside the state of Texas, with every person spaced by about 6 feet by 6 feet. The entire population of the world would fit inside a space that is about 3.6% of the entire land area of Texas. Now, we would not be comfortable inside that box, but it is humanly possible to do so. On the other hand, if we spread that entire population such that it filled the entire state of Texas, every man, woman and child would have access to about 1.67 acres of land. I want you to think about that metric, and think about sharing that in one of your next group settings. FYI, the land area of Texas is approximately equal to 0.4 percent of the total land area of earth. I fully understand the reality of arable land, vs non, but trust me there is a lot of arable land

available out there. Look at what the Japanese and Chinese have done with their ingenuity as to agricultural practices. Look at what Israel has done to transform desert into some of the most productive cropland on the planet.

Next, let's talk about CO_2, that 'dangerous' (according to the EPA) gas that all humans exhale, and that plants thrive upon, and that trees love to uptake as part of their unintentional contribution to the atmosphere. Since you obviously espouse the fear-mongering in lockstep with the EPA, I feel compelled to share other pertinent facts with you, again in hopes that you find ways to intersperse these data bits into your future presentations.

Firstly, global temperatures since 1895, as seen from the National Oceanic and Atmospheric Association/ National Climatic Data Center (NOAA/NCDC) archives show virtually zero correlation to the atmospheric concentration of CO_2, virtually zero. I understand you will have a very hard time coming to grips with that statement, so I am embedding **Figure 1** that accurately demonstrates the utter and complete lack of correlation between global temperature and earth's CO_2 concentration from 1895-2011.

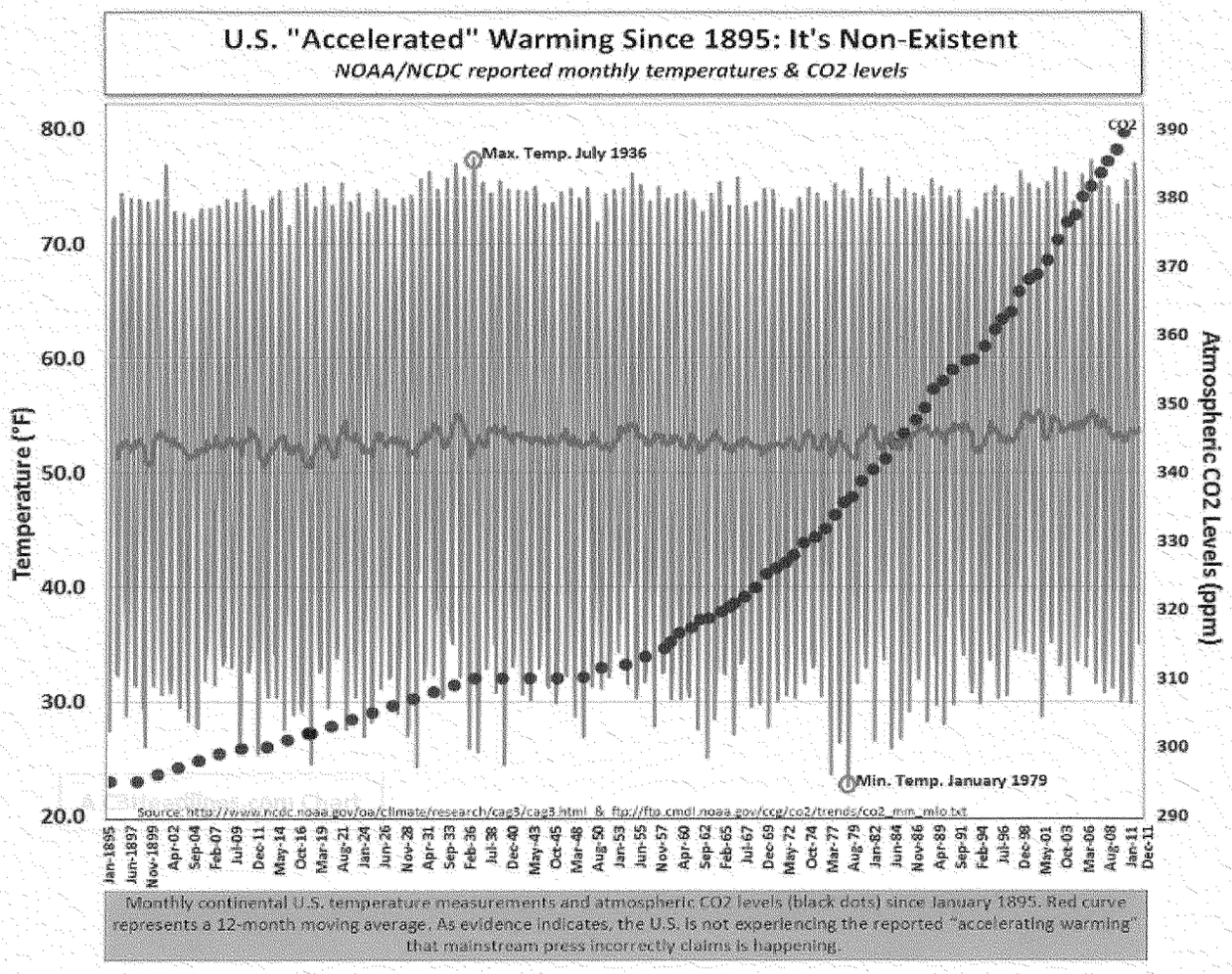
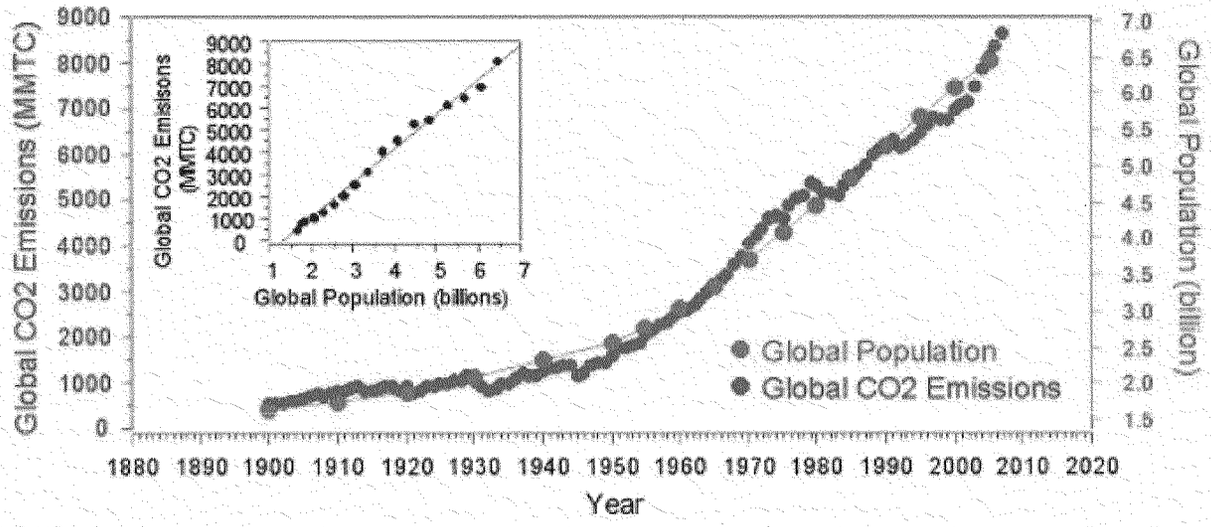


Figure 1 (http://www.ncdc.noaa.gov/oa/climate/research/cag3/cag5.html, and ftp://ftp.cmdl.noaa,gov/ccg/co2/trends/co2_mm_mlo.txt)

Secondly, there is an object that does correlate very strongly with CO_2 concentration. In fact, the correlation coefficient is greater than 95%. Unfortunately for humans – if you believe that CO_2 must be contained, or we will melt the planet- it is us, yes the human population has a greater than 95% correlation to CO_2 concentration. This is illustrated in **Figure 2** below.



What the Future Holds in Store, World Climate Report, WordPress.com, [online]
http://www.worldclimatereport.com/index.php/2008/01/30/what-the-future-holds-in-store/

Figure 2

Thirdly, I just read a couple of weeks ago that the sea ice extent in the Arctic region increased 41% this year compared to last, all the while global CO_2 concentration continues to rise unabated, to levels greater than 400 ppm, which I am sure you know. Further, the magnitude of sea ice extending from Antarctica has broken records for the past three years running, ever since satellites have been recording this data.

On August 6, 2015 a research paper was released by Science China Press, entitled **"Keeping it simple: the value of an irreducibly simple climate model"**, authored by Sir Christopher Monckton of Brenchley, Dr. Willie W.-Soon of Harvard-Smithsonian Center for Astrophysics, Dr. David R. Legates, former Director at the Center for Climatic Research at The University of Delaware, and William M. Briggs, Statistician. The main point is that the sophisticated climate models generated by the IPCC have repeatedly failed to match real world conditions, and there would be no reason to expect otherwise in the future. Al Gore's 'hockey stick' (actually Michael Mann's) is a glaring example of the failure of the models. So, I provide here the latest temperature record spanning January 1997 to June 2015. Real data, not massaged in any way, which is unfortunately not the case in the data handling of much government-funded research.

By the way, this same paper was offered to U.S. scientific publications, but they can't handle the truth, so they reject such peer-reviewed research, which is a real travesty in our scientific community.

Figure 3 below represents the RSS (Remote Sensing Systems) monthly global mean lower-troposphere temperature anomalies over the period mentioned. The linear trend on the anomalies is approximately zero, notwithstanding global CO_2 concentrations rising from approximately 350 ppm to over 400 ppm

during the same period. One third of all anthropogenic CO_2 emissions since 1750 arose in these 222 months, with virtually zero change in global temperature. Actually, statistically the temperature dropped 0.05 degrees Fahrenheit over this period. Please see **Figure 3** below.

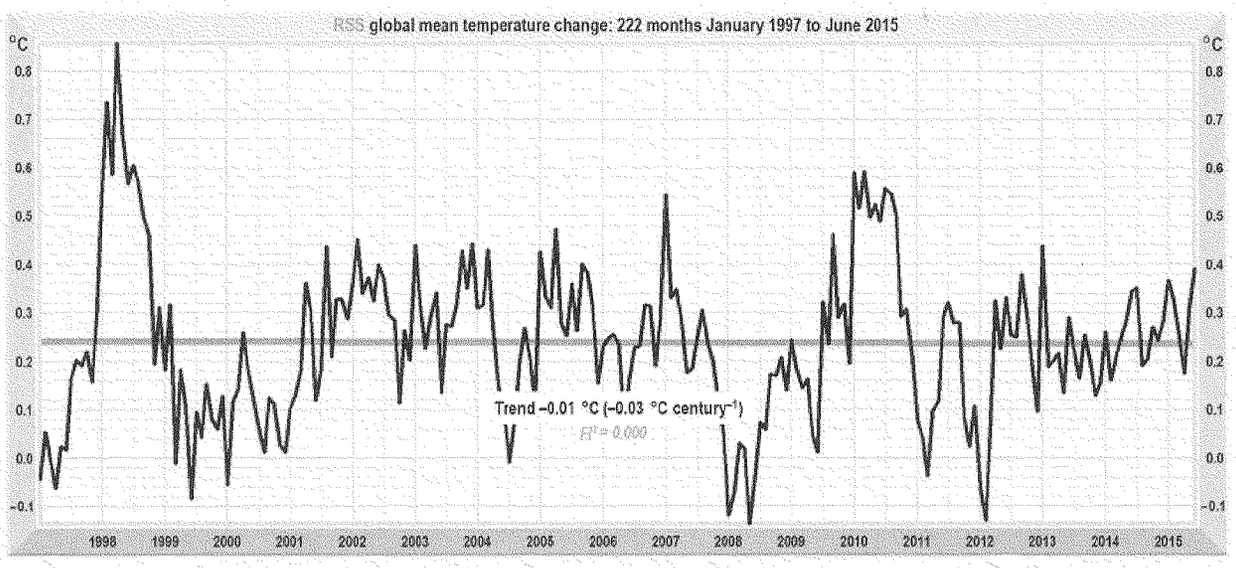


Figure 3

Finally, I will leave you with this, and trust me I could go on for 15 pages, but I don't have the time right now to do that. I am sure you are an adherent to the Intergovernmental Panel on Climate Change, the famous IPCC, which has been challenged and discredited materially in the recent past. If we take their proposed modeling and attempt to project the impact on global temperature, what we find is this:

If the U.S. ceased to exist, no emissions whatsoever from the U.S. from 2012 on to 2100, the global temperature change might be 0.15 degrees Fahrenheit, in fact undetectable, and well below the error bars for measuring temperature.

You also need to know that I do not buy in to the theory that mankind's contribution of emissions has any detectable effect on global temperature. As you know, we have been gradually, thankfully, exiting from the nadir of the Little Ice Age, and so glaciation worldwide has been receding, in no actual part due to anything mankind has done.

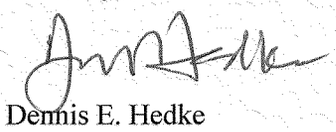
The Clean Power Plan, if enacted, would materially undermine the stability of the U.S. power grid, steal $ Billions, likely $Trillions from hard working American citizens, for virtually zero benefit. You know what the global picture looks like, and the projections that China and India will continue to take full advantage of fossil fuels, especially coal, well into the future. So, if you bought the argument that CO_2 actually is a bad thing for our environment, which I strongly contest, based on the evidence presented earlier, then the U.S. stands no chance whatsoever to offset the global contribution of CO_2 that will likely occur from China and India, the two fastest population growth areas on the planet.

So, to conclude, I would implore you, Dr. Wallace, to impose some level of common sense scrutiny into your very expensive research, and help mankind actually fight the fight against hunger, against poverty, by encouraging the governments on the African continent to make full use of their hydrocarbon resources,

as opposed to burning dung, wood products and the like that actually do release real pollutants into the atmosphere, that actually do shorten lifetimes, and greatly reduce the quality of life.

I implore you to take these steps in favor of humanity. You can do this. And please get rid entirely of this mantra of 'Sustainability', the god of the IPCC and the EPA. Please.

Sincerely,



Dennis E. Hedke
Chair, Energy & Environment Committee
Kansas House of Representatives

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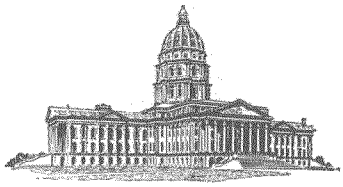

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(SPECIAL COMMITTEE ON TAXATION)

September 11, 2014

Ms. Gina McCarthy
Administrator
Environmental Protection Agency
MS 1101 A
1200 Pennsylvania Ave. N.W.
Washington, D.C. 20240

Via: Electronic Mail, Facsimile and US Post

Re: Coordination; Federal Rulemaking Information Requirements & WOTUS; Legislative Proposals

Dear Administrator McCarthy:

On July 16, 2014 I wrote invoking the doctrine of Coordination between the Environmental Protection Agency (EPA) and the Kansas House Energy and Environment Committee, as EPA contemplates the Waters of the United States (WOTUS) Rule. In that correspondence, I outlined procedural citations, technical necessities and statutorily-mandated studies required of EPA prior to publishing WOTUS in the Federal Register, stating our desire to review specific data, documents and information well before the October 20, 2014 closing date of the WOTUS comment period.

This correspondence supplements, details, highlights and requests studies EPA was to have completed prior to proposing WOTUS. I am also apprising EPA of my intent to introduce legislation that will create state data-availability, map-boundary and map-certification requirements to be fulfilled prior to publication of federal rules that affect our state.

As I know you understand, Federal Statutes, Regulations, Executive Orders, judicial case-law and longstanding Federal Policy all require EPA to Coordinate Major Actions when called upon to do so.[1] EPA was also required, prior to publication of WOTUS in the Federal Register, to have completed a cost-benefit analyses[2] compiled a list of alternatives,[3] and to have provided clear justification as to how your agency selected WOTUS as the least-cost alternative.[4]

I have also requested - through the mechanism of Coordination - EPA to produce studies and information detailing how your agency assessed the economic impact of WOTUS on individual Kansas counties,[5] agriculture, local business, families[6] and disadvantaged populations.[7]

In its undated "*Questions and Answers about Waters of the US*" document, EPA cites the economic benefit of the WOTUS Rule to be "*about double the potential costs*" ($160M - $278M). In arriving at its conclusions, EPA appears to have based its analysis upon only one section of Clean Water Act - Section 404 - which pertains solely to Dredge and Fill operations.

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[1] 42 U.S. Code §4331(b); Executive Orders 12372 Section 2 (e), 13575, 13352 Section 1; 40 CFR § 1500.1(b)
[2] 2 USC §1532(a)(2); Executive Order 12291 Section 2 (c),(d),(e); Executive Order 12291 Section 2 (b),(c)
[3] 5 USC §603 (c); Executive Order 12866 Section 1(b)(3)
[4] 2 USC §1535; Executive Order 1266 Section 1(b)(6)
[5] 5 USC §603 (c);
[6] Executive Order 12606 Section 2; Section 654 of The Treasury and General Governmental Appropriations Act (1999).
[7] Executive Orders 12298 Section 3-302; 12250

By contrast, and were WOTUS to be promulgated, it would impact a number of permitting and compliance programs managed by Kansas, such as CWA Section 319 (*Nonpoint Sources*), Section 401 (*Wetland Water Quality Standards*), and Section 402 (*NPDES Permits*). To that end, please provide studies, data and information as to how EPA appropriately considered the economic impact to Kansans across all Clean Water Act Programs.

Because court rulings do not supersede legislative mandates, and longstanding protocols require administrative rules to be based upon peer-reviewed science, this committee needs to understand the scientific and procedural processes EPA used to develop, circulate and revise its *Connectivity Report.*[8] I am particularly interested in comments EPA received from the peer-review community prior the March, 2014 publication of WOTUS in the Federal Register.

With respect to The National Environmental Policy Act (NEPA) of 1970[9] and its implementing CEQ Regulations,[10] the WOTUS Rule is considered a Major Federal Action. Therefore, preparation of an Environmental Impact Statement (EIS) was required prior to WOTUS publication, and my committee is interested in reviewing the EIS. Please provide those portions of the EIS relevant and specific to the Kansas counties proposed to be covered by the WOTUS Rule.

CEQ Regulations 40 CFR §1508.7 and 40 CFR §1508.27 require the *cumulative* and *intensity* impacts of collectively significant federal actions to be analyzed in the context of socioeconomic circumstances, cultural affects, and downstream future impacts. As you may be aware, there are number of significant, environmental-related Federal Actions taking place simultaneously in Kansas. These include Endangered Species Listings by the United States Fish and Wildlife Service, revision of the Resource Management Plan by Bureau of Land Management, the proposed groundwater Rule by the United States Forest Service, and the problematic Agriculture Conservation Practices Limitation Rule by EPA and US Army Corps of Engineers. Because Environment is the common theme behind all these initiatives, the collective and cumulative significance and intensity of impacts to the Human Environment of these initiatives are required to be collectively evaluated. Please provide this Committee with a demonstration of how the NEPA required impacts to culture, customs, and industry were evaluated, and how the proposed WOTUS Rule adequately accounts and balances Human and Natural Environments.

With respect to legislation, it is my intent is to introduce legislation requiring a field survey, legal description, and certification by a Professional Land Surveyor (PLS) of any map proposed for Federal rulemaking, Federal permitting, or which otherwise could impart a significant federal nexus in our state. As an example, the envisioned mapping legislation will require the boundaries of riparian maps from your agency, floodplain maps by the Federal Emergency Management Agency, Critical Habitat maps by US Fish and Wildlife Service, soil maps by Natural Resource Conservation Service and National Heritage Area maps by the Department of Interior to first be field located and described consistent with the USGS Geodetic and Kansas State Plane Coordinate Systems. Through this activity, the boundary coordinates of all maps for any proposed rule would first be required to be accurately described, clearly documented and certified by a PLS – prior to federal register publication.

Because the Kansas House Committee on Energy and Environment requires adequate time for review prior to the closing of the October 20, 2014 WOTUS comment period, please have all documents - both electronic and hard copy - delivered to my office no later than Tuesday, September 30, 2014.

Regards,

Representative Dennis Hedke - District 99
Kansas House Committee on Energy and Environment

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[8] Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence. EPA/611/R-R98B. September, 10, 2013.

[9] 42 USC §§ 4321-4347; 42 USC § 4331 (a)-(c)

[10] 40 CFR §1501 - 1502

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Sechrist, Erica Ann
Sent: Fri 3/24/2017 8:17:55 PM
Subject: Meeting request

Hi Samantha,
Paul Bailey with ACCCE was wondering if you have any time to meet next week. He's pretty open except Wednesday afternoon.

Thanks,
Erica

Sent from my iPhone

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To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Tampio, Christopher
Sent: Fri 3/24/2017 5:40:06 PM
Subject: RE: EPA [WARNING: SPF validation failed]

Samantha - we are pulling together some relevant information and will get back to you next week.

1000 dentist and dental student in town next week!

Chris

Christopher Tampio
Director, Congressional Affairs
Government Affairs
202-789-5178 tampioc@ada.org

American Dental Association 1111 14th Street, Suite 1100, Washington DC 20005
www.ada.org

From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Thursday, March 23, 2017 9:28 AM
To: Tampio, Christopher
Subject: EPA

Chris,

Could you call me at Ex. 5 - Deliberative Process I have a work related question for you. Thanks!

Samantha Dravis

Senior Counsel / Associate Adminstrator for Policy

U.S. Environmental Protection Agency

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Hilary Moffett
Sent: Fri 3/24/2017 5:00:05 PM
Subject: Request for comment extension
removed.txt
20170324 requestcommentextension NODA.pdf

FYI: We filed this request for an extension to the Appendix W comment period. Just wanted you to have this in your file.

Thanks,

Hilary

From: Howard Feldman
Sent: Friday, March 24, 2017 10:27 AM
To: 'eyth.alison@epa.gov'; 'possiel.norm@epa.gov'; Ted Steichen; Mara E. Zimmerman; 'page.steve@epa.gov'
Subject: request for comment extension

Steve,

Please see the attached request for comment extension from API.

Thanks for your consideration.

Be well,

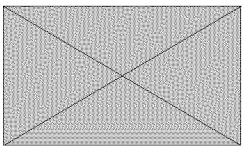
Howard

Howard J. Feldman

Senior Director

Regulatory & Scientific Affairs
1220 L Street, NW

Washington, DC 20005-4070
USA
Telephone 202-682-8340
Fax 202-682-8270
E-mail feldman@api.org



Howard J Feldman
Senior Director

Regulatory and Scientific Affairs

1220 L Street, NW
Washington, DC 20005-4070
USA
Telephone 202-682-8340
Fax 202-682-8270
Email feldman@api.org
www.api.org

March 24, 2017

Sent via e-mail to: page.steve@epa.gov

Stephen Page, Director
Office of Air Quality Planning and Standards
Environmental Protection Agency EPA Campus
4930 Page Road
Durham, NC 27709

Subject: Comment Extension Request, Notice of Availability of the Environmental Protection Agency's Preliminary Interstate Ozone Transport Modeling Data for the 2015 Ozone National Ambient Air Quality Standard; January 7, 2017, *82 Fed. Reg. 1,733*; Docket ID: EPA–HQ–OAR–2016–0751.

Dear Director Page:

On behalf of the American Petroleum Institute (API) I request a 30-day extension of the public comment period for the subject notice until May 6, 2017.

The API represents over 625 oil and natural gas companies, leaders of a technology-driven industry that supplies most of America's energy, supports 9.8 million U.S. jobs and 8 percent of the U.S. economy and, since 2000, has invested nearly $2 trillion in U.S. capital projects to advance all forms of energy, including alternatives.

API's members engage in all aspects of the oil and gas industry and operate facilities and produce products impacted by regulations resulting from this preliminary interstate ozone transport modeling data and associated methods relative to this notice. Our members are in the process of evaluating a portion of the inventory and are requesting more time. We hope this request will be considered in light of similar extentions taken by the new administration to review and reconsider other actions, some until May 22, 2017.

Thank you in advance for your timely consideration of this request. I look forward to your response; in the meantime, if there are any questions please contact me at 202-682-8340 or feldman@api.org.

Sincerely,

/s/

Copy to: eyth.alison@epa.gov
possiel.norm@epa.gov
steichent@api.org
zimmermanm@api.org

An equal opportunity employer

To: Pierson, Steve[spierson@amstat.org]; McGartland, Al[McGartland.Al@epa.gov]
Cc: Leonard Smith[lenny@maths.ox.ac.uk]; Cressie, Noel A.[ncressie@uow.edu.au]; pfd33@drexel.edu[pfd33@drexel.edu]; Dravis, Samantha[dravis.samantha@epa.gov]
From: Kreutzer, David
Sent: Fri 3/24/2017 4:39:13 PM
Subject: RE: Thank you for meeting with us--Climate Science

Steve,

I enjoyed the discussion and the chance to meet all of you.

Thanks very much for taking the time to come to the EPA.

David

From: Pierson, Steve [mailto:spierson@amstat.org]
Sent: Friday, March 24, 2017 11:35 AM
To: Kreutzer, David <kreutzer.david@epa.gov>; McGartland, Al <McGartland.Al@epa.gov>
Cc: Leonard Smith <lenny@maths.ox.ac.uk>; Cressie, Noel A. <ncressie@uow.edu.au>; pfd33@drexel.edu
Subject: Thank you for meeting with us--Climate Science

Dear David and Al,

Thank you very much for meeting with us on Monday. We appreciated your time, the opportunity, and the candid discussion. Lenny, Noel, and Peter are copied on this message so that you have their email addresses.

We hope Monday discussion was the start of an ongoing dialogue and we will stay in touch to continue such exchanges.

Sincerely,

Steve

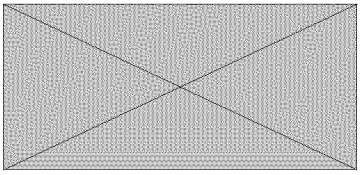
Steve Pierson, Ph.D.

Director of Science Policy

American Statistical Association
Promoting the Practice and Profession of Statistics®
732 North Washington Street
Alexandria, VA 22314-1943
(703) 302-1841

www.amstat.org/policy

For ASA science policy updates, follow us on Twitter: @ASA_SciPol



To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Jonathon Lehman
Sent: Thur 3/23/2017 7:22:19 PM
Subject: RE: EPA Meeting with ACE Members

Samantha:

Thanks for getting back. Unfortunately, folks headed to the airport.

May be next step is for you and me to meet up next week and talk informally. I am pretty open Tuesday or Thursday if something works on your end.

Thanks for your help.

Jonathon

On Mar 23, 2017, 11:10 AM -0400, Dravis, Samantha <dravis.samantha@epa.gov>, wrote:

Jonathan,

I am so sorry for the delay – is there a still a chance to come in a meet? Administrator Pruitt is gone for the rest of the week, but I'm happy to take a meeting.

From: Jonathon Lehman [mailto:lehmanjm@me.com]
Sent: Monday, March 20, 2017 5:45 PM
To: Dravis, Samantha <dravis.samantha@epa.gov>; Michael Whatley <MWhatley@hbwresources.com>; Brian Jennings <bjennings@ethanol.org>
Cc: Shannon Gustafson <sgustafson@ethanol.org>
Subject: RE: EPA Meeting with ACE Members

Samantha:

Just wanted to bump this email chain to the top regarding scheduling the meeting with Admin Pruitt and a group from the American Coalition of Ethanol for Thursday.

Shannon and Brian are keepers of the master schedule for the fly in for ACE members.

Let us know how we can help nail down a time.

Thanks much.

Jonathon

On Mar 19, 2017, 1:55 PM -0400, Brian Jennings <bjennings@ethanol.org>, wrote:

Thank you Michael.

Samantha – While the afternoon of the 23rd is preferential for us, we will indeed be flexible regarding when we can meet with Administrator Pruitt. Thank you for your consideration. My cell is 605-941-1314. Thanks.

Brian

Brian Jennings

Executive Vice President

AMERICAN COALITION for ETHANOL

605-334-3381 ext. 12

ethanol.org

From: Jonathon Lehman [mailto:lehmanjm@me.com]
Sent: Sunday, March 19, 2017 12:20 PM
To: dravis.samantha@epa.gov; Michael Whatley
Cc: Shannon Gustafson; Brian Jennings
Subject: Re: EPA Meeting with ACE Members

Thanks Michael.

Nice to connect Samantha. We will be flexible in timing.

CC'ing Shannon Gustafson Alexis who is coordinating the ACE fly-in as well as ACE head Brian Jennings. Shannon can help coordinate a time preferential for the Administrator.

My cell is 202-997-6512.

Jonathon

On Mar 18, 2017, 10:09 PM -0400, Michael Whatley <MWhatley@hbwresources.com>, wrote:

With the correct email for Jonathan - sorry about the confusion.

Michael Whatley <mdwhatley1@gmail.com> wrote:

Samantha and Jonathan -

Want to introduce you (at least electronically) so that you can work together to schedule a meeting with Administrator Pruitt and a small group from the American Coalition for Ethanol while they are in DC next week for their annual fly in on the 23rd.

Although Jonathan has the specifics on optimal times, I believe that they will be very flexible to accommodate you and the Administrator.

I will leave the details to you two, but am happy to provide any assistance either of you might night.

Thanks.

Michael

To: Bolen, Brittany[bolen.brittany@epa.gov]; Dravis, Samantha[dravis.samantha@epa.gov]
From: Sheffield, Pete
Sent: Fri 5/19/2017 12:01:01 PM
Subject: Follow-up to Enbridge disucssion
INGAA EPA Office of Water Comments-5-15-17.pdf

Samantha and Brittany – Thanks again for taking the time last week to visit with our Enbridge team re: pipeline permitting generally. I did want to pass along comments filed with EPA May 15 (by INGAA) which focus on CWA sec. 401. Happy to discuss further.

Best,

Pete

Pete Sheffield
ENBRIDGE

Vice President, U.S. External Affairs
TEL: 202-347-2053 | CELL: 202-997-3178 | pete.sheffield@enbridge.com
20 F Street NW, Suite 550, Washington, D.C. 20001

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Interstate Natural Gas Association of America

Submitted via *www.regulations.gov*

May 15, 2017

U.S. Environmental Protection Agency
Office of Regulatory Policy and Management
Office of Policy
1200 Pennsylvania Ave. N.W.
Mail Code 1803A
Washington, D.C. 20460

Re: Docket ID No. EPA-HQ-OA-2017-0190
Evaluation of Existing Regulations, 82 Fed. Reg. 17,793 (Apr. 13, 2017) – Water Issues

The Interstate Natural Gas Association of America (INGAA), a trade association that represents members of the interstate natural gas pipeline industry, respectfully submits these comments in response to the United States Environmental Protection Agency's (EPA) request for input on its review of existing regulations "to alleviate unnecessary regulatory burdens" on the American people.

INGAA member companies transport more than 85 percent of the nation's natural gas, through some 190,000 miles of interstate natural gas pipelines. Pipelines operate in a highly competitive market, which affects service offerings and prices, including competition between gas supply basins, competition among pipelines, and increased competition with firm shippers that can sell their excess capacity on a secondary market. Across the United States, INGAA member companies operate over 6,000 stationary natural gas-fired spark ignition RICE and over 1,000 stationary natural gas-fired combustion turbines installed at compressor stations along the pipelines to transport natural gas to local gas distribution companies, industrial users, gas marketers, and gas-fired electric generators.

These comments summarize INGAA's concerns with EPA's existing water quality certification regulations and policies that may impose "regulatory burdens." INGAA appreciates your consideration of these comments and welcomes additional dialogue. Please contact me at 202-216-5955 or ssnyder@ingaa.org if you have any questions. Thank you.

Sincerely,

Sandra Y. Snyder

Sandra Y. Snyder
Regulatory Attorney for Environment & Personnel Safety
Interstate Natural Gas Association of America

17cv1906 Sierra Club v. EPA - 6/22 Production ED_001523_00008135-00001

In response to the United States Environmental Protection Agency's (EPA's) request for input on its review of existing regulations "to alleviate unnecessary regulatory burdens" on the U.S. economy and the American people, the Interstate Natural Gas Association of America (INGAA) respectfully submits these comments to the Office of Water.

EXECUTIVE SUMMARY

To reduce the regulatory burdens on interstate pipeline and other infrastructure projects created by the uncertainties in the Clean Water Act (CWA) Section 401 certification process, INGAA recommends that EPA amend its regulations implementing CWA Section 401 to ensure that states comply with the statutory requirement to act on water quality certification requests "within a reasonable period of time (which shall not exceed one year)." Amendments are needed to address states' actions that result in delays when acting on requests for water quality certification beyond "a reasonable period of time (which shall not exceed one year)." These clarifications would effectively enable federally-approved natural gas infrastructure projects to proceed on schedules established by the lead federal agencies such as Federal Energy Regulatory Commission ("FERC") or US Army Corp of Engineers ("USACE").

DETAILED COMMENTS

The CWA Section 401 requires an applicant for a federal license or permit involving activities that may result in discharges to navigable waters to provide the federal licensing or permitting agency a certification from the state in which the discharge originates that the discharge will comply with state water quality standards.[1] The state's certification may set forth appropriate limitations or place appropriate additional requirements upon the applicant, which become conditions on the federal license or permit.[2] This certification requirement is waived, however, if the state "fails or refuses to act on a request for certification, within a reasonable period of time (which shall not exceed one year) after the state's receipt of a request for certification"[3]

In some cases, obtaining state water quality certifications prevent or delay the execution of projects that are supported by customer demand and have overall federal approval from FERC, the lead environmental review agency under the National Environmental Policy Act ("NEPA") for construction and operation. The criteria and processes for evaluating water quality certification applications vary by state, subjecting interstate pipelines to a patchwork of inconsistent and unpredictable procedures and timelines. Many states routinely delay, and more recently, have denied, issuance of Section 401 certification for a variety of political, administrative, or other reasons.

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[1] 33 U.S.C. § 1341(a)(1).

[2] 33 U.S.C. § 1341(d).

[3] *Id.* Most commonly, the Section 401 certification requirement is triggered when a pipeline project applies for a CWA Section 404 dredge and fill permit from the U.S. Army Corps of Engineers (USACE or the Corps). USACE regulations governing the Section 404 permitting process set forth the applicable procedures where the Corps determines that Section 401 certification is required. Under these regulations, a state waives certification if it fails or refuses to act on a request for certification "within 60 days after receipt of such a request unless the district engineer determines a shorter or longer period is reasonable for the state to act." 33 C.F.R. § 325.2(b)(1)(ii). According to Corps regulations, the waiver period commences when a project proponent makes a "valid request" for certification to the state certifying agency. *Id.*

17cv1906 Sierra Club v. EPA - 6/22 Production ED_001523_00008135-00002

Many states implement state-specific standards for what constitutes receipt of a "request" for certification sufficient to start the statutory review period under CWA Section 401.[4] In some cases, states use their water quality certification authority in what in effect is a "veto" of interstate projects routed within their jurisdiction.[5] This has the potential to derail the development of critical interstate pipeline projects unless immediate changes are made to the CWA and its implementing regulations to require states to apply the CWA Section 401 requirements in a more transparent and even-handed manner.

More commonly, states, through the Section 401 certification process, impose costly delays by postponing consideration of a project's application well beyond the statutory deadline. These delays can be compounded by administrative appeals once the Section 401 certification is issued. In some states (*e.g.*, Massachusetts) a Section 401 certification is not effective until the administrative appeal is complete. Others (*e.g.*, Georgia) stay the effectiveness of the certification if an administrative appeal is brought.

EPA regulations implementing CWA Section 401 were promulgated in 1971 and have not been updated since 1979. The regulations provide only minimal criteria for state-issued water quality certifications, and they do little to clarify what constitutes receipt of a "request" for certification, which is the triggering event for starting the statutory waiver period.[6] 40 C.F.R. § 121.16, for example, provides little specificity in describing the timeframe for a state to act on a water quality certification application before the requirement will be deemed waived. The regulation provides for waiver either upon: (1) written notification from the certifying agency that it expressly waives certification; or (2) written notification from the federal licensing or permitting agency to the EPA Regional Administrator that the certifying agency failed to act on the certification request "within a reasonable period of time after such request, as determined by the licensing or permitting agency[7] (which period shall generally be considered to be 6 months, but in any event shall not exceed one year)."[8] The regulations do not, however, specify what

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[4] For example, New Jersey has taken the position that a Section 401 certification application is not "complete" until a project has finished 100% of its required surveying *and* can demonstrate a property interest (either through condemnation or execution of voluntary easement agreements) in all of the needed parcels along the route. This means that New Jersey will not start the one-year clock until the condemnation process is complete.

[5] As a case in point, the Constitution Pipeline was shelved when in April 2016 the New York Department of Environmental Conservation (NYDEC) denied a water quality certification requested by the project, ending a multi-year standoff between the state and project sponsors. The process began in August 2013, when Constitution Pipeline first submitted its joint application for Section 401 water quality certification and a Section 404 permit to the State. At the State's request, the project's application was subsequently withdrawn and re-submitted on May 9, 2014 and again on April 27, 2015, each time extending the one-year timeframe for the Department's review. Even though the Constitution Pipeline received full construction and operation authorization from the Federal Energy Regulatory Commission (FERC) in December 2014, the NYDEC ultimately denied Constitution's request for water quality certification in April 22, 2016. Likewise, on April 7, 2017, NYDEC denied a water quality certification to National Fuel Gas Supply Corporation and Empire Pipeline, Inc. in connection with the Northern Access 2016 Project. The Northern Access 2016 Project was approved by FERC on February 3. 2017. These outcomes reflect the extent to which a state can exercise veto power over an interstate project in a manner inconsistent with FERC's exclusive authority over interstate natural gas pipelines under the federal Natural Gas Act.

[6] *See* 40 C.F.R. § 121.1 *et seq.*

[7] Both FERC and the USACE set a shorter deadline (*i.e.* the "reasonable period of time") for the certifying agency's review than one year from receipt of the request. As noted herein, the applicable USACE regulations set the "reasonable period of time" as within 60 days of receipt of a "valid request", unless such period is shortened or lengthened based on notice from the USACE District Engineer to the certifying agency. FERC sets the "reasonable period of time" for the certifying agency's action on a Section 401 certification request as within 90 days of FERC's issuance of a final NEPA document, in accordance with its Notice of Schedule for Environmental Review for the project.

[8] 40 C.F.R. § 121.16.

constitutes receipt of a "request" for certification, nor do they emphasize that one year from receipt of a request for a Section 401 certification is *outside* time limit for certification decisions—including the resolution of any state administrative appeal or adjudicatory processes to review a certification once issued.[9]

This lack of clarity about the deadline for states to act on water quality certification requests has compelled project sponsors to resort to litigation to obtain a definitive determination on waiver.[10]

In order to reduce the regulatory burdens on interstate pipeline and other infrastructure projects created by the uncertainties in the CWA Section 401 certification process, INGAA recommends that EPA amend its regulations to prescribe more clearly how the CWA statutory deadline applies to state certification decisions.[11] Specifically, EPA could:

- Prescribe standardized criteria for the states consistent with CWA Section 401 language that the statutory clock begins to run upon the state's "receipt" of an application for a water quality certification;
- Specify that the period for determining whether a waiver has occurred includes the time necessary to resolve any state administrative review of a water quality certification;
- Specify that, where federal permitting agencies, such as FERC or USACE, set "federal authorization deadlines," such deadline becomes the "reasonable period of time" set forth in CWA Section 401 for purposes of such federal permitting agency's determination as to waiver; and

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[9] *C.f., Airport Communities Coalition v. Graves,* 280 F. Supp. 2d 1207 (W.D. Wash. 2003) (holding that the Corps, as the federal permitting agency, was required to incorporate into a Section 404 permit only those conditions included in a state's certification that were issued within the CWA one-year statutory deadline, and that it had no obligation to include those conditions imposed as a result of a state administrative challenge that was not resolved until after the one-year statutory period for certification had concluded).

[10] *See, e.g., Millenium Pipeline Company v. Seggos*, Case No. 16-1415 (D.C. Cir. Dec. 5, 2016) (pipeline company petition seeking judicial review of NYDEC failure to act on Millenium's application for Section 401 water quality certification and a court determination that the state agency had waived certification); *Berkshire Environmental Action Team, Inc. et al. v. Tennessee Gas Pipeline Co. et al.,* Case No. 16-2100, Respondent's Response Brief (Doc. No. 00117080472) (1st Cir. Nov. 14, 2016) (arguing among other things that if the court determined that a certification issued by the state agency was not yet "final" because it was subject to ongoing state administrative review proceedings, that the state had waived certification because the review had not been completed within one year); *Constitution Pipeline Co. v. NYDEC et al.,* Case No. 16-1568 (2d Cir. May 5, 2016) (pipeline company petition seeking judicial review of NYDEC denial of water quality certification, arguing among other things that the state agency waived certification by issuing its denial outside of the statutory deadline); *AES Sparrows Point LNG, LLC v. Wilson*, 589 F.3d 721, 725 (4th Cir. 2009) (pipeline company petition seeking judicial review of State of Maryland's denial of Section 401 water quality certification, also arguing that the denial was untimely); *National Fuel Gas Supply Corp*, Docket No. CP15-115-002 (FERC 2017) (pipeline company request in connection with FERC Order Issuing Certificates of Public Convenience and Necessity seeking clarification, or in the alternative, rehearing as to NYDEC's waiver of Section 401 water quality certification via NYDEC's failure to act by the end of the 90-day federal authorization deadline set in FERC's Notice of Schedule for Environmental Review for the project).

[11] For example, EPA regulations governing the certification of federally-issued CWA Section 402 NPDES permits allow states sixty days to issue certification, specifying that the period runs "from the date the draft [federal] permit is mailed to the certifying State agency." 40 C.F.R. § 124.53(a)(3).

- Prohibit state agency practices intended to prolong the certification process, such as requiring an applicant to withdraw and re-submit a certification application in order to re-start the statutory clock.

To: Lyons, Troy[lyons.troy@epa.gov]; Greenwalt, Sarah[greenwalt.sarah@epa.gov]
Cc: Schwab, Justin[schwab.justin@epa.gov]; Dravis, Samantha[dravis.samantha@epa.gov]; Rees, Sarah[rees.sarah@epa.gov]
From: John Hall
Sent: Thur 5/25/2017 5:51:46 PM
Subject: RE: Opportunity to meet reg reform staff

Troy/Sarah

I know that your office could not help out on the Taunton case due to the point we were in the appeal process, but the City appreciated the second look. I will send you a copy of the brief once filed on Monday - just read the facts section and you will get a clear idea of what EPA Region I has been doing to New England communities for the past 8 years.

Our firm and the Center for Regulatory Reasonableness (as well as CRR's members) submitted about a dozen letters outlining the major regulatory changes to existing Office of Water rules that would save hundreds of billions in unnecessary resource expenditures nationwide.

Could you arrange a meeting with the new Reg Reform group for us to discuss these issues?

Thanks,

John

John C. Hall
Hall & Associates
1620 I Street, NW, Suite 701
Washington, DC 20006
Phone: 202-463-1166
Fax: 202-463-4207
E-Mail: jhall@hall-associates.com

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-----Original Message-----
From: Lyons, Troy [mailto:lyons.troy@epa.gov]
Sent: Wednesday, April 26, 2017 8:54 PM
To: John Hall
Subject: City of Taunton, MA NPDES Permit - Reconsideration Request

John,

I am the new associate administrator for congressional and intergovernmental affairs at EPA. I was sent your response by our chief of staff, Ryan Jackson. I think this was processed prior to my arrival.

I need to get up to speed on this issue but want to be helpful to your request. Do you have time to visit tomorrow?

Many thanks,

Troy
202-309-2490

Thanks for your

Sent from my iPhone

State of Louisiana

EXECUTIVE DEPARTMENT

PROCLAMATION NUMBER 43 JBE 2017

STATE OF EMERGENCY – COASTAL LOUISIANA

WHEREAS, coastal Louisiana is the Sportsman's Paradise and a precious natural, economic, and cultural national resource, home to many miles of wetlands, swamp, and estuaries that support tremendous recreational and commercial hunting and fishing, and home to two million people who live and work at the epicenter of our nation's valuable energy, wetlands, and seafood resources.

WHEREAS, it serves as a gateway to other economic engines with vast national impact: including energy, maritime transportation and trade. Southern Louisiana is the portal to offshore energy resources (and related pipeline and refining infrastructure), making the state the second largest producer of oil and gas in the entire country;

WHEREAS, Louisiana is critical to the nation's energy security, its network of pipelines serve 90 percent of the nation's offshore energy production and 30 percent of its total oil and gas supply;

WHEREAS, Louisiana's coast is home to five of the top fifteen ports in the country, which handle 60 percent of the nation's grain and 20 percent of all national waterborne commerce; these two assets combined help produce 25 percent of the nation's petrochemicals;

WHEREAS, Louisiana and its citizens have suffered tremendously as a result of the catastrophic coastal land and wetlands loss, and the threat of continued land loss to Louisiana's working coast threatens the viability of residential, agricultural, energy, and industrial development, and directly affects valuable fish and wildlife production that is vital to the nation;

WHEREAS, Louisiana continues to experience one of the fastest rates of coastal erosion in the world, and this complex and fragile ecosystem is disappearing at an alarming rate – more than 1,800 square miles of land between 1932 and 2010, including 300 square miles of marshland between 2004 and 2008 alone. Multiple factors have contributed to this massive problem, including the effects of climate change, sea level rise, subsidence, hurricanes, storm surges, flooding, disconnecting the Mississippi River from coastal marshes, the *Deepwater Horizon* oil spill, and other natural and human impacts, many of which have been the result of activities benefitting the entire United States;

WHEREAS, shorelines, marshes, and swamps that serve as a vital barrier and a first line of defense against storm surge and flooding are disappearing;

WHEREAS, parts of our state remain unprotected from or vulnerable to future hurricane and flood events, and subsidence, sea level rise, and coastal land loss increase the risks to these communities;

WHEREAS, 2,250 square miles of coastal Louisiana is expected to be lost in the next 50 years if no additional action is taken;

WHEREAS, the Louisiana Coastal Protection and Restoration Authority (CPRA) has developed *Louisiana's Comprehensive Master Plan for a Sustainable Coast* (Coastal Master Plan), the first version developed and approved in 2007, a revision adopted in 2012, and an amended version has been drafted for approval by the CPRA Board and the Legislature in 2017;

WHEREAS, while coastal land loss is not new to Louisiana, the last decade has accelerated the need for a more focused effort on this growing problem: additional hurricanes have ravaged our coast; we experienced the *Deepwater Horizon* oil spill, the worst environmental disaster in the history of our country; and new funding sources are now available. The improved project evaluation process, used to develop the 2017 Master Plan, reflects a deeper understanding of Louisiana's current coastal environment and the changes expected over the next 50 years;

WHEREAS, the 2017 Coastal Master Plan and the 2018 Fiscal Year Annual Plan are to be presented to the legislature for approval in the 2017 Regular Session. The State of Louisiana should use all means and methods to move the projects and programs contained in those plans forward as expeditiously as possible and with minimal delays, particular with regard to permitting under local, state, and federal law;

WHEREAS, the Coastal Master Plan states a goal of protection, through the use of a combination of nonstructural programs, targeted structural measures to provide increased flood protection for all communities, and restoration, through the use of an integrated and synergistic approach to ensure a sustainable and resilient coastal landscape;

WHEREAS, streamlining the implementation of integrated coastal protection will deliver tangible benefits to the people and industries of Louisiana faster through a more resilient coast and a more sustainable Mississippi River Delta;

WHEREAS, the Louisiana coast is in a state of crisis and emergency that requires immediate and urgent action and attention to avert further injury to the lives, property, health, safety, and welfare of the citizens of Louisiana and the nation;

WHEREAS, immediately addressing this crisis and emergency will rejuvenate Louisiana's economy and provide benefits across generations, and impact numerous geographic areas and aspects of the nation's economy, including energy production, transportation and refining; intermodal commerce and trade; fisheries; disaster resilience; and natural capital;

WHEREAS, Hurricanes Katrina and Rita, along with other hurricanes and natural and man-made disasters, have demonstrated how important coastal infrastructure is to the preservation of human life, and how disruptive, costly and disastrous the failure to protect this infrastructure can be to state and national economies;

WHEREAS, a recent study by the Louisiana State University Economics and Policy Research Group has found a sizeable impact from coastal land loss due to the economic linkages between coastal economic activity and parts of the state further inland, concluding that the New Orleans, Baton Rouge, and

Houma regions could lose nearly $3 billion in annual economic activity as well as suffer $1.3 billion in damage to regional infrastructure from coastal erosion over the next 25 years if nothing is done to address the problem;

WHEREAS, substantial funding is already in place to implement integrated coastal protection to directly respond to and address this crisis and emergency, including funds available to CPRA as a result of the *Deepwater Horizon* oil spill and through the Gulf of Mexico Energy Security Act (GOMESA); however, actual spending of available funding on integrated coastal protection could be delayed by hurdles associated with permitting and environmental review under laws intended to prevent damage to the environment that do not adequately consider or distinguish projects designed to restore and protect a state's natural resources;

WHEREAS, a letter has been sent to President Donald Trump requesting that the federal government designate five important integrated coastal protection projects included in the Coastal Master Plan for high priority status under Executive Order 13766 of January 24, 2017, *Expediting Environmental Reviews and Approvals for High Priority Infrastructure Projects*. These projects will significantly contribute to the protection of Louisiana's coastal landscape and economy, leverage *Deepwater Horizon* oil spill recovery dollars, and further grow our state's burgeoning water management sector;

WHEREAS, this declaration is consistent with House Concurrent Resolution Number 4 of the 2017 First Extraordinary Session by Representative Zeringue, wherein the Louisiana Legislature recognized that the Louisiana coast is in a state of crisis and in need of federal attention and cooperation; and

WHEREAS, it may be necessary for the Legislature of the State of Louisiana and the President and Congress of the United States to implement laws, rules, regulations, procedures, or other methods for expediting or creating exemptions for permitting and environmental review currently necessary to implement integrated coastal protection in coastal Louisiana.

NOW THEREFORE I, JOHN BEL EDWARDS, Governor of the State of Louisiana, by virtue of the authority vested by the Constitution and laws of the State of Louisiana, do hereby order and direct as follows:

SECTION 1: A state of crisis and emergency is hereby declared to exist in the coastal area of Louisiana, as defined by La. R.S. 49:214.2(4), the effects of which continue to threaten the lives, property, health, safety, and welfare of the citizens of the State.

SECTION 2: The Governor's Executive Assistant for Coastal Activities and the Executive Director of the CPRA, through and in coordination with the CPRA and the CPRA Board, are hereby authorized to undertake any activity authorized by law, including but not limited to the provisions of La. R.S. 49:214.1 *et seq.*, deemed appropriate in response to this declaration and to expedite implementation of integrated coastal protection.

SECTION 3: All departments, commissions, boards, agencies and officers of the State or any political subdivision thereof, are authorized and directed to cooperate in actions the State may take in response to the effects of this coastal crisis and to assist in expeditiously implementing integrated coastal protection in the State.

SECTION 4: All departments, commissions, boards, agencies and offices of the State or any political subdivision thereof, are, to the maximum extent permissible under existing laws, rules, or regulations, authorized and directed to

expedite all permitting and environmental review necessary for carrying out integrated coastal protection, including creation of waivers, categorical exemptions, or expedited processes for such permitting and review.

SECTION 5: This order shall be transmitted to the President of the United States. By transmittal hereof, it is requested that the President recognize and declare that the coastal crisis and emergency in Louisiana is of national significance and provide appropriate federal attention and cooperation to assist Louisiana to expedite implementation of the integrated coastal protection plans, programs, and projects provided for in its Coastal Master Plan, to provide for the health, safety and welfare of the people of Louisiana and the nation, and to protect the significant federal investment which has already been made in coastal Louisiana, including that following Hurricanes Katrina and Rita. In particular, it is requested that the President use all means available to expedite all federal permitting and environmental review, including creation of waivers, categorical exemptions, alternative measures, or expedited processes under existing federal laws, rules, and regulations, including but not limited to the National Environmental Policy Act (NEPA), and to assure cooperation and collaboration between the federal, state, and local agencies and entities to clear regulatory hurdles.

SECTION 6: This order shall be transmitted to the Congress of the United States through the secretary of the United States Senate, the clerk of the United States House of Representatives and each member of the Louisiana delegation to the United States Congress. By transmittal hereof, it is requested that the Congress recognize the coastal crisis and emergency in Louisiana is of national significance and provide appropriate federal attention and cooperation to assist Louisiana to expedite implementation of the integrated coastal protection plans, programs, and projects provided for in its Coastal Master Plan, to provide for the health, safety and welfare of the people of Louisiana and the nation, and to protect the significant federal investment made in coastal Louisiana, including that following Hurricanes Katrina and Rita. In particular, it is requested that the Congress consider legislation to provide for means by which to expedite all federal permitting and environmental review, including creation of waivers, categorical exemptions, alternative measures, or expedited processes.

SECTION 7: This state of emergency extends from Tuesday, April 18, 2017 to Wednesday, May 17, 2017, unless terminated sooner.

IN WITNESS WHEREOF, I have set my hand officially and caused to be affixed the Great Seal of Louisiana, at the Capitol, in the City of Baton Rouge, on this 18th day of April, 2017.

GOVERNOR OF LOUISIANA

ATTEST BY
THE GOVERNOR

SECRETARY OF STATE

To: jbroderick@rga.org[jbroderick@rga.org]
Cc: Dravis, Samantha[dravis.samantha@epa.gov]; Wagner, Kenneth[wagner.kenneth@epa.gov]; Bowles, Jack[Bowles.Jack@epa.gov]
From: Bennett, Tate
Sent: Thur 3/30/2017 4:35:23 PM
Subject: Administrator Pruitt writes Governors on CPP
Sandoval.pdf

Hi there!

We just wanted to flag with RGA that Administrator Pruitt is today sending the attached letter to the U.S. Governors regarding the EPA's current posture on the CPP. Please do not hesitate to let us know if your team has any questions, and we look forward to working together in the many days to come.

Best.

Tate

Elizabeth Tate Bennett

Sr. Advisor to the Administrator

Office of Congressional and Intergovernmental Affairs

U.S. Environmental Protection Agency

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

THE ADMINISTRATOR

March 30, 2017

The Honorable Brian Sandoval
Governor of Nevada
Capitol Building
Carson City, Nevada 89701

Dear Governor Sandoval:

On February 9, 2016, the Supreme Court of the United States stayed implementation of the Clean Power Plan (CPP) effectively "suspend[ing] administrative alteration of the status quo." *Nken v. Holder*, 556 U.S. 418, 428 n.1 (2009). Further, pursuant to the Administrative Procedure Act, the Supreme Court has authority to "issue all necessary and appropriate process to postpone the effective date of an agency action or to preserve status or rights pending conclusion of the review proceedings." 5 U.S.C. § 705.

Under that precedent, States and other interested parties have neither been required nor expected to work towards meeting the compliance dates set in the CPP. It is the policy of the Environmental Protection Agency (EPA) that States have no obligation to spend resources to comply with a Rule that has been stayed by the Supreme Court of the United States. To the extent any deadlines become relevant in the future, case law and past practice of the EPA supports the application of day-to-day tolling.

The days of coercive federalism are over. Accordingly, I look forward to working with you, your state experts and local communities as we develop a path forward to improve our environment and bolster the economy in a manner that is respectful of and consistent with the rule of law.

Respectfully yours,

E. Scott Pruitt

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To: Spattison@nga.org[Spattison@nga.org]; adavis@nga.org[adavis@nga.org]
Cc: Dravis, Samantha[dravis.samantha@epa.gov]; Wagner, Kenneth[wagner.kenneth@epa.gov]; Bowles, Jack[Bowles.Jack@epa.gov]; Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]
From: Bennett, Tate
Sent: Thur 3/30/2017 4:23:58 PM
Subject: Sec. Pruitt Writes Governors on CPP
McAuliffe.pdf
Sandoval.pdf

Scott and Anna-

We just wanted to flag that Administrator Pruitt is today sending the attached letter to the U.S. Governors regarding the EPA's current posture on the CPP. Please do not hesitate to let us know if your team has any questions, and we look forward to working together in the many days to come.

Best.

Tate

Elizabeth Tate Bennett

Sr. Advisor to the Administrator

Office of Congressional and Intergovernmental Affairs

U.S. Environmental Protection Agency

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

THE ADMINISTRATOR

March 30, 2017

The Honorable Terry McAuliffe
Governor of Virginia
State Capitol
Third Floor
Richmond, Virginia 23219

Dear Governor McAuliffe:

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Respectfully yours,

E. Scott Pruitt

To: Alexandra Dunn[adunn@ecos.org]
Cc: Barbery, Andrea[Barbery.Andrea@epa.gov]; Bennett, Tate[Bennett.Tate@epa.gov]; Lyons, Troy[lyons.troy@epa.gov]; Bangerter, Layne[bangerter.layne@epa.gov]; Richardson, RobinH[Richardson.RobinH@epa.gov]; Dravis, Samantha[dravis.samantha@epa.gov]; Sonia Altieri[saltieri@ecos.org]
From: Wagner, Kenneth
Sent: Fri 6/9/2017 12:14:56 PM
Subject: Re: New ECOS/EPA Summary Report & Webinar Series Announcement: Evaluating Innovative Approaches to Fostering Environmental Compliance

Great...will look at that as well.

Kenneth E. Wagner
Senior Advisor to the Administrator
For Regional & State Affairs
US Environmental Protection Agency
Office: 202-564-1988
Cell: 202-309-2418
wagner.kenneth@epa.gov

On Jun 9, 2017, at 8:03 AM, Alexandra Dapolito Dunn <adunn@ecos.org> wrote:

Thanks Ken,
We have a busy Friday between ECOS and EPA! To clarify, below I shared some ongoing work we're doing with OECA. The early release of the 2.0 paper on cooperative federalism is on its way to all of you in about an hour. Thank you for the amazing support.

On Fri, Jun 9, 2017 at 7:58 AM, Wagner, Kenneth <wagner.kenneth@epa.gov> wrote:

Thanks Alex:

We have appreciated the courtesy of the early drafts from Todd and John.

Kenneth E. Wagner

Senior Advisor to the Administrator

For Regional and State Affairs

U S Environmental Protection Agency

202-564-1988 office

202-309-2418 cell

wagner.kenneth@epa.gov

On Jun 9, 2017, at 7:15 AM, Alexandra Dapolito Dunn <adunn@ecos.org> wrote:

Colleagues: Thought you'd all find this release and ECOS/EPA collaboration of interest. We're looking forward to showing how EPA, states, and social science academics can work together to achieve results! Regards, Alex

Alexandra Dapolito Dunn, Esq.

Executive Director & General Counsel

Environmental Council of the States

---------- Forwarded message ----------
From: Alexandra Dapolito Dunn <adunn@ecos.org<mailto:adunn@ecos.org>>
Date: Fri, Jun 9, 2017 at 7:11 AM
Subject: ECOS MEMBERS: New ECOS/EPA Summary Report & Webinar Series Announcement: Evaluating Innovative Approaches to Fostering Environmental Compliance
To: "Macy, Jim" <jim.macy@nebraska.gov<mailto:jim.macy@nebraska.gov>>, Sonia Altieri <saltieri@ecos.org<mailto:saltieri@ecos.org>>, Kelly Poole <kpoole@ecos.org<mailto:kpoole@ecos.org>>, "Stine, John (MPCA)" <john.stine@state.mn.us<mailto:john.stine@state.mn.us>>, Martha Rudolph <martha.rudolph@state.co.us<mailto:martha.rudolph@state.co.us>>, Todd Parfitt <todd.parfitt@wyo.gov<mailto:todd.parfitt@wyo.gov>>, "Keogh, Becky" <Keogh@adeq.state.ar.us<mailto:Keogh@adeq.state.ar.us>>

ECOS MEMBERS: PLEASE SEE THE BELOW TRANSMITTAL FROM ECOS COMPLIANCE COMMITTEE CHAIR JIM MACY (NE) & U.S. EPA OECA'S DAVID HINDIN

On behalf of ECOS and U.S. EPA, we're pleased to share with you the workshop report "Research on Effective Government: A Workshop on Evaluating Innovative Approaches to Fostering Environmental Compliance."

The workshop, held on January 27, 2017, in Washington, D.C., brought together environmental regulators from EPA and state agencies with academic scholars from a variety of disciplines for interactive discussions about how research can help EPA and states leverage social science knowledge and research methods to improve the effectiveness of our environmental programs in fostering

compliance. For example, we discussed the permits and rules we issue, monitoring, reporting and transparency, and innovative enforcement.

Discussions from the workshop are already spurring conversations on how innovative compliance strategies might benefit state and federal environmental activities. For instance, Ohio EPA is currently working with universities in the state to use social science to improve Ohio EPA's compliance outcomes; Maryland Department of the Environment is now exploring academic collaborations as well; and U.S. EPA has three MOUs with leading research universities to support this work. We'd like to use the energy and enthusiasm from this workshop to identify further opportunities for engagement and collaboration.

To accomplish this goal, ECOS and U.S. EPA will host a series of webinars designed for states and U.S. EPA program managers to provide examples of how social and behavioral science findings have informed public health efforts followed by a discussion of potential compliance programs ripe for analysis. This dialogue with academics will share what social science knows on best practices in compliance effectiveness strategies and how innovative pilots in states and EPA can test new ways to improve compliance outcomes.

The webinars will be held on the following dates and times:

o Introduction – June 27, 2017, 3:00 - 4:00 p.m. ET

o Monitoring – August 9, 2017, 3:00 - 4:30 p.m. ET

o Rule and Permit Design – September 28, 2:00 - 3:30 p.m. ET

o Reporting and Transparency – October 24, 2:00 - 3:30 p.m. ET

o Innovative Enforcement – November (TBD)

We want to thank the hosts of the workshop, including Professor Katharine Abraham (University of Maryland, Department of Economics), Professor Jay Shimshack (University of Virginia, Batten School of Public Policy), and Professor Michael Toffel (Harvard Business School). We greatly appreciate their contribution to organize and host the workshop and continued support for these efforts.

If you have any questions about the workshop, please contact Michael Toffel (mtoffel@hbs.edu<mailto:mtoffel@hbs.edu>), Jay Shimshack (jay.shimshack@virginia.edu<mailto:jay.shimshack@virginia.edu>), or Katheryn Abraham (kabraham@umd.edu<mailto:kabraham@umd.edu>). If you have questions about the upcoming webinars, please contact Sonia Altieri, ECOS, at saltieri@ecos.org<mailto:saltieri@ecos.org> or Leslie Cronkhite, U.S. EPA, at cronkhite.leslie@epa.gov<mailto:cronkhite.leslie@epa.gov>.

Finally, in addition to these webinars, if your agency has a program or activity that you believe could benefit from some improvements to better promote compliance, you may share these ideas (even if rough) with Sonia and Leslie for a preliminary review to determine if these ideas are appropriate for sharing with the academic community on how to address such challenges with an innovative pilot.

Best wishes,

Jim Macy

Director, Nebraska Department of Environmental Quality

Chair, ECOS Compliance Committee & ECOS Executive Committee Region VII Representative

David Hindin

Director, Office of Compliance

Office of Enforcement and Compliance Assurance

U.S. Environmental Protection Agency

<Workshop report_FNL_5-30-17 (003).pdf>

To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Bangerter, Layne[bangerter.layne@epa.gov]; Hannon, Arnita[Hannon.Arnita@epa.gov]; Dalbey, Matthew[Dalbey.Matthew@epa.gov]
From: Kate Meis
Sent: Fri 5/26/2017 8:17:48 PM
Subject: Policymakers Are Asking for Your Support of the National New Partners for Smart Growth Conference
Policymaker_LGC_NPSG Letter.pdf

Samantha Dravis,

As local policymakers from a diverse range of communities, we are writing to ask your support of the National New Partners for Smart Growth Conference.

The New Partners for Smart Growth Conference has been a 17-year partnership between the U.S. EPA, the Local Government Commission and bi-partisan industry leaders from state government, grassroots nonprofits and private companies.

As local policymakers we participate in this conference— which has collectively drawn a total of over 16,000 people— to connect with a national audience of other local elected officials; state and federal agency leaders; professionals in planning, transportation, public health, architecture, public works, parks and recreation, crime prevention; realtors, developers, builders and bankers; advocates for equity and environmental justice; and all others committed to building safer, healthier and more livable communities.

The New Partners conference has guided a strong and diverse movement for community revitalization for over a decade and a half. The enduring strength of the conference comes from the diversity of participants who cross disciplinary lines to share expertise, best practices, inspiration, and proven implementation tools and strategies.

With the critical issues facing America's communities including declining infrastructure, growing inequality and economic distress— there are more reasons than ever to join efforts with new partners to work towards a common goal of creating economically viable, equitable, and livable communities for all.

Continued support from the U.S. EPA for the New Partners for Smart Growth conference sends a strong signal to subnational leaders that the agency supports cooperative partnerships between national, state, and local leaders to improve local economies and solve community challenges.

We look forward to an ongoing partnership on this conference, and in community revitalization efforts at large.

Sincerely,

Oliver Baines, *Councilmember, City of Fresno*

Catherine Blakespear, *Mayor, City of Encinitas*

Thomas Butt, *Mayor, City of Richmond*

Miguel Canales, *Councilmember, City of Artesia*

Krissana Clark, *Mayor, City of Sherwood*

Dominic Farinha, *Councilmember, City of Patterson*

Abel Guillen, *Councilmember, City of Oakland*

Steve Hansen, *Councilmember, City of Sacramento*

Bill Henry, *Councilmember, City of Baltimore*

Tim Knapp, *Mayor, City of Wilsonville*

Jake Mackenzie, *Mayor, City of Rohnert Park*

Michele Martinez, *Councilmember, City of Santa Ana*

Daron McDaniel, *Supervisor, County of Merced*

Pam O'Connor, *Councilmember, City of Santa Monica*

Jane Parker, *Supervisor, County of Monterey*

Leticia Perez, *Supervisor, County of Kern*

Kate Meis

Executive Director
Local Government Commission
980 9th St., Ste 1700, Sacramento, CA 95814
916-448-1198x305

SAVE THE DATES: The 17th Annual New Partners for Smart Growth Conference is being held February 1-3, 2018 in San Francisco, CA! Visit NewPartners.org for more information!

CivicSpark is now recruiting Project Partners for 2017-18
Over the past 3 years, CivicSpark, LGC's Governor's Initiative AmeriCorps program has provided 130,000+ hrs of climate and water capacity-building support to over 100 public agencies. If you are a local government, State agency, or an NGO with a climate or water action project need, visit our website to learn more and apply to receive project support!

.

Local Government Commission
980 9th Street • Suite 1700 • Sacramento, CA 95814 • (916) 448-1198

May 26, 2017

Samantha Dravis
Associate Administrator for Policy
U.S. EPA
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N.W.
Mail Code: 1804A
Washington, DC 20460

Dear Samantha,

As local policymakers from a diverse range of communities we are writing to a support of the National New Partners for Smart Growth Conference.

The New Partners for Smart Growth Conference is a year partnership 17 between the U.S. EPA, the Local Government Commission and a bipartisan industry leaders from state government, grassroots nonprofits and private companies.

As local policymakers we participate in this which has collectively drawn a total of over 16,000 people connect with a national and other local elected officials state and federal agency leaders professionals in planning, tran public health, architecture, public works, parks and recreation, crime prevention realtors, developers, builders and bankers advocates for environmental justice and all others committed to building safer, healthier and more liv communities.

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Local Government Commission
980 9th Street • Suite 1700 • Sacramento, CA 95814 • (916) 448-1198

We look forward to an ongoing partnership on this conference, and in cor revitalization efforts at large.

Sincerely,

Oliver Baines, *Councilmember, City of Fresno*
Catherine Blakespear, *Mayor, City of Encinitas*
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Steve Hansen, *Councilmember, City of Sacramento*
Bill Henry, *Councilmember, City of Baltimore*
Tim Knapp, *Mayor, City of Wilsonville*
Jake Mackenzie, *Mayor, City of Rohnert Park*
Michele Martinez, *Councilmember, City of Santa Ana*
Daron McDaniel, *Supervisor, County of Merced*
Pam O'Connor, *Councilmember, City of Santa Monica*
Jane Parker, *Supervisor, County of Monterey*
Leticia Perez, *Supervisor, County of Kern*

CC: Layne Bangerter
Deputy Associate Administrator for Intergovernmental Relations, U.S. EPA

M. Arnita Hannon
Intergovernmental Liaison, U.S. EPA

Matthew Dalbey
Director, Office of Sustainable Communities, U.S. EPA

To: Myron Ebell[Myron.Ebell@cei.org]
From: Myron Ebell
Sent: Sun 5/14/2017 6:29:37 PM
Subject: Cooler Heads Coalition next meeting and update on Paris

The Cooler Heads Coalition will meet on Monday, 22nd May, beginning at 12 noon at CEI, 1310 L Street, N. W, Seventh Floor. Please e-mail me with agenda items or questions.

Pasted below is an update on the Paris Climate Treaty from Friday's Cooler Heads Digest. I concentrate on what the other side is doing. We have some more activities planned, and I hope you do, too. We have been told that op-eds and blogs on prominent sites that get picked up by the White House press clippings are useful.

I don't think the White House is paying attention to Todd Stern or George Schultz, but I think the constant drumbeat from major corporation CEOs has an effect. Here is the list of corporations that signed on to the full page ad sponsored by C2ES last week: Adobe, Apple, Danfoss, Facebook, Gap, Google, Hewlett Packard Enterprise, Ingersoll Rand, Intel, Johnson Controls, Mars, Microsoft, Morgan Stanley, National Grid, PG&E, Salesforce, Schneider Electric, Unilever, and VF. Several more corporations are listed in the letter on the C2ES web site, including Levi Strauss and Tiffany: https://www.c2es.org/international/business-support-paris-agreement. Then there is the letter from 217 investment groups: http://investorsonclimatechange.org/wp-content/uploads/2017/05/Global-Investor-Letter-to-G7G20-Governments.pdf. And Exxon Mobil, BP, Shell, and Conoco Phillips are also urging the President to stay in Paris.

Here are some resources:

https://cei.org/blog/paris-agreement-and-imperial-presidency-my-response-david-bookbinder

https://cei.org/content/legal-and-economic-case-against-paris-climate-treaty

https://cei.org/content/forty-four-free-market-groups-urge-trump-withdraw-paris-climate-agreement

White House Again Delays Decision on Paris Climate Treaty

White House press secretary Sean Spicer announced at his daily press briefing on 9th May that President Donald J. Trump would delay announcing his decision on whether to withdraw from the Paris Climate Treaty until after the G7 summit, which will take place in Sicily on 26th and 27th May. The latest delay comes after another week of reports that senior administration officials remain deeply divided on whether to withdraw.

Those who want the President to break his campaign promise have been busy this week. Secretary of State Rex Tillerson hosted the meeting of the Arctic Council, where he signed the Fairbanks Declaration along with seven other ministers. Paragraphs 23 to 33 are on "Addressing the Impacts of Climate Change."

Director of National Intelligence and former Indiana Senator Daniel Coats testified on 11th May to the Senate Select Committee on Intelligence on the "Worldwide Threat Assessment of the U. S. Intelligence Community." Pages 12 and 13 discuss the threats posed to national security by climate change.

It was reported that former Vice President Al Gore spoke by phone with President Trump to urge him to stay in Paris. Representative Kevin Cramer (R-ND) published an op-ed in the Wall Street Journal urging the President to break his campaign promise, which was first made in a major energy policy speech in Bismarck, North Dakota on 26th May 2017. Rep. Cramer introduced Mr. Trump.

Former Secretary of State George Shultz and Ted Halstead, president of the Climate Leadership Council, published an op-ed in the New York Times on "The Business Case for the Paris Climate Accord," which my CEI colleague Marlo Lewis discusses here. I agree with Marlo that they make a pathetic case.

The BBC reported that delegates to the subsidiary body meetings of the UN Framework Convention on Climate Change being held in Bonn, Germany this week are putting all their hopes on Ivanka Trump, who has an office in the White House as an unofficial adviser to her father. The AP reported earlier that Ivanka Trump has been put in charge of a review of U. S. climate policy, but it's not clear who put her in charge. It has also been rumored, but I haven't seen a press report, that Ivanka is arranging a climate science briefing for her father. I shudder to think who might be invited to give the briefing.

Myron Ebell

Director, Center for Energy and Environment

Competitive Enterprise Institute

1310 L Street, N. W., Seventh Floor

Washington, DC 20005, USA

Tel direct: (202) 331-2256

Tel mobile: (202) 320-6685

E-mail: Myron.Ebell@cei.org

Stop continental drift!

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Dan Colegrove
Sent: Mon 5/8/2017 1:35:31 PM
Subject: Letter Regarding Paris Treaty
Untitled_20170405_132406.pdf

Good morning Samantha –

Thank you again for helping to arrange a meeting at EPA last month with Roger Helmer, a UK member of the European Parliament. Roger has been very active in urging signatories to the Paris Treaty to withdraw.

Roger recently spearheaded a letter to President Trump from 20 members of the EU Parliament (attached) encouraging the President to send a message to the world by withdrawing the US from the agreement. I realize this issue isn't entirely in the purview of EPA but I thought you should see the letter and I'm sure Roger can answer any questions about it that you or the Administrator might have.

Thanks again, please let me know if we can be helpful in any way in the future.

Dan Colegrove

Senior Advisor

GODDARD GUNSTER

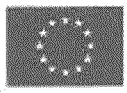
2121 K Street, NW #850

Washington, DC 20037

(202) 329 – 6242

www.goddardgunster.com

EUROPEAN PARLIAMENT



MEMBER OF THE EUROPEAN PARLIAMENT

European Parliament, Rue Wiertz 60, ASP 04F151
B - 1047 Brussels, Belgium email: roger.helmer@europarl.europa.eu

The Honorable Mr. Donald J. Trump
President of the United States
The White House
1600 Pennsylvania Ave NW,
Washington, DC 20500, USA

April 2017

Dear Mr. President,

We the undersigned, Members of the European parliament, would like to offer you our sincere congratulations on your election as President of the United States of America. We are glad to affirm the high value we place on the Transatlantic Alliance, which has been such a force for peace, for prosperity and for the values we share.

We particularly applaud the new realism which you personally have brought to the climate issue and to energy policy. We recognise the very positive impact which your decisions will have in ensuring the availability of secure and affordable energy in the USA, underpinning American competitiveness. We on our part are pressing for similar policies on this side of the Atlantic.

We recall your campaign pledge to withdraw the USA from the Paris Climate Treaty, and we would urge you to put this into effect with as little delay as possible. We believe that the Paris agreement is potentially damaging, especially to developed western economies. We also believe that an early decision by your Administration to pull out of the Paris agreement will effectively neuter it, to the benefit of us all.

EUROPEAN PARLIAMENT

MEMBER OF THE EUROPEAN PARLIAMENT

At the same time, we would urge you to take action to withdraw the carbon dioxide endangerment finding, which has no sound basis in science, but which provides a pretext for damaging and extreme environmental policies.

Policy developments under your leadership, Mr. President, are already very encouraging and exciting. We look forward to following the progress of your Administration, and we offer you our support and encouragement in pursuing rational and effective energy and climate policies.

Sincerely Yours

ROGER HELMER MEP (UK)

BEATRIX VON STORCH MEP (Germany)

EUROPEAN PARLIAMENT

MEMBER OF THE EUROPEAN PARLIAMENT

Letter on Climate to President Trump April 2017

STUART AGNEW MEP (UK)

TIM AKER MEP (UK)

BILL ETHERIDGE MEP (UK)

NATHAN GILL MEP (UK)

MIKE HOOKEM MEP (UK)

MARGOT PARKER MEP (UK)

DIANE JAMES MEP (UK)

RAY FINCH MEP (UK)

DAVID COBURN (UK)

PETR MACH MEP (CZECH)

PETER LUNDGREN MEP (SWEDEN)

STEVEN WOOLFE (UK)

To: Myron Ebell[Myron.Ebell@cei.org]
From: Myron Ebell
Sent: Mon 5/8/2017 2:17:12 PM
Subject: Cooler Heads Coalition alert : Joint Letter to President Trump on the Paris Climate Treaty
Letter to President Trump on Paris Climate Treaty from CEI, AEA, and 39 organizations, 8 May 2017.pdf

Please find the PDF of our joint letter attached.

Here is the link: https://cei.org/content/forty-free-market-groups-urge-trump-withdraw-paris-climate-agreement.

Here is the link to our press release: https://cei.org/content/cei-and-aea-lead-coalition-forty-free-market-groups-urging-trump-withdraw-paris-climate.

Also here is the link to an AP story, which shows what we are up against: http://www.timesofisrael.com/ivanka-trump-to-review-climate-change-as-us-mulls-paris-pullout/.

Myron Ebell

Director, Center for Energy and Environment

Competitive Enterprise Institute

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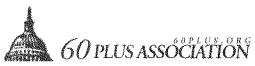


May 8, 2017

The Honorable Donald J. Trump
President of the United States
The White House
1600 Pennsylvania Ave., N.W.
Washington, D.C. 20500

Dear Mr. President,

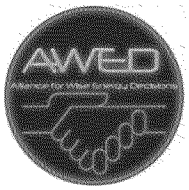
We, the undersigned, write in enthusiastic support of your campaign commitments to withdraw fully from the Paris Climate Treaty and to stop all taxpayer funding of UN global warming programs. We were heartened by the comments you made at your 100-day rally in Harrisburg and agree that the treaty is not in the interest of the American people and the U. S. should therefore not be a party to it.

Withdrawing from the Paris Climate Treaty is an integral part of your energy agenda. The Obama administration's Nationally Determined Contribution (or NDC) to the Paris Climate Treaty commits the United States to take actions that will reduce greenhouse gas emissions by 17% below 2005 levels by 2020 and by 26% to 28% below 2005 levels by 2025. Paris then requires a more ambitious NDC every five years in perpetuity.

The NDC cites specific policies undertaken by the Obama administration as part of the NDC. These include: the greenhouse gas emissions rules for existing (the "Clean Power" Plan) and new power plants; Corporate Average Fuel Economy (CAFE) standards for vehicles; methane emissions rules for the oil and gas sector and for landfills; and energy efficiency and conservation standards for buildings and appliances.

Environmental pressure groups and several state attorneys general have begun to prepare lawsuits in federal court to block withdrawal of the "Clean Power" Plan and other greenhouse gas rules. One argument that they have already put forward is that these rules cannot be withdrawn because they are part of our international commitment under the Paris Climate Treaty. Failing to withdraw from Paris thus exposes key parts of your deregulatory energy agenda to unnecessary legal risk. The AGs revealed in a recruiting letter that they also plan other lawsuits "ensuring that the promises made in Paris become reality."

Some officials in your administration are relying on recent statements from former Obama administration officials that the U. S. can withdraw its NDC and submit a new NDC that makes far less ambitious commitments to reduce greenhouse gas emissions. The clear language of Article 4 of the Paris Climate Treaty contradicts that claim. Section 11 states: "A Party may at any time adjust



its existing nationally determined contribution ***with a view to enhancing its level of ambition***" (*emphasis added*).

Even if the U. S. were to be cleared by UN officials to submit a less ambitious NDC, this is not the end of the threats posed by the Paris Climate Treaty to your pro-energy agenda and to the economic future of our country. Article 4 requires each party to submit a more ambitious NDC at least every five years in perpetuity. This commitment to reduce fossil fuel use every five years cannot be wished away by those who argue that the U. S. should keep a seat at the negotiating table in order to advocate for fossil fuels.

In urging you to keep your campaign commitment, we recognize that there are several options for you to withdraw the U.S. from Paris. Of the three options listed below, we think the first two are preferable to the third.

First, you could submit the Paris Climate Treaty to the Senate for its advice and consent with a recommendation that the treaty not be ratified. Submitting the treaty to the Senate would return us to and restore the proper constitutional method for treaty-making and require a future administration to go through proper procedures if it were to attempt to rejoin the treaty.

Second, you could withdraw from the underlying UN Framework Convention on Climate Change (UNFCCC). This action would also achieve your commitment to "stop all payments of the United States tax dollars to UN global warming programs," including the Green Climate Fund, which is a part of the UNFCCC.

Third, you could announce your intention to withdraw the U. S. from the Paris Climate Treaty according to the four-year schedule specified in the treaty and continue the process of repealing the regulations that the previous administration submitted as part of its NDC. This option is the least preferable because it runs the risk of legitimizing the Obama administration's false claim that the treaty is merely an executive agreement.

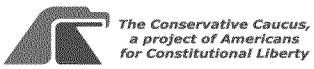
The undersigned organizations believe that withdrawing completely from Paris is a key part of your plan to protect U.S. energy producers and manufacturers from regulatory warfare not just for the next four years but also for decades to come. We will strongly support your decision to keep your campaign commitment to withdraw from the Paris Climate Treaty.

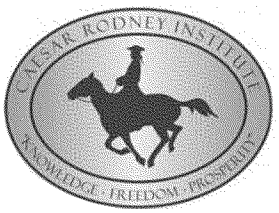
Sincerely,

Myron Ebell, Director, Center for Energy and Environment
Competitive Enterprise Institute

Thomas J. Pyle, President
American Energy Alliance

Joseph Bast, President
The Heartland Institute





Grover G. Norquist, President
Americans for Tax Reform

Chrissy Harbin, Vice President of External Affairs
Americans for Prosperity

Michael Needham, CEO
Heritage Action for America

Michael Costigan, Senior Advisor, Strategic Outreach
The Heritage Foundation

James L. Martin, Founder and Chairman
60 Plus Association

Craig Rucker, Executive Director
Committee For A Constructive Tomorrow

David Ridenour, President
National Center for Public Policy Research

Thomas Schatz, President
Citizens Against Government Waste

Craig Richardson, President
Energy and Environment Legal Institute

Tom DeWeese, President
American Policy Center

Richard Manning, President
Americans for Limited Government

Phil Kerpen, President
American Commitment

David Williams, President
Taxpayers Protection Alliance

Mario H. Lopez, President
Hispanic Leadership Fund

David Bozell, President
For America

Kenneth Haapala, President
Science and Environmental Policy Project

Craig D. Idso, Chairman
Center for the Study of Carbon Dioxide and Global Change

William Happer, President
The CO2 Coalition

E. Calvin Beisner, Founder and National Spokesman
Cornwall Alliance for the Stewardship of Creation

John Droz, Jr., Founder
Alliance for Wise Energy Decisions

Timothy Lee, Senior Vice President of Legal and Public Affairs
Center for Individual Freedom

Peter J. Thomas, Chairman
Americans for Constitutional Liberty

Ed Martin, President
Eagle Forum Education and Legal Defense Fund

Amy Oliver Cooke, Executive Vice President
Independence Institute (CO)

David T. Stevenson, Director, Center for Energy Competitiveness
Caesar Rodney Institute (DE)

Paul Gessing, President
Rio Grande Foundation

Kory Swanson, President and CEO
John Locke Foundation

Francis De Luca, President
Civitas Institute

Forest Thigpen, President
Mississippi Center for Public Policy

Eldon Alexander, President
Faith and Freedom Foundation

Lynne Roberts, President
Americans United for Freedom

Rich Johns, President
Liberty Tree Alliance

Aileen Milton, President
The Villages Tea Party

Debbie Gunnoe, President
Navarre Patriots

Sam Mullins, Co-Founder
Santa Rosa Tea Party Patriots

Hon. Mike Hill, Founder
Northwest Florida Tea Party

Stephani Scruggs Bowen, COO
Coalition for a Strong America

Alan Moran, Director
Australian Environment Foundation

To: Myron Ebell[Myron.Ebell@cei.org]; Catanzaro, Michael J. EOP/WHO[Michael.J.Catanzaro@who.eop.gov]; Brooke, Francis J. EOP/OVP[Francis.J.Brooke@ovp.eop.gov]; Mashburn, John K. EOP/WHO[John.K.Mashburn@who.eop.gov]; Dearborn, Rick A. EOP/WHO[Rick.A.Dearborn@who.eop.gov]; Conway, Kellyanne E. EOP/WHO[Kellyanne.E.Conway@who.eop.gov]; Bremberg, Andrew P. EOP/WHO[Andrew.P.Bremberg@who.eop.gov]
Cc: Jackson, Ryan[jackson.ryan@epa.gov]; Dravis, Samantha[dravis.samantha@epa.gov]
From: Teller, Paul S. EOP/WHO
Sent: Mon 5/8/2017 1:58:29 PM
Subject: RE: Letter to President Trump on Paris Climate Treaty from 41 non-profit organizations

Thanks good sir

Paul Teller

Special Assistant to the President for Legislative Affairs

The White House

Paul.S.Teller@who.eop.gov

From: Myron Ebell [mailto:Myron.Ebell@cei.org]
Sent: Monday, May 8, 2017 9:51 AM
To: Catanzaro, Michael J. EOP/WHO <Michael.J.Catanzaro@who.eop.gov>; Teller, Paul S. EOP/WHO <Paul.S.Teller@who.eop.gov>; Brooke, Francis J. EOP/OVP <Francis.J.Brooke@ovp.eop.gov>; Mashburn, John K. EOP/WHO <John.K.Mashburn@who.eop.gov>; Dearborn, Rick A. EOP/WHO <Rick.A.Dearborn@who.eop.gov>; Conway, Kellyanne E. EOP/WHO <Kellyanne.E.Conway@who.eop.gov>; Bremberg, Andrew P. EOP/WHO <Andrew.P.Bremberg@who.eop.gov>
Cc: jackson.ryan@epa.gov; dravis.samantha@epa.gov
Subject: Letter to President Trump on Paris Climate Treaty from 41 non-profit organizations

Please find attached our joint letter from 41 non-profit conservative and free market groups to President Trump urging him to keep his campaign commitment to withdraw from the Paris Climate Treaty. I find it totally convincing and hope the President and you will, too.

Myron Ebell

Director, Center for Energy and Environment

Competitive Enterprise Institute

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Stop continental drift!

To: Myron Ebell[Myron.Ebell@cei.org]
From: Myron Ebell
Sent: Wed 4/26/2017 3:42:50 PM
Subject: Cooler Heads Coalition alert on Paris Climate Treaty

The meeting of administration principals is now scheduled for tomorrow, Thursday. It is not expected that they will agree on a recommendation to the President, but may agree on some issues or clarify some differences.

Energy Secretary Rick Perry said yesterday that he supports staying in Paris and re-negotiating it. It's not known whether he was briefed on the feasibility of re-opening the treaty. There is no provision for us to withdraw our Nationally Determined Contribution and then submit a less ambitious one. The EU would demand as a condition of re-opening the whole treaty that it include more mandatory requirements. The developing nations would demand better guarantees that the Green Climate Fund will be fully funded and will increase each year. It's also not known whether Perry was briefed on President Trump's other campaign promise to de-fund UN climate programs. Funding the UNFCCC in any amount has been illegal under PL 103-236 since 17th March 2016 when Palestine became a full member. Perhaps Perry has been converted to the cause of expensive and pointless policies to reduce greenhouse gas emissions and joined the climate-industrial comple--which are a powerful client class at DOE.

The National Mining Association voted 26-5 yesterday to support President Trump's campaign promise to withdraw from Paris. It is my understanding that the 5 no votes were from Cloud Peak Energy (the big Wyoming coal company) and four multi-national hardrock mining companies.

The Cooler Heads Coalition's May monthly strategy meeting will be on Monday, 22nd May, beginning at 12 noon, at CEI, 1310 L Street, N. W., Seventh Floor. Please e-mail or ring me at 331-2256 with agenda items or questions.

Myron Ebell

Director, Center for Energy and Environment

Competitive Enterprise Institute

1310 L Street, N. W., Seventh Floor

Washington, DC 20005, USA

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Stop continental drift!

To: Pruitt, Scott[Pruitt.Scott@epa.gov]
Cc: Flynn, Mike[Flynn.Mike@epa.gov]; Reeder, John[Reeder.John@epa.gov]; Dravis, Samantha[dravis.samantha@epa.gov]; Dunham, Sarah[Dunham.Sarah@epa.gov]; Gunning, Paul[Gunning.Paul@epa.gov]; Page, Steve[Page.Steve@epa.gov]; Kavlock, Robert[Kavlock.Robert@epa.gov]; Harvey, Reid[Harvey.Reid@epa.gov]; Sonich-Mullin, Cynthia[Sonich-Mullin.Cynthia@epa.gov]
From: Frank Princiotta
Sent: Sat 4/22/2017 9:50:42 PM
Subject: My paper: We are losing the climate change challenge; can we recover?
We Are Losing the Climate Change Challenge pre-pub.docx

Mr. Pruitt, EPA Administrator

I am a recent EPA retiree who had the privilege of working for the agency for 42 years. While at the agency, I managed research programs in the areas of air pollution control, stratospheric ozone protection, acid rain control, indoor air quality and in recent years, global climate change. In the climate area, I have edited a book on climate change mitigation, authored several papers and have given presentations to a number of universities and technical societies on this subject. Of all the environmental issues I have been associated with over the years, this is easily the most important and the most challenging, and time is not on our side.

Most recently I have authored the attached paper: *We are losing the climate change challenge; can we recover?* The paper has been peer reviewed and will soon be published (as an invited paper) by the Materials Research Society-Energy and Sustainability Journal. I believe this paper clearly documents that humanity has dug itself a very deep hole, and that Earth's habitability for our children, grandchildren and subsequent generations is seriously threatened. The paper quantifies the mitigation challenge and lays out concrete steps that need to be taken to reduce the potentially catastrophic impacts that are only a few decades away.

I respectfully request that you review this manuscript and would welcome the opportunity to discuss this issue with you or anyone on your staff.

Sincerely Yours,

Frank Princiotta

Retired, EPA Senior Executive

We Are Losing the Climate Change Mitigation Challenge; Is it Too Late to Recover?

-

Frank Princiotta, Retired, EPA Research Director

Abstract

The status of the climate change mitigation challenge is analyzed and summarized. Pressures spawned by industrialization and population growth have driven unsustainable growth in greenhouse gas (GHG) emissions, yielding global warming. Such warming has accelerated over the last three years and for 2016 was 1.3°C over pre-industrial levels. Serious climate change induced impacts have already occurred and more serious ones are projected. The recent UN Paris COP agreement is only a small step toward meaningful mitigation. It will only slow emission growth and will not lead to near term aggressive annual emission decreases, which are needed to avoid warming of 2°C or more. We are losing the battle to protect the planet from unacceptable climate change impacts. In order to minimize the impacts, the following is needed: more aggressive communication of the seriousness of the problem to national leaders and the public, a serious adaptation program, a dramatically expanded R,D &D program to accelerate the development of low cost low C technologies, with a focus on potentially transformational technologies. and a serious commitment to peak global emissions as soon as possible and drastically reduce such emissions annually from that point on. A global agreement to set a price on carbon (C) could be effective in helping to achieve such an aggressive emission reduction trajectory.

Pre-publication

Highlights

We are losing the climate change mitigation challenge. The task now before us: minimize the impacts.

Discussion

-Is there a credible path to limit warming to no more than 2 degrees C?

-What role can material recycling play in mitigating CO2 emissions?

-How can we communicate the threat of potentially catastrophic climate change impacts to society more effectively?

Global warming has accelerated in recent years; we are approaching 1.5 C warming from

17cv1906 Sierra Club v. EPA - 6/22 Production ED_001523_00008173-00001

the pre-industrial era

The planet continues to warm. Over the last three years, global warming has accelerated. 2016 was the third consecutive year of record warming increases. Figure 1[1], summarizes the temperature history relative to the 1881-1910 period. As can be seen, global temperatures increased by about 0.3C^0 over the last three years to a projected overall warming of ~1.3ºC, from pre-industrial levels. It should be noted that this extraordinary recent acceleration in warming was likely influenced by a strong El Nino meteorological event, which has the characteristic of moving heat from the ocean to the atmosphere. Since this periodic event has faded, it appears unlikely that we will see such dramatic warming increases in the next several years. Nevertheless, these recent data debunk climate skeptics who have argued that in recent years there has been a major "slow down" in global warming, which, they argued, means near term action is not necessary.

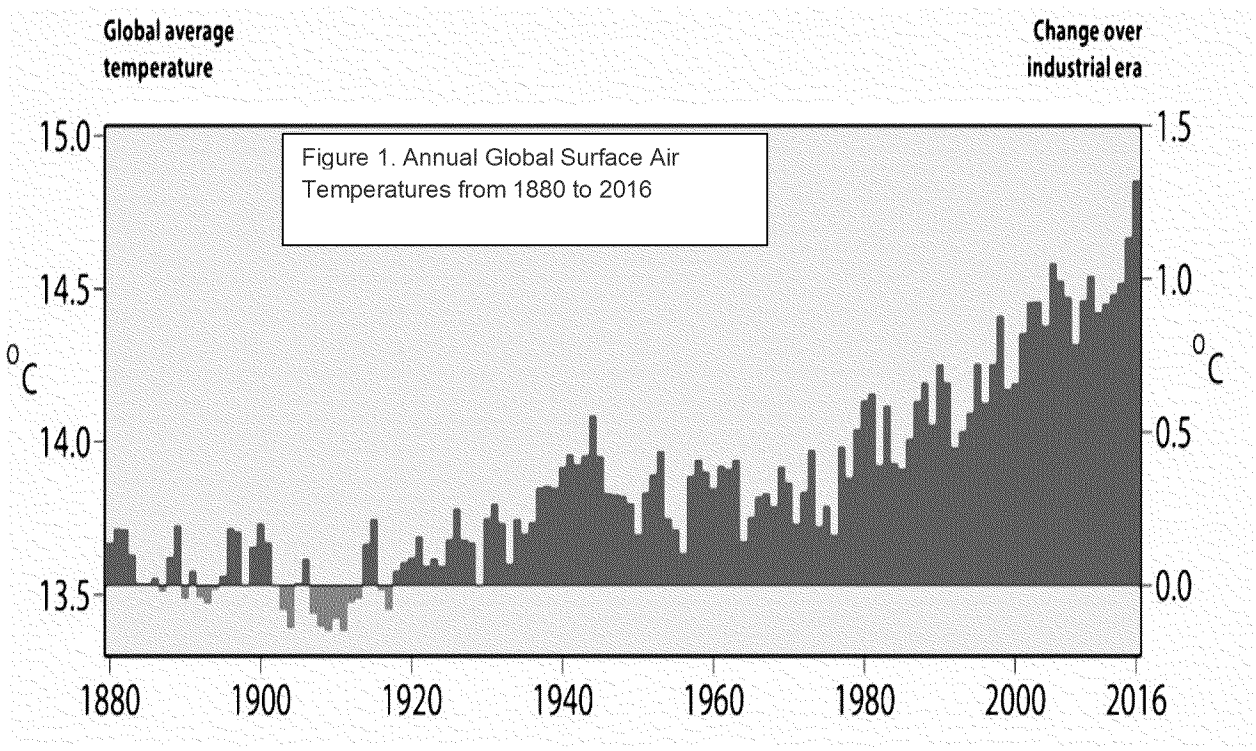


Figure 1. Annual Global Surface Air Temperatures from 1880 to 2016

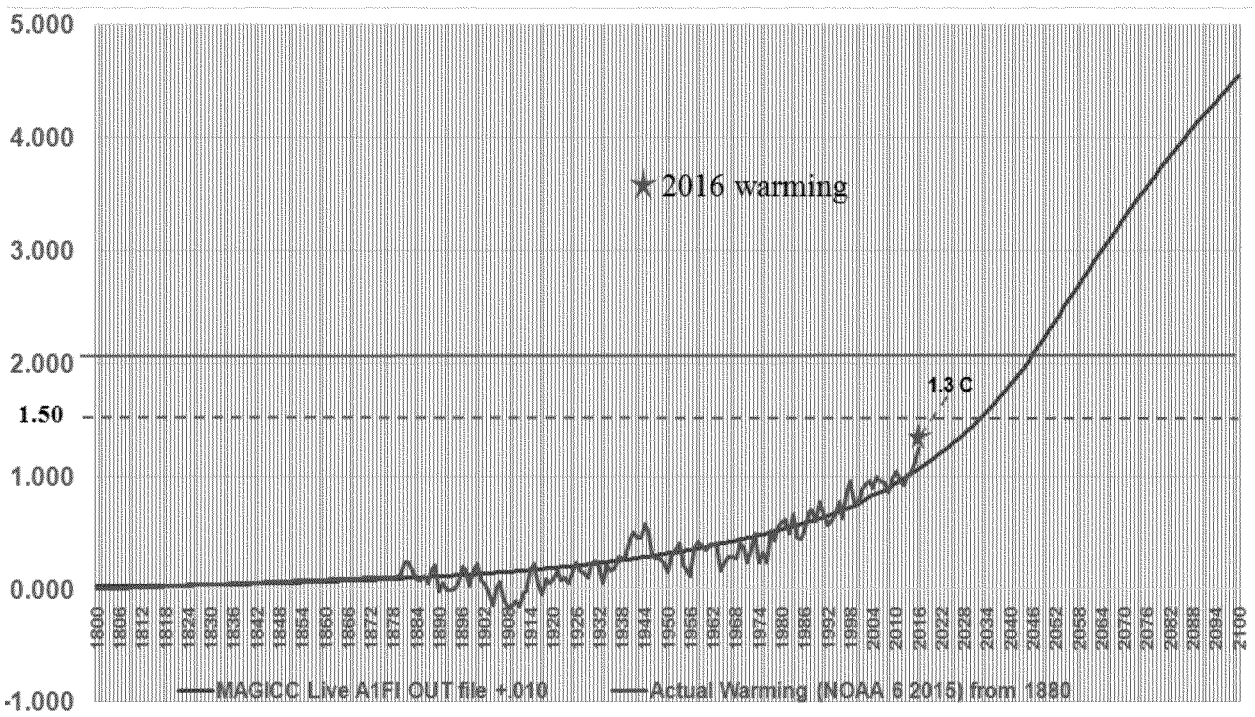
Source: Copernicus Climate Change Service, ECMWF, for data from 1979: Met Office Hadley Centre, NASA & NOAA for blended data prior to 1979. Reprinted with permission

It is important to note that the recent United Nations Framework Convention on Climate Change (UNFCCC)[2], has set a goal for maximum global warming by *"Holding the increase in the global average*

temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change"

Given the UNFCCC goal, Figure 2 projects warming from the pre-industrial era, and compares it to actual warming including the recent 2016 warming. The model used was the on-line MAGICC Live[3] (default assumptions) and assumed the IPCC fossil fuel intensive emission scenario (A1FI). As can be seen, actual warming matches the model projected warming quite well. Such a close correlation suggests that if we continue on a business as usual fossil energy intensive path, we could see warming of 1.5°C by 2030 and 2.0°C by 2046. This does not allow much time for humanity to make fundamental changes in how we generate and use energy, which will be needed if we are to avoid the potentially catastrophic consequences of climate change.

Figure 2. Actual versus projected warming, 1800 to 2100, °C



It is important to recognize the uncertainties inherent in such projections. Figure 3, again generated using

the MAGICC Live model[3], depicts projected warming from 2000 to 2100 including ranges of uncertainty generated via a multi-model ensemble of warming projections. Such projections suggests that at the upper band of the uncertainty range, 1.5°C warming could occur as soon as 2028 and 2°C warming as soon as 2040.

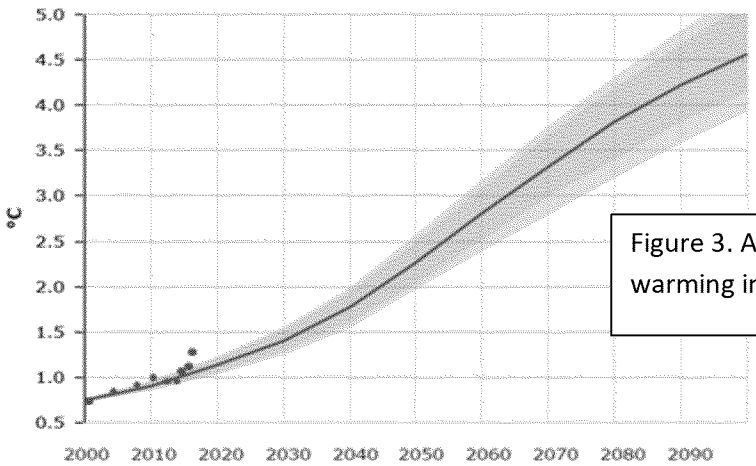


Figure 3. Actual Versus Projected warming including uncertainty range

Greenhouse Gas (GHG) emissions are the primary driver for the observed Warming

Pre-publication

Although it is clear that the planet is warming, what are the drivers responsible for such warming? The IPCC[4] has conducted analysis concluding that emissions of GHGs are the primary driver for such warming. Figure 4 summarizes the results of this analysis. The bottom graphic compares model projections accounting for the only two factors that can influence planetary warming in decadal time frames, other than GHGs: solar radiation variations and volcanic eruptions. Major eruptions throw reflective particles in the upper atmosphere which have a near term cooling impact and a longer term warming impact as the particulates deposit and the reflective cooling diminishes. As can be seen, eruptions and solar radiation changes do not correlate well with the observed warming. However, when GHG emissions are included, there is an excellent correlation. Figure 2, discussed earlier, reinforces this conclusion, since model projections incorporating GHG emissions alone, also correlate well with actual warming.

It is clear, that the planet is warming and that anthropogenic emissions of GHGs are the driver.

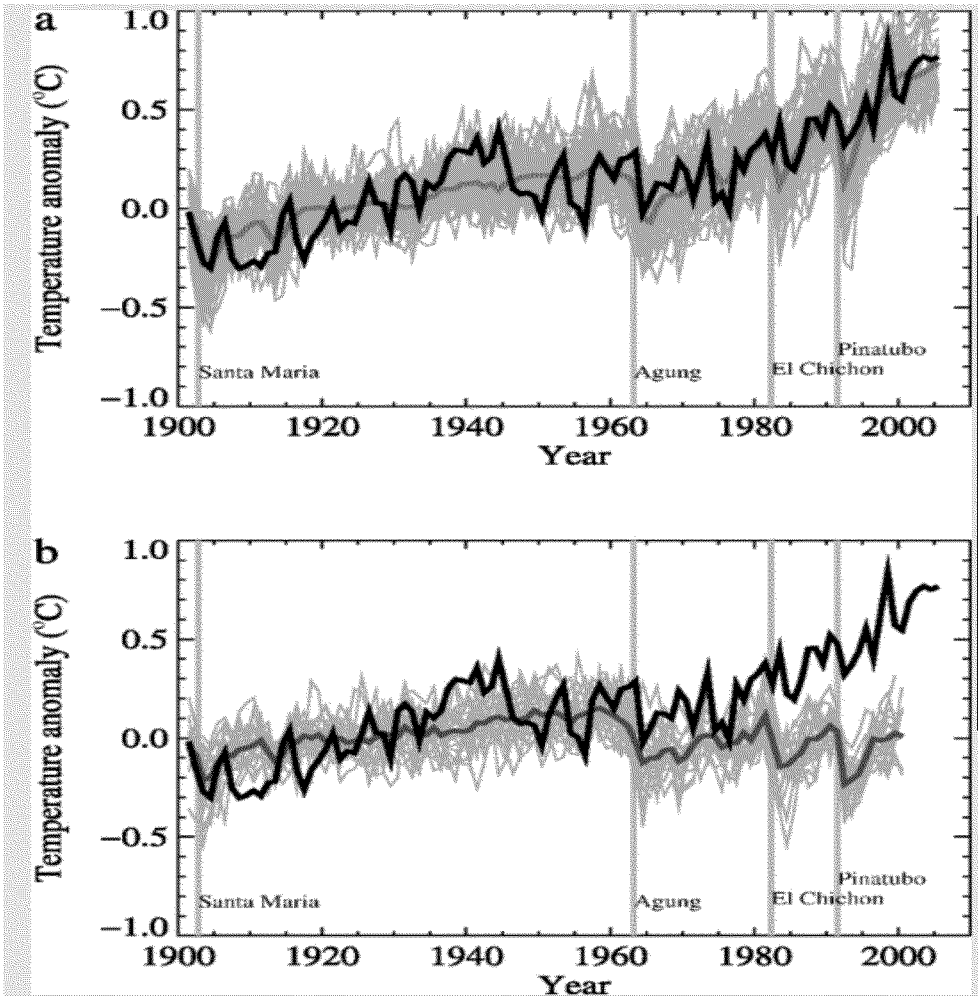


Figure 4a. GHGs emissions when included in model yield good correlation with actual temperatures

Figure 4b. Solar radiation variation and volcanic eruptions when modeled, do not predict actual temperatures

Note: Black: actual warming, Blue: natural forcings only, Red: GHG + natural forcings

Figure 9.5 from Climate Change 2007: The Physical Science Basis. Working Group I Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Reprinted with permission.

Climate Impacts are here and now; much more to come

EPA has recently published "Climate Change Indicators in the United States" [5]. This report documents the many significant impacts that climate change has already had in the U.S. They include deleterious impacts on weather, oceans, snow and ice patterns, human and ecosystem health. Figure 5[6] illustrates the most significant of these impacts.

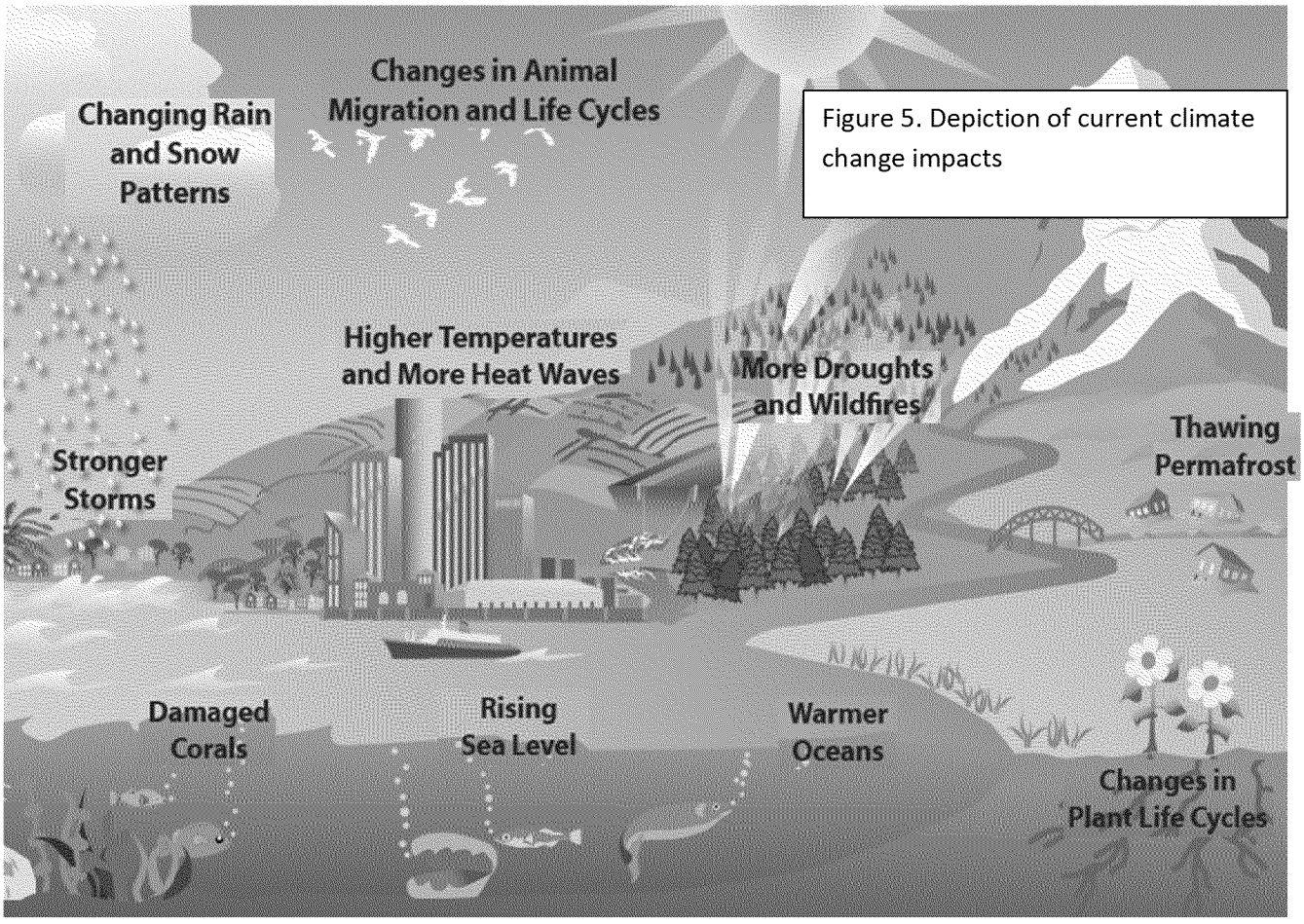


Figure 5. Depiction of current climate change impacts

Table 1 (derived from Stern[7]) projects potential climate impacts as a function of 2100 temperature rise, from pre-industrial levels for water, food, health, land and ecosystems categories. As can be seen, as warming exceeds 2.5^{0}C, serious impacts are projected in the agricultural sector, with large areas of cropland becoming unsuitable for cultivation. Also likely are large losses in biodiversity, forests, and wetlands. Desertification would be widespread, with large numbers of people experiencing increased water stress. Human and natural systems would be subject to increasing levels of agricultural pests and diseases with increases in the frequency and intensity of extreme weather events exacerbated by substantial seawater rise. Millions of people would be at risk for premature death due to malnutrition and exposure to tropical diseases. Note, not depicted in the table are risks associated with potential large scale and abrupt impacts such as Greenland ice melting and changes to atmospheric circulation. These could lead to catastrophic sea level rise and collapse of Atlantic Thermohaline Circulation (often referred

to as “Ocean Conveyer Belt).Such impacts could dramatically increase coastal flooding and yield unprecedented cooling in Western Europe and Western North America and heating in Eastern North and South America, drastically changing the climate in those regions.

Note that the first column in the table indicates the level of GHG mitigation (if any) associated with the temperature rise range. As can be seen, serious emission reductions beyond that agreed to in the Paris COP agreement will be needed (see Figure 9) if impacts are to be seriously moderated.

Pre-publication

Table 1: Potential Climate Impacts as a function of 2100 warming

Warming, °C	Water	Food	Health	Land	Environment
0.5 to 1.5°C *(current situation)*	Small glaciers in Andes melt, threatening water supplies for 50 million people	-Modest increases in cereal yields in temperate regions -Modest yield decreases in arid regions	-At least 300,000 people die annually from climate-related diseases (diarrhea, malaria & malnutrition) -Reduction in winter mortality in higher latitudes	-Event specific damage due to Increased storm intensity -Buildings & roads damaged in Canada & Russia due to permafrost thawing	~10% of land species facing extinction (per one estimate) ~80% bleaching of coral reefs causing serious coral weakening
1.5 to 2.5°C *(Likely in 20-50 years, could be maximum if humanity peaks GHG emissions in near term & dramatically reduces them annually)*	Potentially 20-30% decrease in water availability in vulnerable regions, e.g. Southern Africa, Mediterranean	Sharp declines in crop yield in tropical regions (5-10% in Africa)	40-80 million more people exposed to Malaria	Up to 10 million more people affected by coastal flooding each year	Extinction of 15-40% of all species per one estimate
2.5 to 3.5°C *(Could be maximum warming if humanity strengthens Paris Climate Accord)*	-Serious droughts in Southern Europe occur every 10 year -1 to 4 billion more people suffer water shortages	-150-550 additional millions at risk of hunger yields in high latitudes likely to peak	1-3 million more people die annually from malnutrition	Up to 170 million people affected by coastal flooding each year	-20 to 50% of all species facing extinction -Potential collapse of Amazon rainforest
3.5 to 4.5°C *(Likely warming by 2100 if humanity continues on current fossil fuel intensive path)*	Potentially 30-50% decrease in water availability in Southern Africa, Mediterranean and Western North America	Agricultural yields decline by 15-35% in Africa & some vulnerable regions out of production altogether	Up to 80 million more people exposed to Malaria Millions more die due to starvation & diseases	-Up to 300 million more people affected by coastal flooding each year -potential large scale migration with serious societal impacts	-Loss of about half of Arctic Tundra -Half of world's nature reserves failing
Greater than 4.5°C (Possible warming post 2100 if humanity continues on current fossil fuel intensive path)	Possible disappearance of large glaciers in Himalayas yielding shortages to half of China's population and hundreds of millions in India	Continued & major increase in ocean acidification seriously disrupting marine ecosystems & fish stocks	Additional millions die due to climate-related diseases and malnutrition	-potential large scale migration of hundreds of millions with catastrophic societal impacts	-Many of Earth's ecosystems seriously damaged for centuries

Pre-publication

Humanity's growing population and increasing demand for resource intensive goods and services have driven the dramatic growth in GHG emissions over the Last 50 years

Figure 6[8] illustrates the rapid growth of CO_2 emissions from fossil fuels and cement production from 1990 to 2014 and identifies the key countries responsible. The industrialization of China and other developing countries such as India have been responsible for much of the recent emission growth.

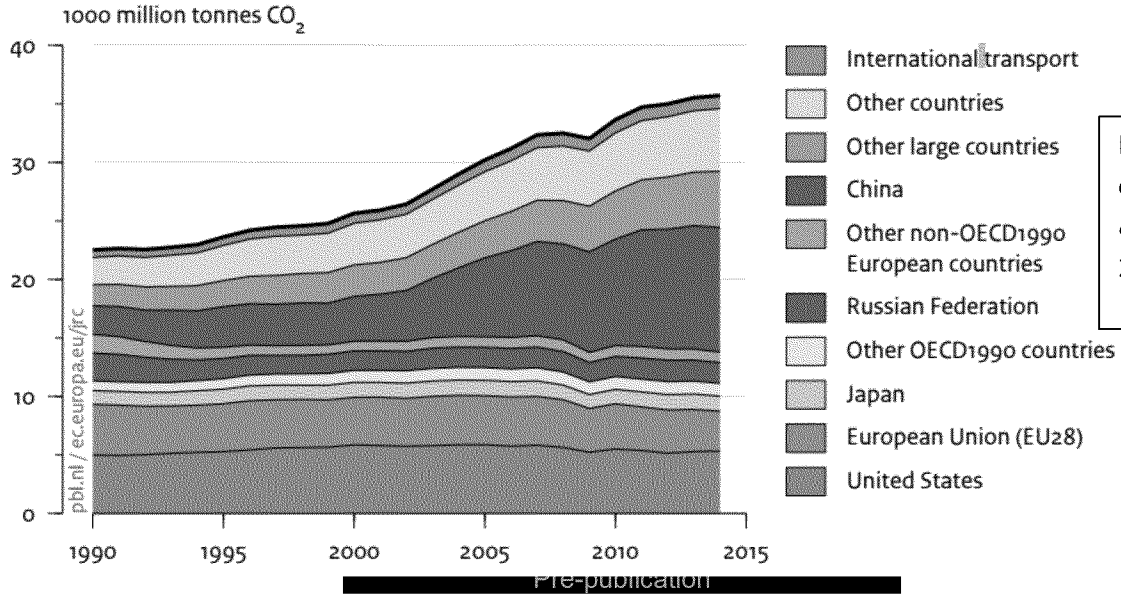
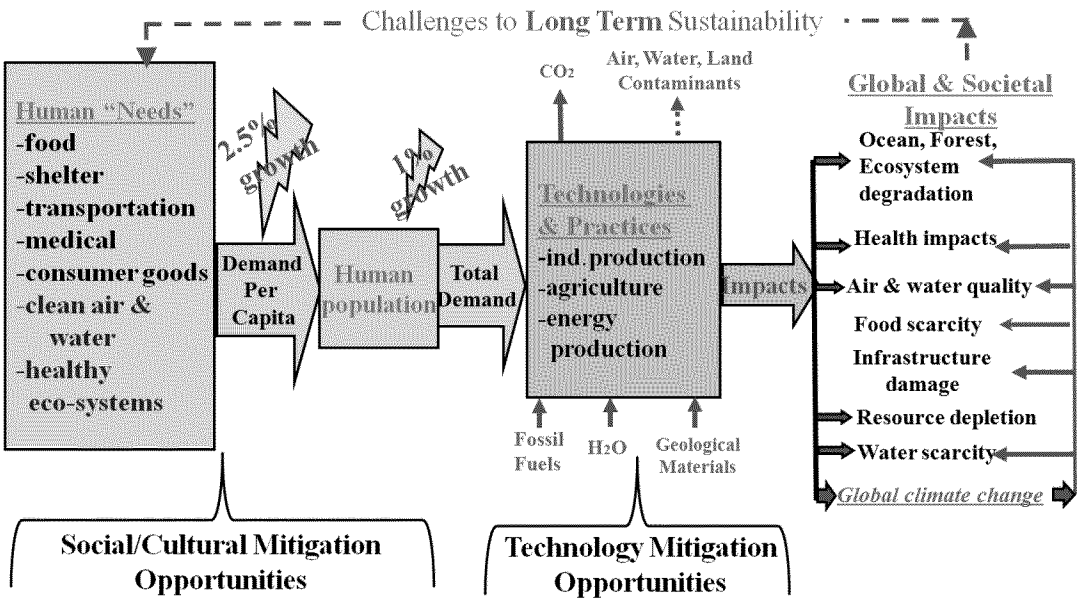


Figure 6. Emissions of CO_2 from energy & cement, 1990-2014

Reprinted with permission from PBL Netherlands Environmental Assessment Agency

Figure 7[9] illustrates the key driving forces responsible for this dramatic growth in greenhouse gas emissions in recent decades.

Figure 7. Macro view of the drivers yielding GHG emissions and the two key mitigation approaches



GHG emissions are a product of meeting human "needs" via energy intensive technologies and practices. Over time, developed nations have expanded their list of "needs" to include personal transportation, residences with energy-intensive heating, cooling, and lighting, a diet heavily oriented toward meat production, and a growing array of consumer goods. Developing countries such as China and India, with large populations, are moving in the same direction. For the period 2000 to 2010 CO_2 global emissions have grown at ~3% annually based on a GDP per capita growth rate of 2.5%, a population growth rate of 1.1%, compensated to a modest extent by a negative 0.6 annual growth rate of energy use per GDP.

The middle of the figure indicates that these human needs are met by means of a large array of industrial, agricultural, and energy technologies and practices. Although there are a multitude of inputs and outputs associated with these "technologies and practices", the major threats to long-term sustainability for an advanced level of civilization are shown in the figure. These threats include depletion of fossil fuels without adequate quantities of alternative forms of energy, depletion of mineral and fresh water supplies, and the various impacts associated with the emissions of CO_2 and other greenhouse gases. On the right-hand side of the figure is a listing of key global impacts associated with current technology and practices. As indicated by the red return arrows, climate change has the potential to exacerbate global impacts associated with non-energy-related technologies and practices. Ocean and forest degradation are examples of such amplification. The bottom of the figure indicates that there are two classes of mitigation

opportunities. The most commonly considered approach is replacing/upgrading current technologies and practices. Another, less discussed, but potentially important if we are serious about dramatically decreasing GHG emissions, would be to modify social and cultural behavior toward a less energy and resource-intensive lifestyle.

Global efforts have had a minimal Impact on mitigating the problem to date

Climate change has been the subject of international discourse for many years. The first paper to attempt to quantify projected anthropogenic global warming, dates back to 1975[10]. Figure 8 illustrates that despite all the meetings, the formation of the IPCC and its Assessment reports, and the Kyoto Protocol, there has been no significant CO_2 emission or atmospheric concentration slowdown.

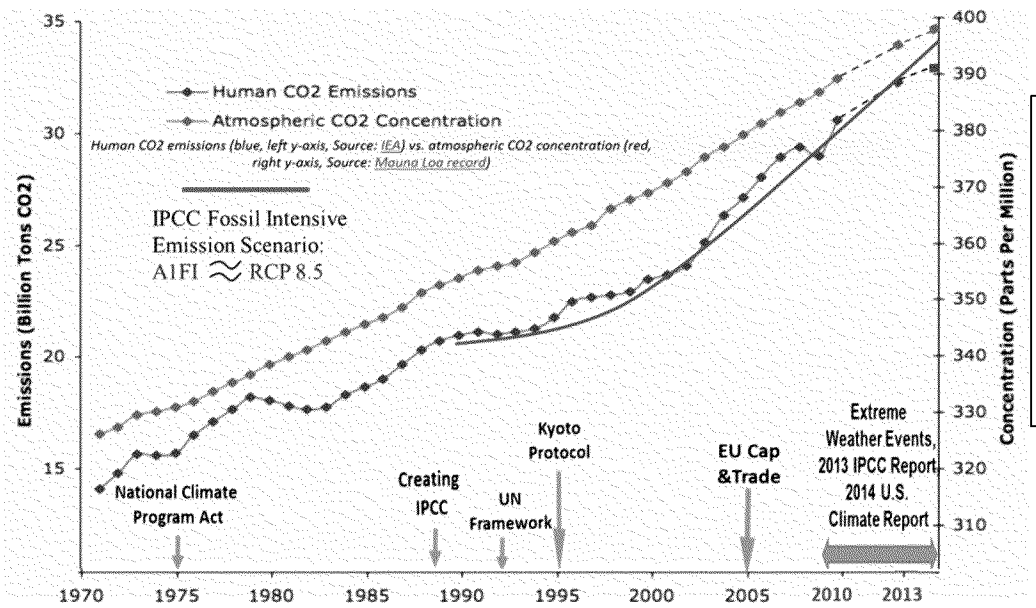


Figure 8. CO_2 emissions & atmospheric concentrations continue to grow despite international discourse

The Recent COP Paris Agreement: how significant is it toward constraining warming to 1.5°C and 2°C?

The 2015 United Nations Climate Change Conference, COP 21, was held in Paris, France, from 30 November to 12 December 2015.The goal was to reach agreement on reducing emissions of GHGs to limit global warming to tolerable levels. The following was accomplished (derived from United Nations Treaty Collection[2]):

196 countries, including the U.S., China, EU, Japan, and Russia agreed to work collaboratively toward the reduction of GHGs to protect the planet from the impacts of climate change.

-As mentioned earlier, countries agreed they will aim to keep warming below 2°C and for the first time agreed to pursue efforts to limit maximum temperature increase to 1.5°C.

-The agreement utilized a “bottoms up” approach whereby countries set their own goals. Each country that ratifies the agreement sets a target for emission reduction, called a "nationally determined contribution," or "NDC”. The amount will be voluntary. There is neither a mechanism to force a country to set a target by a specific date nor enforcement measures if a set target is not met. However, countries are required to report on progress toward achieving their NDCs.

-On 22 April 2016 (Earth Day), 174 countries signed the agreement in New York.

The Paris COP agreement is clearly the most significant international climate agreement ever negotiated; but what is its potential impact? With the aim of quantifying this impact, Figure 9 was generated based on analysis conducted by Climate-Interactive and their spreadsheet data[11].

The figure illustrates, via the *NDC Strict scenario*, that if all current NDC commitments are met, emission growth will slow relative to a *Business As Usual (BAU)* case. However, 2100 warming is projected to be in the order of 3.5°C. As indicated in Table 1, such warming will yield unacceptable climate impacts. The *NDC Extended scenario* assumes continuation of such emission reductions beyond 2025, yet still yields 2100 warming of 3.2°C. The final two scenarios aim to limit warming to *2°C and 1.5°C*, per the stated goal of the agreement. As can be seen, limiting warming to these levels will be a monumental challenge requiring a near term peak in reductions followed by major annual emission reductions for decades. Such a fundamental change from substantial emission growth averaging~2% annually over the last 20 years, would need to be turned around so that emissions peak in the next 5 to 15 years followed by 4 to 5% annual reductions for decades. This appears unattainable; and certainly impossible without a fundamental near term radical re-structuring of how the world generates and uses energy.

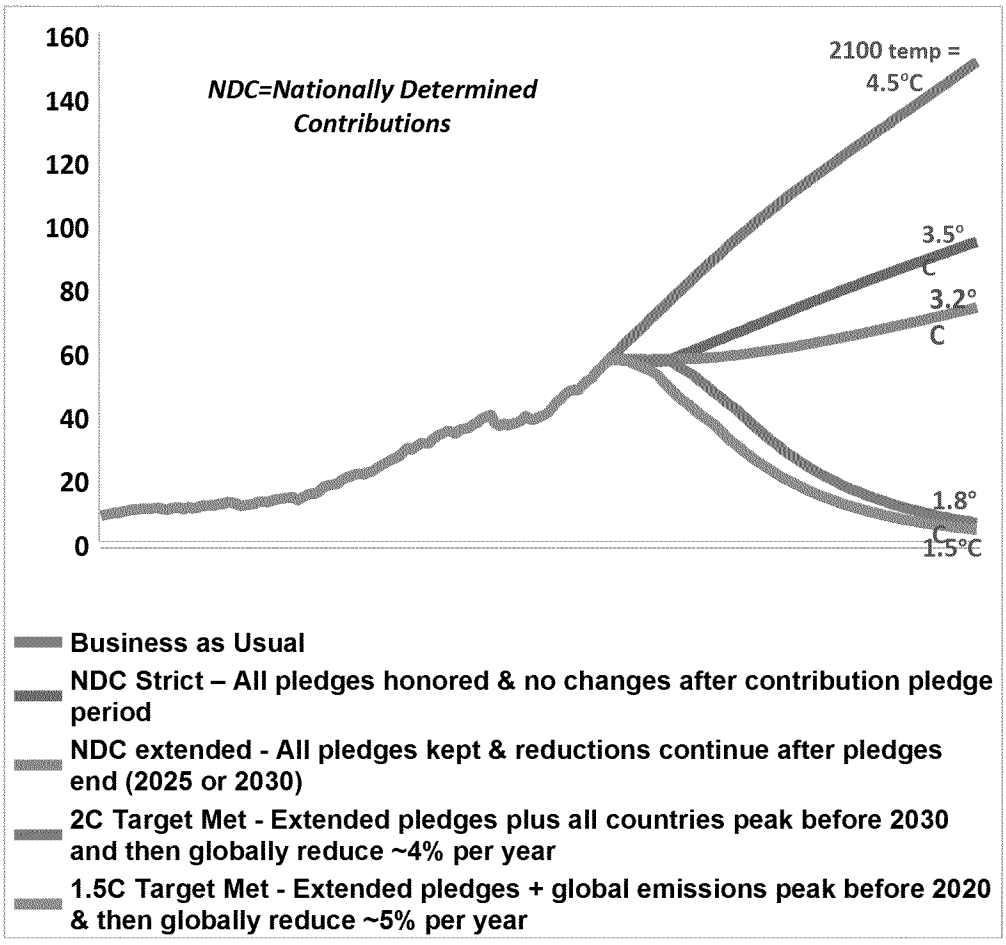


Figure 9. Global emissions (Billion tons CO2(e) per year) for Business as Usual, and four mitigation scenarios, 2100 warming projections included

It is instructive to examine the U.S. NDC and its relationship to an emission trajectory consistent with limiting warming to ~2°C. Figure 10 illustrates the U.S. NDC which is committed to reducing emissions nationally by 26-28% by 2025 relative to 2005. Also shown are the emission/per capita emission targets consistent with the IPCC[12] analysis that global 2050 CO_2 per capita emissions need to be no higher than ~1.3 t/person to limit warming to 2°C. It is difficult to construct a credible scenario that would allow the U.S. to decrease its per capita CO_2 emissions from 13 to 1.3 in just 25 years.

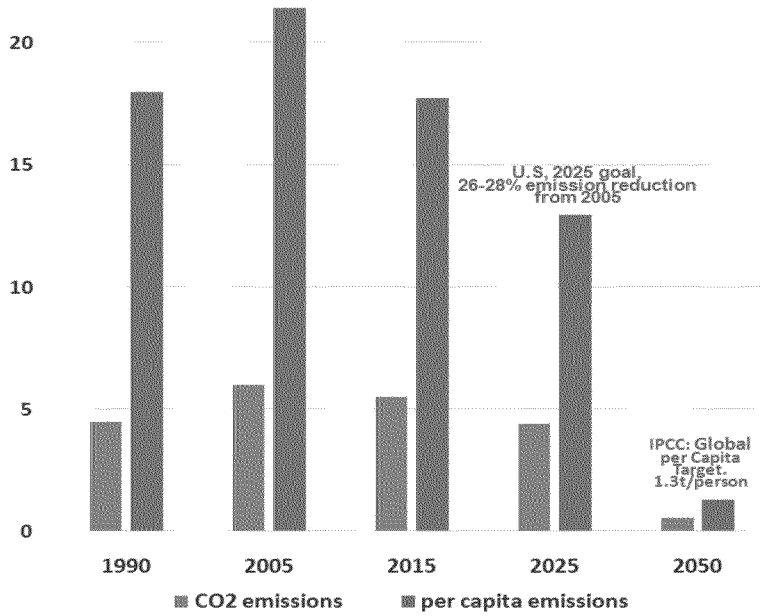


Figure 10. U.S. Commitment to mitigate CO2 by 2025 versus what reductions will be required by 2050 to be compatible with global emission requirements to limit warming to 2°C

What are the technology Implications of drastically reducing emissions in the near term?

In order to grasp the complexity of the climate mitigation challenge, it is instructive to understand the relationships between the sectors, end uses ("needs") and the four main GHGs of concern. Figure 11[13] depicts and quantifies these relationships for the world as of 2005. One of the greatest mitigation challenges is that the emission of GHGs results—directly or indirectly—from almost every major industry and activity. This chart shows key industries and activities, and the type and volume of greenhouse gases that result from them. Such critical activities include road travel, residential and commercial building cooling, heating and lighting and the production of chemicals, cement, and iron & steel needed for production of goods. The net result of these operations are huge emissions of CO_2, most of which are associated with the combustion of coal, oil and natural gas. Also in the energy sector, oil, gas and refining activities generate large quantities of methane, the second most important GHG.. Non-energy activities, such as Industrial Processes, e.g., Cement Production, and Land Use Changes, i.e., deforestation, also increase concentrations of CO_2 in the atmosphere. Agricultural practices are particularly important in terms of the methane and N_2O emissions they generate. Note that globally in 2005, 77% of the anthropogenic warming that year is associated with CO_2, with methane and N_2O contributing 15 and 7% respectively. Note that the term CO_2 equivalent (CO_2(e)) emissions, is the amount of CO_2 which would have the equivalent global warming impact, when accounting for the other GHG gases. For 2005 that

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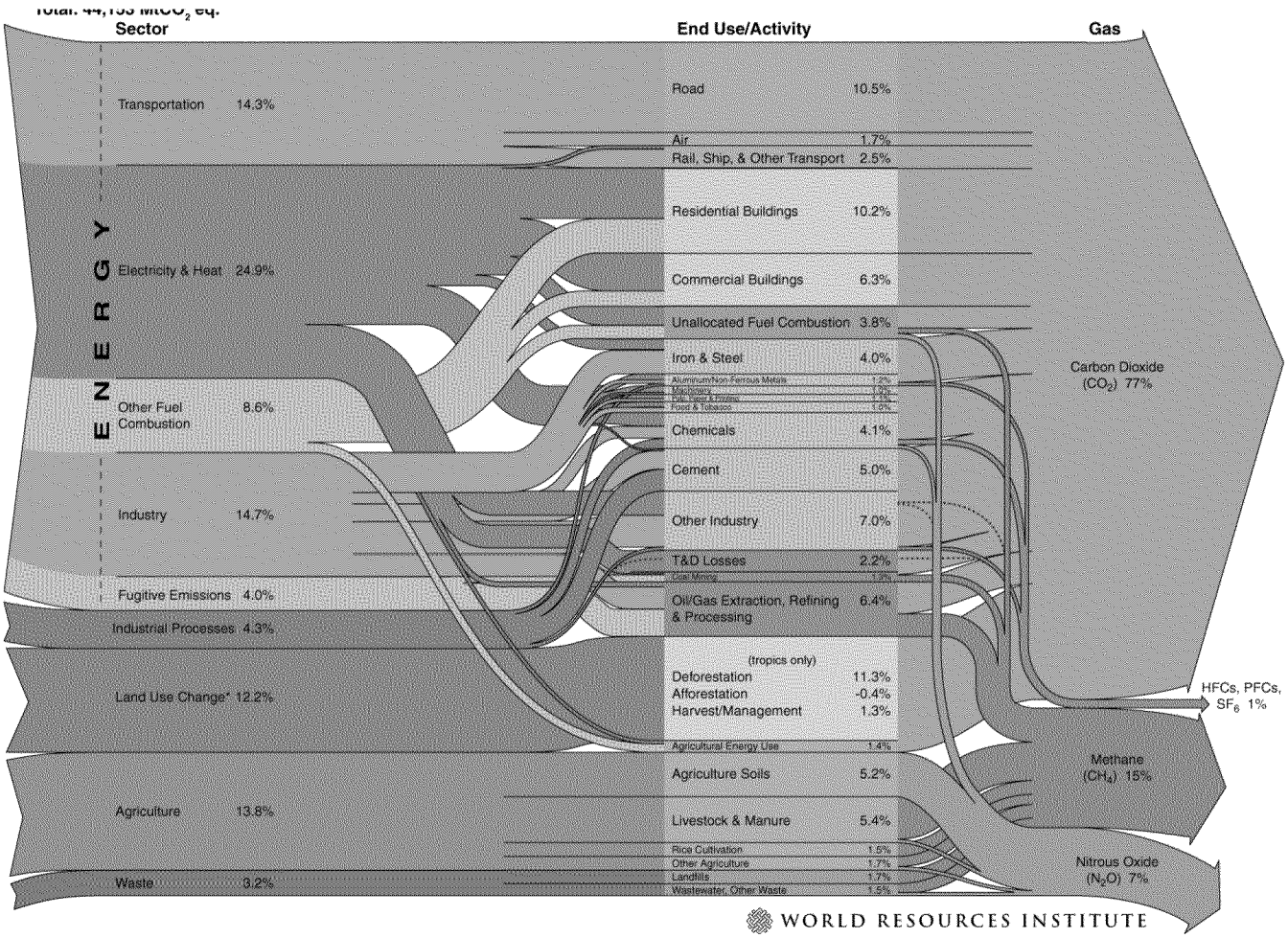
number globally is 44 Gt(e).

It should be noted that every country has a unique sector/CO_2(e) flow sheet. For example for the U.S.[14] in 2005 the energy sector contributes 87% of its CO_2(e) emissions, with Industrial Processing and Agriculture contributing 4.5 and 6.2%, respectively. Also for the U.S., CO2 contributes 85% of its CO_2(e) emissions, with methane and N_2O contributing 8 and 5% respectively.

Figure 11. World Emissions Greenhouse Gas Emissions in 2005 by sector, end use and gas (Total=44, $GtCO_2$ (e))

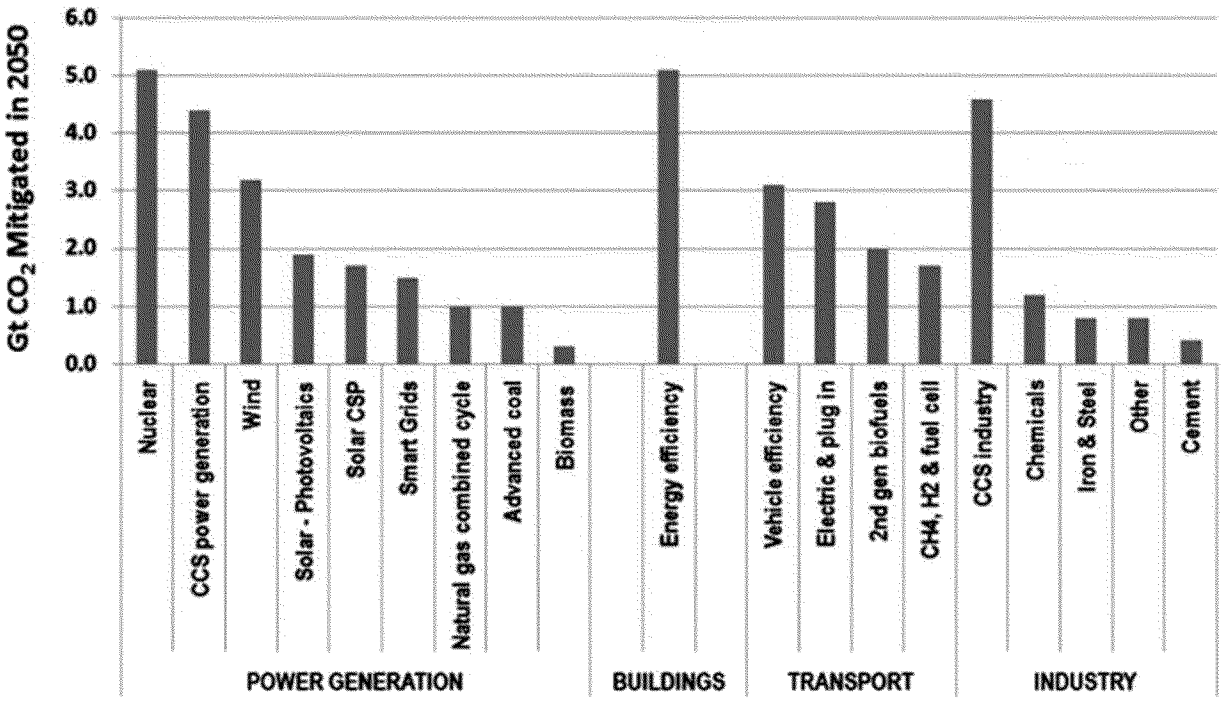


Given the need for early and dramatic emission reduction in the energy sector above and beyond the current modest NDC commitments, Figure 11 suggests that given their major contributions to CO_2 emissions, Transportation, Electricity generation and Industrial production are sectors requiring

fundamental changes in the near term if dramatic emission reductions are to be achieved. On the end use side, transportation vehicles and buildings are very high energy users which must dramatically improve their energy efficiency.

Figure 12 illustrates the quantities of CO_2 avoidance by technology for the International Energy Agency's (IEA)[9] 50% CO_2 by 2050 reduction scenario, referred to as the Blue Scenario. Such reductions when accompanied by aggressive methane and N_2O emission reductions, can limit warming to close to 2°C. The sum of all the bars yields 43 Gt avoided in 2050, versus baseline projections. The results suggest that a diverse array of low carbon technologies and practices in all energy sectors will be needed if these reduction goals are to be met. Of particular importance are end-use technologies in the building, transport, and power-generation sectors, as well as carbon storage technologies in the power-generation and industrial sectors.

Figure 12: Technologies needed to meet Blue Map scenarios avoidance goal of 43 Gt CO_2 mitigated by 2050



A key question is how available are these technologies and how fast can they be utilized. Again for the Blue Scenario, Figure 13[9] depicts these technologies and puts them in two categories: existing technology

or new/advanced technology. As can be seen, over half of the required reductions are associated with technologies that are not currently commercially available.

Figure 13. Technologies needed to meet a 50% reduction by 2050 mitigation scenario; new/advanced versus existing

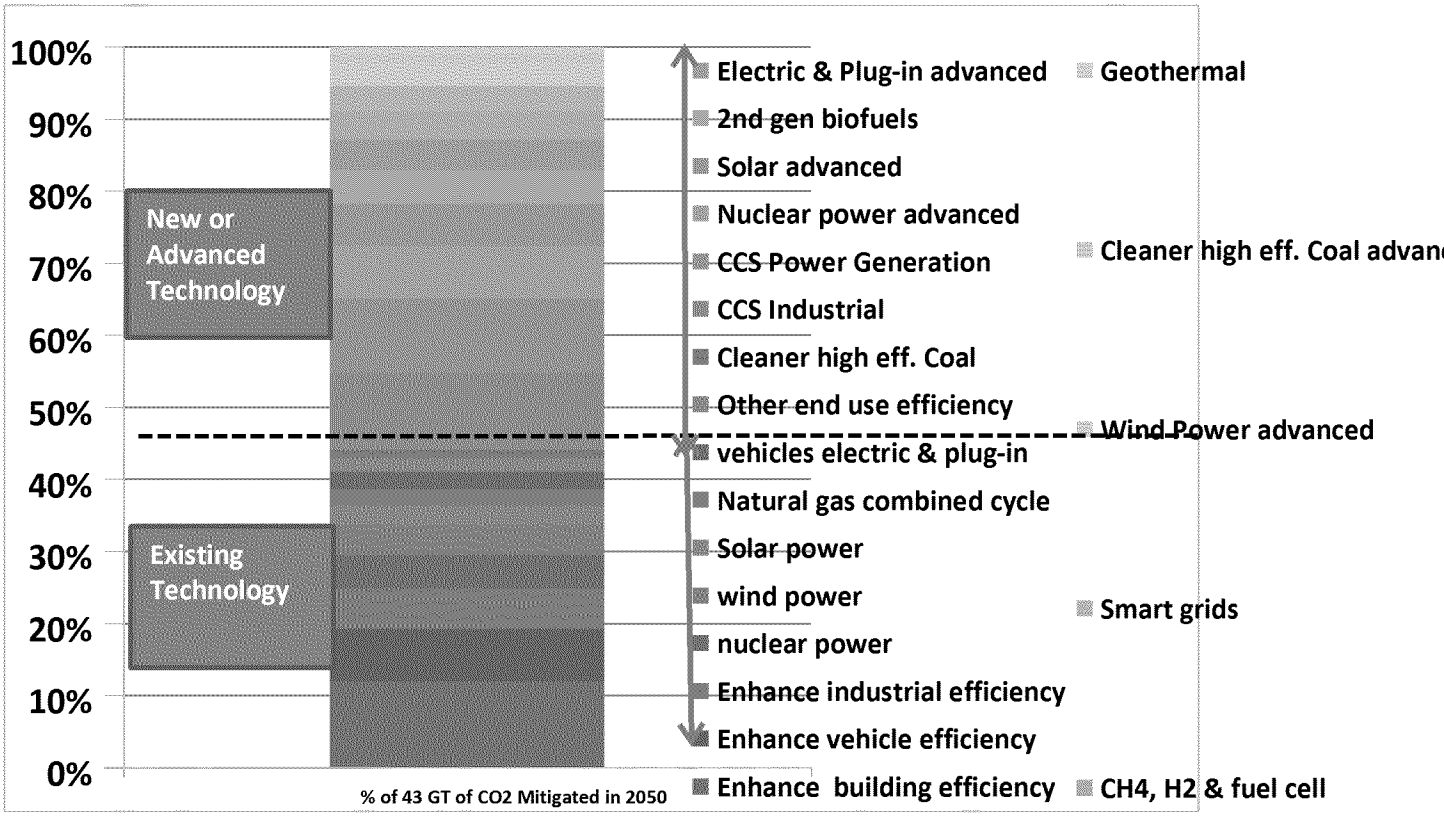


Table 2 has been generated to summarize the many remaining issues that need resolution via an expanded R,D&D program if these technologies are to play a major role in reducing CO_2 emissions in a time frame consistent with the need to limit warming to 2°C or below.

Table 2. Low C technology R,D&D priorities for key sectors

Sector	Technology	Blue 2050 Impact, Gt	Current State of the Art	Issues	Technology R,D&D Needs
Power Generation & Industrial Sources	Carbon Capture and Storage	9	Early commercialization for coal with many demos having cost overrun & operating issues	High capital costs, 20-30% conversion efficiency degradation, complexity and potential reliability concerns; *Underground Storage*: Cost, safety, efficacy and permanency	High, : Demos on next generation technology on a variety of coals, hot gas cleanup research; enhanced Underground Storage program with long term demos evaluating large number of geological formations
Power Generation	Nuclear Power-advanced & next generation	3.1	Commercial BWR,PWR; Developmental: Generation III+ and IV: e.g. Pebble Bed Modular Reactor	Deployment targeted by 2030 with a focus on lower cost, minimal waste, enhanced safety and resistance to proliferation.	High, Demonstrations of key advanced technologies with complimentary research on important issues; commercialization of fusion technology could be transformational, might be possible, late to mid century
Power Generation	Solar-Photovoltaic and Concentrating (renewable)	2.5	First generation commercial	Solar resource intermittent and variable, although costs have been reduced further efficiency/cost reductions needed	High: research needed to develop & demo cells with higher efficiency, & lower capital costs; develop/commercialize affordable storage technology
Power Generation	Smart Grids	1.5	Early Commercial, with active research focused on next generation technologies	Telecommunications cost high, security concerns and questions regarding consumer acceptance/participation	High, Enhanced smart grid modeling, reduce telecommunication cost component, demonstrate effectiveness in maximizing solar and wind power production in overall mix
Power Generation	Wind Power (renewable)	1.4	Commercial (on-shore)	Costs very dependent on strength of wind source, large turbines visually obtrusive, intermittent power source	Medium, higher efficiencies, off-shore demonstrations. Affordable storage technology
Power Generation	Fuel Switching coal to gas	1	Commercial (w/o CCS)	Effectiveness of CCS on natural gas generators; environmental issues re. hydro fracturing	High, hydro fracturing environmental mgt., CCS demos. needed, especially in the U.S.
Mobile Sources	Electric & Hybrid Gasoline and Diesel	1.8	Early commercial	For electric plugs-in, mileage (battery) limitations; charging durations and high purchase prices	High, battery improvements in storage capability, cost and lifetimes important
Mobile Sources	Hydrogen Fuel Cell	1.5	First generation vehicles recently introduced	High fuel cell vehicle costs, H_2 transport, storage & safety issues, requires massive hydrogen fueling infrastructure	High, fuel cell improvements in costs, efficiency and reliability needed. Analysis of fuel cell environmental &cost benefits needed to justify massive H2 infrastructure required

One technology warrants particular attention. Carbon Capture and storage (CCS) is a critically important technology that was expected to be widely applied to existing and new coal-fired generators and major industrial sources. In the U.S, it has the potential to be applied to modern natural gas fired generators as well. There are several variations of this technology, but they all are designed to capture CO_2 from flue or

industrial gases, compress and transport the CO_2 for permanent storage, typically in underground saline aquifers or Enhanced Oil Recovery (EOR) operations. Such technology is particularly important for relatively new, efficient coal-fired power plants in China and India. Without retrofitting with CCS, such facilities will be super emitters of CO_2 over their 40 to 50 year life, since economic considerations suggest it is unlikely they will be shut down early given their projected lifetime.

Starting about 10 years ago, a large number of CCS pilot and demonstration units were initiated. However, according to the MIT Carbon Capture and Sequestration Technologies database[15], 43 of these projects have been terminated or are in an inactive status. Of the terminated/inactive projects, 15 were in the U.S,, and 21 in Europe. They ranged in size from small 50 MW(e) slipstream units to 1600 (MW(e) full scale facilities. Reasons for the terminations include: lack of regulatory or financial incentives, funding constraints, overruns, unexpected technical difficulties, and public resistance to CO_2 transport and storage operations.

Fifteen projects are still active; two under construction and one, the Boundary Dam Plant of SaskPower has been in full operation sin[redacted]ted to $1.5 billion, which for a 160 MW unit, may be prohibitively expensive. The capture technology utilized for this project is post combustion Amine scrubbing. Although this is closest to the state of the art of the available capture technologies, it is inherently inefficient with parasitic losses in the 25-30% range. An example of a promising second generation CCS technology is the Net Power oxy-combustion supercritical process[16]. Such technology has the potential to eliminate the massive parasitic heat losses associated with current generation technologies. Net Power has a 25 MW(e) demonstration plant under construction in LaPorte Texas.

The future of the current generation of CCS technology is uncertain, in light of cost, energy efficiency penalties, and concern with the safety and efficacy of underground storage. There is also a lack of incentives, such as a price for Carbon, to encourage utilization of such a high risk technology.

Given the importance of next generation low carbon technologies and practices, is the global community funding research, development and demonstration at an appropriate level? Figure 14[17] summarizes IEA

analysis of actual versus needed global energy technology RD&D funding for key technologies required achieving their Blue Map 50% reduction scenario. IEA concludes that actual funding is a small fraction of what they believe is required. The total annual required funding is estimated at $40–$90 billion, whereas actual spending for these key technologies is estimated to be only $10 billion per year. The author strongly agrees that low carbon mitigation technology development is woefully underfunded.

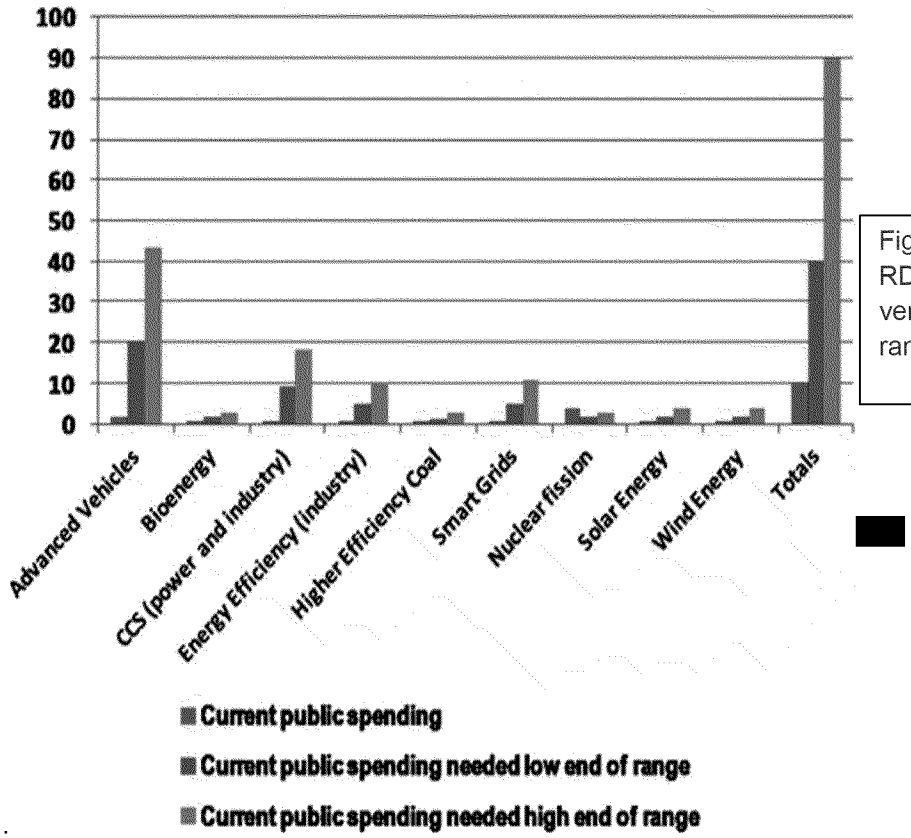


Figure 14. Current global annual RD&D funding for key technologies versus needed funding (high and low ranges), billions of dollars

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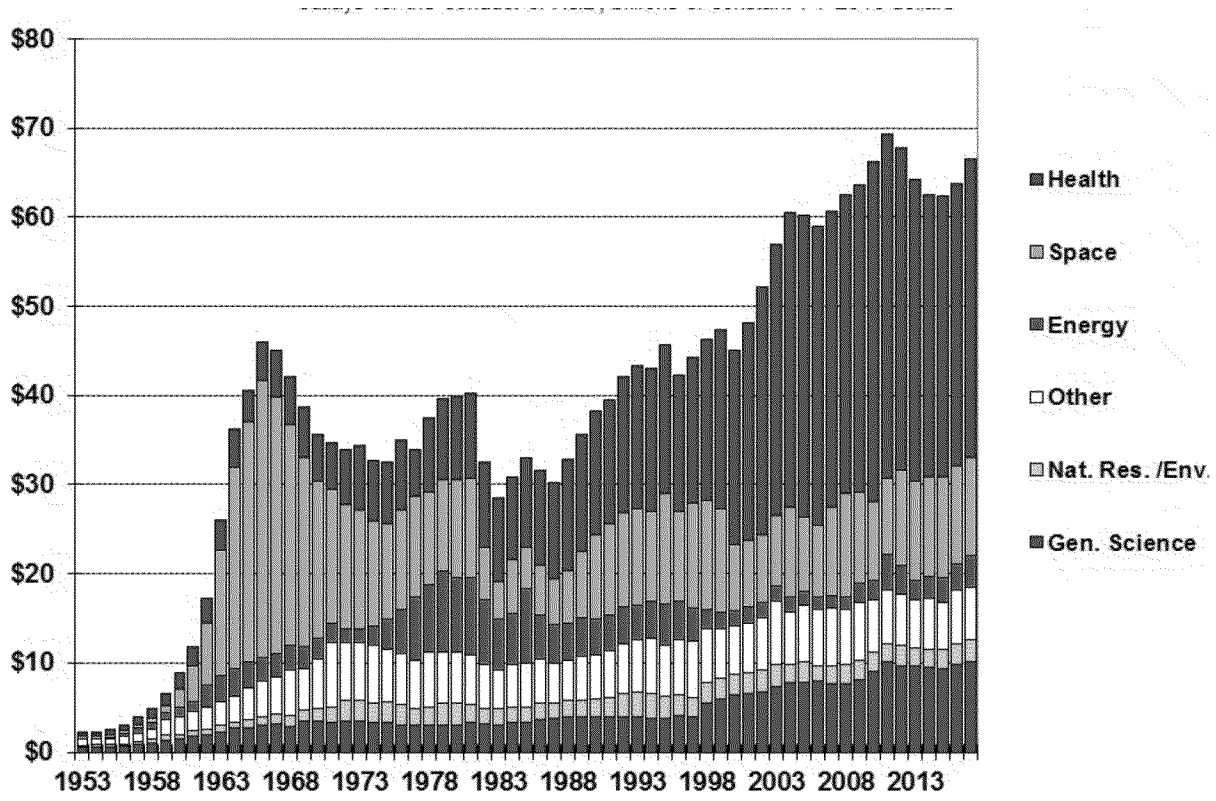
In the U.S., by far the largest component of its annual R, D&D expenditures is for the military. It has been in the $60 billion range in recent years, about half of all such expenditures. Figure 15[18] shows funding trends in the non-military categories. As can be seen, energy related research is in order of $3 billion in recent years; far short of what is needed if the U.S. wants to play a leadership role in developing the next generation low Carbon technologies capable of protecting the planet for future generations.

Figure 15: Trends in U.S. nondefense R&D by function, *billions constant FY 2016 dollars*



From AAAS: Historical Trends in Federal R&D (2016). Reprinted with permission from AAAS

So where do we stand; is it too late to recover, i.e., limit warming to below 2°C ?

Humanity has dug itself a very deep hole. Driven by global industrialization and population growth vectors, humankind has emitted over 1.5 trillion tons of CO_2 in the atmosphere substantially changing the heat transfer characteristics of the atmosphere. Methane and Nitrogen Oxide emissions have been emitted in large quantities as well. On our current emission trajectory, we are approaching global warming of 1.5°C and are only ~30 years away from the 2°C warming level, which is considered a marginally acceptable maximum level by the scientific community. 4°C warming looms as a real possibility, later this century. As Table 1 indicates, warming in the 3 to 4°C range will lead to disastrous food, water availability and health impacts and widespread species extinctions.

The recent UN COP agreement, if successfully implanted, would only modestly lower the growth rate of GHG emissions; and is only a small step in the right direction. Even assuming all countries meet their NPDs, 2100 warming is projected at a potentially catastrophic 3.5°C.

It is noteworthy that Donald Trump, recently elected as President of the U.S., has said[19] he would "cancel the agreement" because "it is bad for business". Given the reality of economic competition between nations, if the U.S., with the world's largest economy and the greatest per capita emissions, refuses to act responsibly, the probability that other countries would be willing to drastically alter their energy infrastructure, would be substantially lowered. This does not bode well for successful implementation of this or any other mitigation agreement. As the previous analysis indicated, time is not on humanity's side.

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In order to have a chance to limit warming to 2°C or lower, global emissions must peak within about ten years followed by substantial annual reduction of emissions for decades. In order for this aggressive mitigation scenario to play out, the following conditions would need to be met:

-the international community must agree to such a dramatic mitigation program, which would require near term low carbon restructuring of the energy global infrastructure with the aggressive phase-out of fossil fuels in the energy mix.

Pre-publication

-Affordable, practical low-C technologies and practices would need to be commercially available within the next ten years. Of particular importance would be CCS technologies, advanced nuclear generators, low cost renewable generation with energy storage capability, efficient buildings and low emission vehicles. See Table 1 for more details.

-Given the importance of methane, N_20 and HFC emissions (see Figure 11), the international community must agree on emission reductions for these pollutants as soon as possible. For methane, leakage from oil, gas and coal operations are particularly important. Agriculture operations are important sources for both methane and N_20.

Barring unexpected breakthroughs in technology and fundamental changes in current political realities, the probability of reducing global emissions in a time frame consistent with limiting warming between 1.5 and 2°C appears very low. So in answer to the question "can humanity recover from decades of unconstrained emissions of greenhouse gases and keep warming in the 1.5 to 2°C range." The answer is,

no; it appears unlikely. However we must move aggressively to limit warming to the lowest value practical. Current projections suggest we are heading toward 4°C warming later this century, with potentially catastrophic impacts.

Given that reality, the following appears to be the most rationale steps that can be taken to minimize the damage:

What steps should be taken to minimize the damage?

-The scientific community must upgrade its efforts in educating the public on the seriousness of this problem and the mitigation actions necessary to ensure the habitability of the planet for the 9 billion people who will call Earth their home later this century. Such education should be targeted at all levels, from national leaders down to individual citizens. Such education is needed, if we are to put the importance of this problem in perspective, relative to those much less critical issues receiving much more attention and funding. Graphics such as this one (Figure 16), supplemented by the message that the habitability of our planet is at risk, may be helpful.

Pre-publication

Figure 16: The relative threats to humanity: Global Climate Change Versus ISIS

-Adaptation strategies need to be developed at the international and national levels. As indicated earlier, significant climate change impacts are already occurring and it is too late to avoid even more serious

impacts in the years ahead. Developing countries are likely the first to be seriously affected, and need to be ready to minimize the damage. The U.N. COP provides a useful fact sheet[20] on the adaptation challenge.

-Put a price on carbon at the national and international levels, as soon as possible. Given the serious impacts associated with climate change it clearly reasonable to put a price on the perpetrator of these impacts. This would provide the financial incentive for humanity to rapidly leave fossil fuels behind in favor of low C technologies and practices. An example of a potentially powerful carbon pricing concept is the Carbon Fee and Dividend Program proposed by the Citizen's Climate Lobby in the U.S.[21] This concept involves a steadily increasing substantial "fee" on fossil fuels at the mine, well or port of entry. Then 100% of the fees, minus administrative costs, would be returned to households on a monthly basis. In order to discourage businesses from relocating, import fees will be imposed on products imported from countries without a carbon fee, along with rebates to US industries exporting to those countries. A Regional Economic Models Inc. study[22] concluded that in the U.S., carbon fee-and-dividend could reduce CO_2 emissions 52% below 1990 levels in 20 years and that recycling of the revenue creates an economic stimulus that adds 2.8 million jobs to the economy with a $70-$85 billion annual increase in the GDP from 2020 on. Also, due to a decrease in fossil fuel combustion, reductions in air pollution levels could prevent 227,000 premature deaths over a 20 year period.

Pre-publication

-If we are to peak emissions in the near term and reduce them aggressively from that point on, new and upgraded low C technologies will be needed. Given the woefully inadequate funding of such technologies discussed earlier, a major increase in R,D,D&D is needed. As shown in Figure 14, the world spends about $10 billion annually on energy related research, $3 billion of which is by the U.S (Figure 15). As a point of reference, the world spends $1.7 trillion annually on military expenditures. Of this the U.S spends $600 billion[23], equivalent to the sum of expenditures of the next eight most highly funded countries.

As another point of reference, it has been estimated that the financial cost of the Iraq war (2003-2010) for the U.S., exclusive of cost to our allies and Iraq, was in the order of $3 trillion[24]. If we were willing to spend such an enormous sum on such an unproductive enterprise, shouldn't we be willing to make a

much more modest investment to develop and demonstrate the technologies needed to protect the planet for future generations?

As indicated in Figure 14, IEA estimated required annual funding levels in the range of $40 to $90 billion for such a program. Table 2 summarized some of the issues and R,D&D needs for the power generation, industrial and mobile source sectors. Given the monumental mitigation challenge, I argue that a major focus of such a program should be on transformational technologies, i.e., those that could yield scientific/engineering breakthroughs that can yield new or dramatic improvements of affordable, effective low C technologies. A relevant program which is focusing on such transformational technologies is the U.S. Department of Energy's Advanced Research Projects Agency-Energy (ARPA-E)[25]. This program would greatly benefit from a major increase in funding, which was only $291 million in FY 2016.

What else should be considered?

Although this paper focuses on low-carbon technologies and practices, the mitigation challenge may go beyond what is feasible by low C technology alone. As illustrated in Figure 7 via social/cultural mitigation activities, additional actions m[redacted]om its current energy and resource-intensive culture to a more sustainable model. Such societal changes could be encouraged by mandating material recycling programs, mass transit, and land practices that maximize vegetative sequestration of atmospheric CO_2. More difficult and controversial transitions involving population growth and dietary choices may also be necessary. Reducing resource demands not only has the potential to reduce GHGs; co-benefits will include improved air and water quality, improved ecosystem services (e.g., forest and ocean health), and reduced mineral resource depletion.

It should be noted that geoengineering concepts are conceptual mitigative approaches that at least in theory, could buy humanity some time to dramatically reduce GHG emissions. Some see them as a delaying tactic or as a possible "last resort" action to limit catastrophic climate change. Geoengineering measures attempt to compensate for GHG emissions via two fundamentally distinct approaches: (1) intentionally changing Earth's solar radiation balance, or (2) removing CO_2 from the atmosphere. Figure 17[9] describes potential geoengineering concepts.

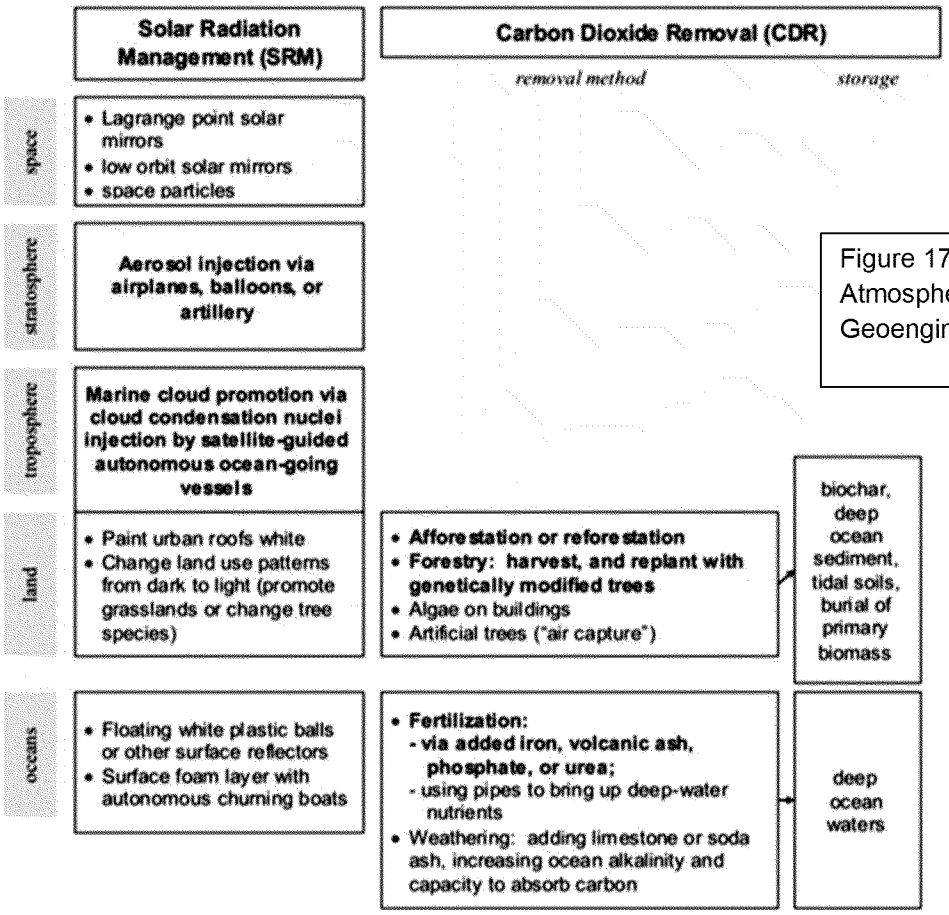

Figure 17: Solar Radiation and Atmospheric CO_2 Removal Geoengineering Concepts;

In recent months there has been much discussion of the CO_2 atmosphere removal option, which has been deemed necessary to meet warming targets since it is unlikely emissions will be reduced in time to limit temperature increases greater than 2°C. This is sometimes referred to as the negative CO_2 emissions option. However, this approach, as well as all the options mentioned in Figure 16, is only at the conceptual stage with serious performance, impact and economic issues. However, given the magnitude of the mitigation challenge discussed, such approaches warrant serious feasibility evaluations, as soon as possible.

Conclusions

We are losing the climate change mitigation challenge. Since it appears unlikely that we can limit

warming to 1.5 to 2°C, the task before us is to minimize the warming using the recent Paris COP agreement as a critical first step. The goal should be to put a ceiling on global emissions as soon as possible and then rapidly decrease emissions annually for decades. The following steps are deemed critical in the near term: put a price on Carbon, fund a dramatically expanded low C technology R,D&D program and conduct serious adaptation efforts. Also, upgraded communication efforts are needed to educate the public, and their leaders, on the seriousness of this problem and the actions necessary to protect the habitability of the planet for the 9 billion people who will call Earth their home later this century.

Finally, this literary perspective on this monumental challenge, describes a bargain we cannot accept:

On the highway to hell, Faust met a devil who said to him:

"Give me all your tomorrows, all your children and all your children's children, and I will make today for you, a paradise."

Derived from: https://robertscribbler.com/2014/03/05/a-faustian-bargain-on-the-short-road-to-hell-living-in-a-world-at-480-co2e/

REFERENCES

1. The European Earth Observation and Monitoring Programme (ECMWF), Copernicus, *Earth on the edge: Record breaking 2016 was close to 1.5°C warming*. Available at: https://climate.copernicus.eu/news-and-media/press-room/press-releases/earth-edge-record-breaking-2016-was-close-15%c2%B0c-warming (accessed January 20, 2017)

2. United Nations Treaty Collection: *Chapter XXVII Environment 7.d Paris Agreement* (2015) Available at https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&clang=_en (accessed October 1, 2016)

3. M. Meinshausen, S. C. B. Raper, and T. M. L. Wigley: *Emulating coupled atmosphere-ocean and carbon cycle models with a simpler model, MAGICC6: Part I – Model Description and Calibration.* Atmospheric Chemistry and Physics 11: 1417-1456 (2010) Available at:doi:10.5194/acp-11-1417-2011. (accessed September 19, 2016)

4. IPCC, Climate Change 2007: *Working Group I: The Physical Science Basis* (2007), 9.4.1.2 Simulations of the 20th Century, Available at: http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch9s9-4-1-2.html (accessed September 19, 2016)

5. .USEPA, *Climate Change Indicators in the United States* (2016) Available at: https://www.epa.gov/sites/production/files/2016-11/documents/climate-indicators-2016-fact-sheet.pdf (accessed September 19, 2016)

6. USEPA: *A Student's Guide to Climate Change (2016)*, Available at https://www3.epa.gov/climatechange/kids/scientists/clues.html (accessed September 19, 2016)

7. N. Stern: *The Economics of Climate Change: The Stern Review, pg. 57 (2007*) Cambridge Publications, Available at: http://mudancasclimaticas.cptec.inpe.br/~rmclima/pdfs/destaques/sternreview_report_complete.pdf (accessed on September 19, 2016)

8. PBL Netherlands Environmental Assessment Agency: J. Olivier (PBL), G. Janssens-Maenhout (IES-JRC), M. Muntean (IES-JRC), J. Peters (PBL) *Trends in Global CO2 Emissions; 2014 Report*. (2014) Available at: http://www.pbl.nl/en/publications/trends-in-global-co2-emissions-2014-report Accessed May 1, 2016

9. Princiotta, F., Loughlin D, *Global Climate Change: The quantifiable sustainability challenge* (2014) The Journal of the Air & Waste Management Association. Available at: http://www.tandfonline.com/doi/full/10.1080/10962247.2014.923351 (accessed on May 1, 2015)

10. W. Broecker, Science, Vol. 189, Issue 4201, pp. 460-463 DOI: 10.1126/science.189.4201.460, *Are We on the Brink of a Pronounced Global Warming? (1975)* Available at http://science.sciencemag.org/content/189/4201/460 (accessed on May 1, 2015)

11. Climate Interactive, *Scoreboard Science and Data, Graphical summary of pledges and additional scenarios* (2015) Excel spreadsheet data available at: https://www.climateinteractive.org/programs/scoreboard/scoreboard-science-and-data/. / accessed on October 1, 2016

12. IPCC, "2014 Intergovernmental Panel on Climate Change." *Climate change 2014: Human Settlements, Infrastructure & Spatial planning, pg.950,* available at: https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter12.pdf (accessed May 1, 2014).) Pre-publication

13. World Resources Institute, T. Herzog, *World Greenhouse Gas Emissions: 2005* (2009) available at http://www.wri.org/resources/charts-graphs/world-greenhouse-gas-emissions-2005, accessed July 1, 2016

14. World Resources Institute, World Greenhouse Gas Emissions in 2005 (2006) available at: http://www.wri.org/resources/charts-graphs/us-greenhouse-gas-emissions-flow-chart accessed on August 3, 2016

15. MIT: *Power Plant Carbon Dioxide Capture and Storage Plants* (2016), available at http://sequestration.mit.edu/tools/projects/index_capture.html, (accessed November 1, 2016)

16. Net Power website, https://netpower.com/technology/

17. International Energy Agency, *Energy technology perspectives 2010*. (2011) Paris, France: IEA Publications.

18. AAAS: *Historical Trends in Federal R&D* (2016) available at: https://www.aaas.org/page/historical-trends-federal-rd, accessed on November 1, 2016

19. BBC: *Donald Trump would cancel Paris climate deal* (2016) available at: http://www.bbc.com/news/election-us-2016-36401174 accessed on October 1, 2016

20. UNFCC: *Fact sheet: The need for adaptation* available at: http://unfccc.int/press/fact_sheets/items/4985.php accessed on November 1, 2016

21. Citizens' Climate Lobby: *The Basics of Carbon Fee and Dividend* (2016) available at https://citizensclimatelobby.org/basics-carbon-fee-dividend/ accessed on June 2, 2016

22. REMI: *The Economic, Climate, Fiscal, Power, and Demographic Impact of a National Fee-and-Dividend Carbon Tax* (2015) http://citizensclimatelobby.org/wp-content/uploads/2014/06/REMI-carbon-tax-report-62141.pdf accessed on June 1 2016
23. Wikipedia: *Annual Military Expenditures* https://en.wikipedia.org/wiki/List_of_countries_by_military_expenditures accessed June 1, 2016
24. Wikipedia: *The Three Trillion Dollar War* https://en.wikipedia.org/wiki/The_Three_Trillion_Dollar_War#References accessed November 1, 2016
25. ARPA-E webpage: https://arpa-e.energy.gov/ accessed November 2, 2016

Pre-publication

To: Myron Ebell[Myron.Ebell@cei.org]
From: Myron Ebell
Sent: Mon 4/17/2017 6:17:00 PM
Subject: FW: Some talking points on the Paris Climate Treaty

Talking Points on the Paris Climate Treaty

•□□□□□□□ President Trump campaigned on the promise to "cancel the Paris climate agreement and stop all payments of U.S. tax dollars to UN global warming programs." The agreement is designed to transfer wealth from the United States to developing countries, and would cost **trillions** of dollars to implement.

•□□□□□□□ The Paris Agreement is an unfair deal that allows countries like China and India – which have far fewer environmental protections in place than does the U.S. – to continue to increase their greenhouse gas emissions, while we take very costly steps to dramatically decrease ours.

•□□□□□□□ The promises made by the Obama administration in entering the agreement would cost American workers hundreds of thousands of jobs, and our economy hundreds of billions of dollars – harming America's competitiveness in the global marketplace, and handing an advantage to China and other nations.

o Because the Paris Agreement requires member countries to increase their emission reduction commitments every five years, staying in the agreement would mean even more harm to American workers, families, and the economy over time.

o This stands in direct conflict with President Trump's plan to create 25

million new American jobs, re-establishing the United States as a global leader in manufacturing and an engine of economic growth.

•□□□□□□□ Some argue that we should remain in the Paris Agreement to keep our "seat at the table." However, the fundamental goal of the Paris Agreement is to drive participating nations toward emissions reductions that are mathematically incompatible with economic growth.

o Furthermore, remaining in the agreement and reducing our Nationally Determined Contribution (NDC) is inconsistent with the construct of the agreement itself. Provisions exist only for participating nations to strengthen their commitments, not weaken them.

o Even providing for a rescission of our current NDC, continued U.S. participation in the agreement ensures a future administration will once again put forward unattainable, economically damaging NDCs.

o It is also unrealistic to believe that the U.S. could extract concessions regarding the development and use of fossil fuels, particularly given the negative reaction by other members at the recent G7 Energy meeting to a proposal to include reference to fossil fuels in a joint statement of the G7 nations.

•□□□□□□□ In stark contrast to the previous administration, President Trump has made clear that his priorities include energy policies that maximize the use of America's vast untapped resources; environmental policies that focus on protecting and preserving our air, water, and wildlife; and regulatory policies that put Americans back to work, unleashing our nation's full economic potential. **The Paris Climate Treaty stands as an obstacle to each of those goals.**

Myron Ebell

Director, Center for Energy and Environment

Competitive Enterprise Institute

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Stop continental drift!

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Myron Ebell
Sent: Mon 4/17/2017 6:31:16 PM
Subject: Embargoed Paris Paper
Chris Horner and Marlo Lewis - Paris Climate Agreement - EMBARGOED.pdf

Dear Samantha, I forgot to send you this paper earlier this afternoon. It's going to be published soon. And yes, I look forward to getting together when you have a half hour or an hour. Yours, Myron.

More than you ever wanted to know about the Paris Climate Treaty by Marlo and Chris. Some much shorter talking points to follow.

Myron Ebell

Director, Center for Energy and Environment

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Stop continental drift!

To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Ward, Thomas[TWard@nahb.org]
From: Birk, Eva
Sent: Mon 4/17/2017 2:18:42 PM
Subject: FOLLOW-UP to NAHB ADMINISTRATOR MEETING - Stormwater

Ms. Dravis,

Jim Rizzo and NAHB's senior officers met with yourself and Administrator Pruitt earlier this month to discuss a number of issues. Thank you again for this opportunity. I'm writing in regards to follow-up on stormwater specifically.

If possible, we'd like to set a short meeting with you sometime this or next week to provide a more in-depth briefing on two time-sensitive topics:

1. Streamlined Small Lot Permit for Residential Sites

o NAHB would like to continue to work with the agency to develop a streamlined "small lot" construction stormwater permit. We are concerned that these efforts may be stalled. NAHB worked with Office of Wastewater Management (OWM) staff over the past three years to develop a streamlined voluntary compliance plan template for residential sites. However, we do not yet have a green light on developing an EPA permit based on this model. NAHB believes the cost savings to single family builders from shrinking the current ~300 page permit down to 20 pages would be enormous. Work needs to start soon to allow time for NAHB and other stakeholders to provide feedback, develop new software, and organize outreach to our membership. As of now we are not confident that OWM is committed to pursuing this project.

2. Federal Overreach in the NPDES Stormwater Program

o In the four states where EPA is in charge of stormwater permitting, we've seen actions that far outreach the scope of the Clean Water Act. Most recently, Region 3 included a provision in D.C.'s draft MS4 permit which actually mandates that the city spend $12.75 million local dollars to establish a Stormwater Retention Credit (SRC) purchase agreement program. We are gravely concerned with this type of federal meddling in municipal affairs and the precedent this permit will set. The timeline for action is tight here as well. Region 3 will likely finalize the permit in the next few weeks/months.

We look forward to discussing these issues in person. Thank you again for your time earlier this

month, and feel free to contact me at the number below with any questions.

Kind regards,

Eva

EVA BIRK Program Manager, Environmental Policy
National Association of Home Builders
1201 15th Street, NW | Washington, DC 20005
d: 202.266.8124 **e:** EBirk@nahb.org **w:** nahb.org
We Build Communities

April is New Homes Month – celebrate with your favorite home buyer!

Members saved $20 million last year with Member Advantage!

Jump on those member discounts at nahb.org/ma.

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To: Jackson, Ryan[jackson.ryan@epa.gov]; Dravis, Samantha[dravis.samantha@epa.gov]; Bolen, Brittany[bolen.brittany@epa.gov]; Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]
From: Myron Ebell
Sent: Mon 4/17/2017 8:51:30 PM
Subject: Here's a preview of our Paris Climate Treaty ad--embargoed until midnight

This is what we're sending to media folk right now.

Dear Xxxx,

I wanted to give you a heads up that CEI is releasing an ad about the Paris Climate Treaty titled, Mr. President, Don't Listen to the Swamp, on Tuesday morning. **The following information is embargoed until 12:01AM on April 18. Please don't share or distribute.** For more information about CEI's work on the Paris Climate Treaty, check out this post from earlier today: White House Floats Excuses to Break Trump's Promise to Cancel Paris Climate Treaty. CEI will be promoting the video on social media, and I will be doing print, teevee, and radio interviews this week.

Yours, Myron.

-----EMBARGOED UNTIL TUESDAY, APRIL 18 AT 12:01 A.M.-----

Contact: Kate Brown, (202) 213-7051 or kate.brown@cei.org

CEI Releases Ad Urging Trump to Withdraw from Paris Climate Treaty

April 18, 2017

WASHINGTON -- Today, White House senior advisers are scheduled to meet about the future of U.S. involvement in the Paris Climate Treaty, even though President Trump made a campaign promise to cancel the agreement. Since December 2015, the Competitive Enterprise Institute (CEI) has made the constitutional, political, economic, and moral case against the Paris Climate Treaty. This morning, CEI launched an online ad and petition asking President Trump to keep his promise and withdraw the United States from this harmful agreement.

Director of CEI's Center for Energy and Environment, Myron Ebell, said:

"The Paris Climate Treaty requires the United States to make drastic cuts in fossil fuel energy use by 2025, which will raise energy prices and slow economic recovery from our decade-long slump. It also requires us to submit more ambitious commitments to reduce greenhouse gas emissions every five years," said Ebell. "Failure to withdraw from the Paris Climate Treaty will make President Trump's plans to undo Obama's climate agenda vulnerable to legal challenges. The President should not listen to Washington's Swamp, but rather keep his campaign promise to get the United States out of the Paris Climate Treaty and send it to the Senate for a vote."

WATCH THE AD HERE >> President Trump: Withdraw from the Paris Climate Treaty

VIEW THE PETITION >> StopParisClimateTreaty.org

Myron Ebell

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Stop continental drift!

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Dennis Hedke
Sent: Thur 6/8/2017 2:22:07 PM
Subject: Richard Lindzen
Richard Lindzen speaks out.docx

Samantha,

This was sent to me by one of my Australian counterparts, exemplifying the value of a brilliant, humble physicist/climatologist, retired from MIT in 2013.

It is a lengthy interview, but well worth the time spent seeing his comments.

Hope you're having a good week.

Sincerely,

Dennis Hedke

Hedke-Saenger Geoscience, Ltd.

8100 E. 22nd St. North, Bldg 2200 Suite 3

Wichita, KS 67226

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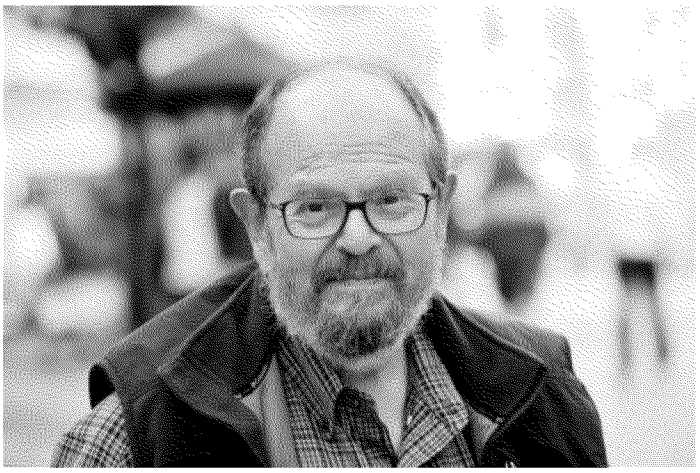
316-737-2600 cell

In the future, people will marvel how hysterical mankind has been, Lindzen says

http://motls.blogspot.com.au/2017/06/in-future-people-will-marvel-how.html

Guest blog by Daniel Kaiser, writer at conservative Echo & Echo24.cz, original in Czech

An interview with Richard Lindzen in Prague in mid May 2017



The U.S. president Donald Trump has turned his back to the international treaties to reduce emissions when he announced in the White House's Rose Garden that the U.S. will leave the Paris climate treaty that 195 countries signed in 2015. We use this opportunity to unlock the full interview with one of the most famous climate skeptics among the world's scientists Richard Lindzen which was published in Echo at the end of May. In February, Lindzen organized a public letter to Trump signed by hundreds of scientists, urging the president to revoke the U.S. signature under the 1992 treaty signed in Rio which became a cornerstone for the subsequent Kyoto and Paris treaties. In these treaties, the countries-signatories pledge to reduce their greenhouse gas emissions to make sure that the planet won't heat up by more than 2 °C relatively to the pre-industrial era.

In your memo, you recommend Trump to withdraw from the Climate Change Convention signed at the 1992 U.N. summit in Rio. Why do you focus on Rio and not the 18-months-old Paris treaty?

Because Rio seems to be the easiest way out. There exists an argument that to leave the Paris treaty [adopted in 2015; signatories-countries vow to realize their individual contributions to fight against the emissions, note by editors] would be more complex and it could take several years. [That's the path that Trump chose, anyway, comment by LM.] The argument also notes that our exit must be approved by the other signatories. On the other hand, when you leave Rio, you also invalidate the commitments that were made in the subsequent 25 years and that includes Paris. The second simplest way out would be to classify Paris as a treaty that requires a ratification could think of Paris as a treaty that hasn't been signed by the U.S. at all. According to the U.S. constitution, all international treaties have to be approved by the Senate. Obama was working outside this framework and in fact, no one exactly knows whether his agreement with the Paris treaty has any legal power.

What are your estimated odds that Trump will behave as you advise him?

I see it as a 50-to-50 proposition. I think that we will be smarter in Fall 2017 or earlier. These days, it's hard to understand the actual events in the U.S. Trump is complaining about fake news – and rightfully so. So far, The New York Times, The Washington Post, and a majority of the TV channels like to report things about Trump before it turns out that they aren't quite right. So when they are telling us that Ivanka along with her spouse Jared Kushner or the Secretary of State Rex Tillerson

want us to stay in the Paris climate framework, I am not sure that it's true. Trump himself isn't ideological, moreover, he doesn't pretend to possess the scientific expertise. He may be inclined to decide in a way that minimizes the friction. But the most important fact could be his campaign promise to leave the climate treaties. At any rate, last fall, people were voting for Donald, not Ivanka or Jared. Yes, and he knows it. He has two candidates for his science adviser, William Happer and David Gelernter. Both are very intelligent men. Will was mentioning that he was discussing this issue with Trump and Trump was saying: You must understand that my daughter is young and doesn't understand the issue yet. Who knows how these things will evolve...
Why would Ivanka and her husband Jared Kushner be so involved in the efforts to keep the U.S. in the Paris climate framework?'
They are young people, they have been brought up in the propaganda about the man-made global warming. Before her father decided to run for the White House, they were Democrats. If you're growing up in the New York City in a certain social class, everyone around you is a believer. That was the case of many CEOs of big companies that I know. Their wives were insisting that they had to embrace this faith, otherwise these wives' girlfriends would stop talking to these wives.

You have been heard as saying that the ordinary Joe has already seen through the panic about global
warming while the educated people are more susceptible.

But that's the case of many other topics. Orwell was an early thinker who noted that certain ideas are so silly that only intellectuals may believe them. Just look how the education system works. What does it mean for a student to be good these days? To pass the exams and write a good thesis.

Maybe in your country. In America, to be a good student means to please his or her professor. In other words, the student must accept what the professor teaches and writes, without reservations. And when you disagree, you are a bad student. People who avoid the college don't have to undergo this. They have the freedom to use their own brain to think. If you ask a regular working person in Boston, Paris, or anywhere, what he thinks about. Almost no one will tell you: We have to save the planet. It would be hard to transmit this sentence through his lips because it would look too pompous to him. And he is intuitively right. Even the official proposals to stop the climate change publicly admit that even if they are realized, they won't have a tangible impact. These efforts are returning us to the Middle Ages when people liked to do symbolic gestures to persuade God to look at us more mercifully. It is an irrational issue, except from the viewpoint of the people who make profit out of it. And it's not just the producers of the solar panels or the pinwheels. In America, even utility companies are totally excited about the regulations introduced because of the climate. They have done the maths and they figured out that the regulations will bring them extra profits. The consumers will pay for the party.

On the other hand, the college-educated public ironically thinks that it is the climate skeptics like you who are being paid by the energy industry.

I wish! [Laughter.] The only big grant that e.g. ExxonMobil has ever donated to the research of the climate was its $100 million grant donated to Stanford – to promote the climate alarmism.

Payments that you have allegedly received from the coal company Peabody is sometimes being used against you.

Sure, they wanted an expert analysis needed in the court. Everyone gets paid for this work. More importantly, this money is so modest that it is negligible relatively to the funds flowing to the official climatology. Since 1988, the latter has been tens of billions of dollars, an amount so large that the climate science has basically been unable to absorb it so far. The field is relatively small and the tens

of billions are going almost exclusively to support a pre-determined paradigm. Don't believe the talk about thousands of climatologists who agree with the conclusions of the U.N. international panel. Have you attended a college? Have you ever met someone who studied climatology in your student environment?

No? Almost no one has met a climate student. Sure, the U.N. is already importing people from Zimbabwe and Tanzania, but those aren't real climatologists. But when you discontinuously increase the research funds, and on top of that, you develop the research on the impacts of the so-called climate change, you may study e.g. cockroaches and still be incorporated to the industry of climatology once you publish studies about the cockroaches' prospects in the globally warming world. If 90% of the research funding for the climate were slashed, the discipline would actually benefit.

You are alternately living in Greater Boston and Paris so you must have noticed that the French president Macron has invited scientists from the U.S. to France who are – I am quoting – fighting against the darkness and obscurantism and who are afraid that their research will no longer be permitted.

If Macron were honest, he would have to think of people like me. In the past and up to this day, the only scientists who have been suppressed have been the doubters. When they classify you as a skeptic, you won't get the grants, you face extra hurdles while publishing things. For example, I am a member of the National Academy of Sciences and these members are expected to be able to publish a scientific study. I submitted a publication in 2011 whose co-author was Korean scientist Mr Choi. In the committee that was deciding about the publication, one member was Mr Schellnhuber of Germany [Hans Joachim Schellnhuber was then a science adviser to Angela Merkel, comment by editors] and his argument was as follows: Look, this Lindzen wants his study to be reviewed by Chou but Chou is his co-author. That's illegal. They didn't publish our paper even though Choi and Chou are two different people. Afterwards, I even received apologies from other members of the committee who were disgusted – but that couldn't have helped with the core problem.

Do you know a recent example in which climatology was demonstrably working in a government's interest?

Sure. The Karl et al. study funded by NOAA (National Ocean and Atmosphere Administration) in Summer 2015, i.e. shortly before the Paris accord, had the goal to prove that the hiatus in global warming that has been taking place already from 1998 (or 1988 written in the original Echo interview, not sure what was meant, LM), didn't exist. Using slightly different datasets, they reduced the temperatures measured in 1978-1998 and slightly increased the temperatures from 1998 through 2015, and that's how a steeper curve was created. In newspapers, people could read predictable headlines: No hiatus has occurred in global warming! Of course the warming did take place but they hid an important detail: that the warming was far smaller than the predictions of all the climate models. And that was true even according to the modified datasets. That's an example of elementary scientific dishonesty built on the silly assumption that every warming is dangerous, even if it were by a hundredth of a degree. Someone has paraphrased the logic as follows: When you eat 100 aspirins, you will die.
When each of 100 people eats 1 aspirin, 1 person will die. [The original Czech interview says "100 persons will die" but that's not what Lindzen meant. LM]

And according to you, is the world warming or not?

The climate is constantly changing, it has never stayed constant. We had a warming episode in 1978-1998, probably comparable to several tenths of a degree. I am using the word "probably" because when the measurement error is plus minus 0.2 °C, you may always modify your results to match a

trend you find convenient. To deduce trends from changes comparable to tenths of a degree is nonsense from a statistical perspective. It is almost impossible to say with certainty that the warming has taken place. The international panel of the U.N. known as the IPCC acronym is claiming: The warming between 1919 and 1940 wasn't caused by humans but the warming between 1978 and 1998 was. But their magnitude and shape was basically identical. It's propaganda. You may always focus on small changes and scale the graph so that it looks dramatic to the naked eye.
What about the argument about the 10 hottest years in history that were uniformly recorded from 1998?

If 1998 is the warmest one in your dataset from the beginning of your measurements, and if the temperature stabilizes afterwards, then it seems logical that most of the following years will belong among the warmest ones. This argument says nothing about the trends. I think that this argument is abusing the people's innumeracy. It's a fact that since 1998, the Earth has basically seen no temperature trend. First, this 20-year-old hiatus wasn't predicted by the IPCC models. Second, they aren't even attempting to seriously explain it. Ex post explanations, e.g. that the heat was stored in the ocean and will emerge from the ocean sometime in the future, aren't convincing.

If the official science is failing, how do you explain that the climate industry keeps on moving?

Environmentalists have attempted to spread several types of a panic since the 1960s: oxygen depletion, global cooling, coming ice age, acid rains... Global warming is the last one in the sequence. They have nothing else to try afterwards, so they will remain attached to global warming for as long time as possible. When this whole construct collapses sometime in the future and the fight against global warming will be moved to the dumping ground of history, people will marvel at a remarkable story showing how it was possible to make the whole mankind hysterical without any proper arguments. And how vulnerable science may become when it is exposed to such hysteria.

Does the history of science remember something similar?

To some extent, Lysenko's anti-Mendelian theory of heredity in the USSR was similar. In America, there was a related excitement for eugenics in the 1920s. Eugenics returned to Germany later and in a much more extreme form. But even in the U.S. of the 1920s, it was enough to close the borders. The root of the panic was the idea that America was exposed to the pandemics of feeble-mindedness and you could have found scientists who were blaming this pandemics on the immigration from Southern and Eastern Europe, i.e. on you and the Italians. [Laughter.] What's interesting is that while the research wasn't subsidized by the government in those times, the public was scared and the government suggested that it was preferring certain results. And science managed to match that demand with its supply. In spite of the geneticists' knowledge that it was bad science, they remained silent because they felt that it was very important for the public to appreciate the importance of their field.
What risks are facing the scientists whose theory collapses during their lifetime?

Nothing. Paul Ehrlich and his population explosion theory is a good example. Before 1980, famine would explode in the U.S. Nothing like that has ever taken place, of course, but Ehrlich remains a celebrated personality. In fact, he claims that the history has vindicated him. It's similar with the people in the Club of Rome and their The Limits to Growth. It's a silliness but they're still harvesting applause. You can say anything and it doesn't affect your reputation as long as you belong to a political movement. In that case, you may say: I have done quite some good work to help a good cause.

If Trump leaves the bandwagon of the climate politics, may it bring the demise of this world view closer?

It might. I don't think that the end will be dramatic. What may happen is simply that the panic will cease to be profitable and profit seekers will have to look for greener pastures elsewhere.

Richard Lindzen. American atmospheric physicist from a Jewish family that fled Germany shortly before
he was born in 1940. He was growing up in Bronx and studied at Harvard afterwards. Between 1983 and (MIT). He was an author of the seventh chapter of the 2001 IPCC report before he complained that the conclusions of that report were modified for political goals. His wife is French and both of them alternately live in Greater Boston and Paris.

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: William Myers III
Sent: Fri 5/26/2017 6:09:42 PM
Subject: Superfund task force
Kevin Murray Bio.pdf

Hi Samantha – we met very briefly when I was visiting Layne's office. Here is more information about my law partner who is interested in serving on the task force. You may follow up directly with Kevin if you are interested. I'm sure that Kevin would be a great addition to your efforts. Thanks.

Bill Myers

vcard People Practice Areas Web Site

HOLLAND&HART

William G. Myers III
Partner
wmyers@hollandhart.com
Phone: 208-342-5000
Fax: 208-343-8869
Holland & Hart LLP
800 W. Main Street

Suite 1750
Boise, ID 83702

CONFIDENTIALITY NOTICE: This message is confidential and may be privileged. If you believe that this email has been sent to you in error, please reply to the sender that you received the message in error; then please delete this e-mail. IRS CIRCULAR 230 NOTICE: This communication was not written and cannot be used to avoid Federal tax penalties that may be imposed on you, unless specifically stated. Thank you.

Kevin Murray

Partner

222 South Main Street, Suite 2200, Salt Lake City, UT 84101
P 801.799.5919
krmurray@hollandhart.com

Kevin Murray assists clients with issues involving hazardous substances, contaminated property, wetlands, and water quality.

His work includes all facets of remediation, compliance, permitting, mergers and acquisitions, land development, and property reuse.

Kevin has significant experience with CERCLA, RCRA, state hazardous waste laws, and related programs. He advises clients on a broad range of matters concerning the acquisition, remediation, and redevelopment of contaminated property. He is known for innovative and unique resolutions to complex contamination issues, especially involving multi- jurisdictional and multi –agency matters, in the real estate, mining, energy, petroleum, and the manufacturing industry. He has successfully represented public and private clients to transform thousands of acres of brownfields property. His practice expertise also includes the Clean Water Act, where he counsels clients on compliance and water quality matters.

EXPERIENCE

Negotiates federal Consent Decrees, Administrative Orders on Consent, and related agreements for matters related to:

- CERCLA
- RCRA
- Brownfields development
- Clean Water Act (CWA)

CLIENT RESULTS

Strategist behind the highly innovative and successful Midvale Slag Site, which recently was deleted from the U.S. Environmental Protection Agency's National Priorities List of Superfund Sites 50 years ahead of schedule.

Played a key role in the Richardson Flats remediation, which was recognized by the Department of the Interior as the site of the year for its effective combination of Natural Resource Damages restoration and CERCLA remediation.

Led the remediation and redevelopment of a 450 acre smelter site through the innovative use of special account and private funds. It was the first time EPA had agreed to use the approach. The former smelter site is now a thriving multi use project.

Led the development of innovative protocols for the reclamation and redevelopment of 2000-plus acres of mining land in a leading resort area. Continued development of estate lots, residential, commercial and hotels.

EDUCATION

Brigham Young University, J. Reuben Clark Law School, J.D., 1984
cum laude

Brigham Young University, B.A., 1981
cum laude

BAR ADMISSIONS

Idaho
Texas
Utah

PRACTICES

Environmental and Natural Resources
Environmental Compliance and Enforcement
Land Use and Public Planning
Mining

One of the first projects to successfully utilize the EPA ER3 pilot Superfund initiative.

Negotiated a Prospective Lessee Agreement, a liability relief mechanism reportedly used by EPA only one other time in CERCLA history.

Led the environmental team of a utility cooperative in permitting a large wind farm.

Counsel to potentially responsible parties in the remediation of seven miles of petroleum contaminated canal sediments.

Counsel to numerous parties in the negotiation of dozens of consent decrees for NPL site remediation.

Due diligence counsel in $3.2 billion acquisition of Fortune 50 company.

Due diligence counsel in a bid to acquire a 1500 mile portion of a gas pipeline system, as well as an 8000 mile gulf natural gas pipeline and its associated 68.5 billion cubic feet storage system.

Due diligence counsel to acquire the production, gather, transmission, and distribution assets of a large gas company, including more than 12,000 miles of pipeline and 90 compressor stations.

PUBLICATIONS

"A Property Mechanic's Tool Box," *Holland & Hart News Update*, 9/22/2016

"A Property Purchaser's Tool Box," *Utah Business Magazine*, August 2016

"Water Quality," *Environmental Regulation, excerpted from the Second Edition of the American Law of Mining, Chapter 169*, Co-Author, 2015

"The Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)," *Environmental Regulation, excerpted from the Second Edition of the American Law of Mining, Chapter 171*, Co-Author, 2015

SPEAKING ENGAGEMENTS

"Potentially Responsible Party (PRP) Perspectives on Superfund Site Reuse (Midvale Slag Site Case Study)," *Superfund Redevelopment Initiative*, August 2015

"The Removal and Management of Asbestos Pipe," *Speaker, American Public Works Association Conference*, October 1, 2014

"Municipal Water Systems and AC Pipe," *Utah Municipal Attorneys Association Spring Conference*, May 2013

"Environmental Law Update," *Utah Municipal Attorneys Association Spring Conference*, May 2011

RECOGNITION

- *Chambers USA: America's Leading Lawyers for Business*, Environment, Natural Resources & Regulated Industries, 2010-2016
- *The Best Lawyers in America*© Energy Law, Environment Law, 1995-2017
- Martindale-Hubbell®, AV Preeminent® Rating

- *Utah Business Magazine*, Utah Legal Elite, 1998-2015
- Mountain States Super Lawyers®, Environmental, 2007-2016
- Mountain States Super Lawyers®, Top 100 Lawyers, Environmental, 2012

PROFESSIONAL & CIVIC AFFILIATIONS

- Brigham Young University and University of Utah, Adjunct Professor of Law
- Utah Solid and Hazardous Waste Control Board, Member, 2011-2016, Chair 2010-2016
- Pioneer Theatre Company, Chair, 2014-2016, Executive Board and Director of Development, 2006-2014
- Davis Education Foundation, Davis County School District, Board of Trustees, 2006-2011, Chair 2008-2009
- Lakeview Hospital, Board Member, 2000-2005, Chair 2003-2005
- Boy Scout of America, Council Executive Board, 2015-2016

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Samantha Dravis
Sent: Thur 4/27/2017 5:25:39 PM
Subject: Fwd: If you ever do need a copy...
ATT00001.htm
Will Lovell Resume.pdf

---------- Forwarded message ----------
From: **Brittany Bolen** Personal Email/Ex. 6
Date: Thu, Apr 27, 2017 at 10:38 AM
Subject: Fwd: If you ever do need a copy...
To: Samantha Dravis Personal Email/Ex. 6

---------- Forwarded message ----------
From: **Atcheson, Laura (Cornyn)** <Laura_Atcheson@cornyn.senate.gov>
Date: Fri, Apr 14, 2017 at 7:27 AM
Subject: Fwd: If you ever do need a copy...
To: Personal Email/Ex. 6

Sent from my iPhone

Begin forwarded message:

From: "Lovell, Will (Cornyn)" <Will_Lovell@cornyn.senate.gov>
Date: October 4, 2016 at 11:38:37 AM EDT
To: "Atcheson, Laura (Cornyn)" <Laura_Atcheson@cornyn.senate.gov>
Subject: If you ever do need a copy...

Will Lovell

U.S. Senator John Cornyn

cornyn.senate.gov

(202) 224-2934

William David Smith Lovell

Ex. 6 - Personal Privacy

EXPERIENCE

United States Senator John Cornyn **Washington, DC**
Legislative Correspondent July 2015 - Present
• Act as deputy policy advisor on issues pertaining to energy, environment and interior
• Write vote recommendations, briefing papers, memos and other research materials
• Meet with constituents, trade associations, lobbyists and other Congressional staff members
• Provide timely responses to office correspondence, including phone calls, letters and emails

Staff Assistant July 2014 – July 2015
• Planned and oversaw weekly constituent event involving room reservation, catering and photography
• Interacted with constituents on a regular basis in-person and over the phone
• Fulfilled requests for signed photos, pocket Constitutions, business cards and office supplies
• Coordinated office mail sorting and forwarding, as well as package shipment and tracking
• Tracked inventory of office supplies and assisted in ordering new supplies

House Committee on Foreign Affairs **Washington, DC**
Intern May 2014 – July 2014
• Assisted with the administration of a congressional committee office
• Researched energy, technology and economic policy for professional staff members
• Helped staff assistants in the planning of hearings and mark-ups for the Committee
• Attended hearings and briefings on behalf of the Committee for research purposes

ExxonMobil Corporation **Dallas, TX**
Public and Government Affairs Intern June 2013 - August 2013
• Conducted an inventory of various trade associations' digital and social media presences
• Developed social and digital media editorial calendar for corporate platforms
• Drafted website summary content on each business line and U.S. refinery
• Created a Twitter account for corporate citizenship and planned appropriate content

Hodges Capital Management **Dallas, TX**
Research Intern May 2012 - August 2012
• Researched publicly-traded companies with a focus on Texas industries, particularly energy
• Constructed Excel-based models with data aggregated from Bloomberg Terminal
• Streamlined data organization processes using Visual Basic
• Coordinated social media efforts to promote the firm and investment education

EDUCATION

University of Virginia **Charlottesville, VA**
B.A., Economics and Foreign Affairs Ex. 6 - Personal Privacy
Activities: Cavalier Daily, College Republicans, Entrepreneurship Group at McIntire, Honor Committee, Islamic Finance Association, McIntire Investment Institute

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Dennis Hedke
Sent: Fri 4/14/2017 3:26:03 AM
Subject: Re: Comments

Samantha,

Please forgive the lateness of this message and I certainly do not expect a response tonight, but my day tomorrow will be challenging, so I wanted to get this to you tonight, late though it may be.

I have been invited to DC to attend a diplomatic function on Saturday, April 29. I would greatly appreciate a possible meeting with you perhaps on Friday, April 28, at anytime that might be convenient for you. I would prefer an offsite meeting not necessarily related to my objectives indicated in my earlier email on April 3, but am open to your preferences.

My cell number is Personal Phone/Ex. 6

Sincerely,

Dennis

On Mon, Apr 3, 2017 at 7:07 PM, Dennis Hedke Personal Email/Ex. 6 wrote:

Samantha, you are most welcome.

Warmest regards,

Dennis

On Mon, Apr 3, 2017 at 6:20 PM, Dravis, Samantha <dravis.samantha@epa.gov> wrote:

Dennis,

Thank you so much for this. I will try to be in touch as soon as I can.

Samantha

Sent from my iPhone

> On Apr 3, 2017, at 7:10 PM, Dennis Hedke Personal Email/Ex. 6 wrote:
>
> Dear Samantha,
>
> I wanted to offer some additional comments as you consider some of your staff

building within the Office of Policy.
>
> Please see the attached memo.
>
>
> Warmest regards,
>
>
> Dennis
> <DEH-Dravis.doc>

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Avery, Kevin J
Sent: Tue 4/4/2017 8:06:55 PM
Subject: EPA Regional Director Candidates
Brad Thomas Resume 032817.docx
Kim Estes full CV FEMA Interior EPA.PDF

Samantha –

When Administrator Pruitt met with the API Executive Committee, he told the group that the agency was looking for recommendations for strong candidates for Regional Director Positions. I am attaching the resumes of two such individuals for your consideration, Brad Thomas and Kim Estes. Brad Thomas works for ConocoPhillips in Alaska. He is very knowledgeable on a host of EPA regulations and policies in that region. The other candidate is recommended by our Vice President for State and Federal Government Affairs, John Dabbar. He is a personal friend of Mr. Estes' and would be willing to give you any additional information you might need.

Please advise me as to what steps they need to take next.

Thank you very much.

KJA

Kevin J. Avery

Manager, Federal Government Affairs

ConocoPhillips

325 7th Street, N.W., 12th Floor

Washington, D.C. 20004

202-833-0914 (Direct)

202-304-0467 (Mobile)

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Dennis Hedke
Sent: Wed 3/29/2017 2:41:36 AM
Subject: Position

Dear Samantha,

Upon closer examination, and considering your comments regarding the hiring freeze, I want to perhaps focus my submittal to the Noncareer Appointment position of Senior Advisor, if such position is available for filling.

I simply didn't recognize that many of the slots I had been considering, both within your administrative realm, and others I mentioned, were Career Appointments, or even Presidential Appointment with Senate Approval.

You may have already selected your first choice for your Senior Advisor, but if not I would deeply appreciate your giving me a serious look. I do believe I can add a measurable level of political expertise, a very strong science background and other assets for your team building.

I would be able to provide multiple high quality references, not the least of which would be CIA Director Mike Pompeo, Senators Moran and Roberts, Governor Brownback, and so on.

Most sincerely,

Dennis Hedke

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Chrissy Lech
Sent: Tue 6/6/2017 8:19:39 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

This nonsensical set-up allows large integrated oil companies that blend more fuel than they refine and big convenience store gasoline chains (who do much of the blending) to collect valuable credits for the renewable fuel they blend into the pure gasoline they get from refineries. Independent refiners, who do little or no blending themselves, then end up purchasing those credits in order to demonstrate compliance with a process they have little control over. Small and independent refiners are at risk of going offline due to this backwards regulation, with 75,000-150,000 U.S. workers potentially impacted.

Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Chrissy Lech
5044 ColdSprings Dr.
Collegeville, Pennsylvania 19426

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Richard Milliron
Sent: Tue 6/6/2017 7:09:59 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Richard Milliron
8603 Spruce Mill Drive
Yardley, Pennsylvania 19067

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Roger Lanouette
Sent: Tue 6/6/2017 5:37:14 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Roger Lanouette
410 Bollen Court
Pennington, New Jersey 08534

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: James Shuda
Sent: Tue 6/6/2017 5:37:38 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

James Shuda
8 Moore Circle
Media, Pennsylvania 19063

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Gregory Dorward
Sent: Tue 6/6/2017 5:41:57 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Gregory Dorward
48 Bertolet School Rd
Spring City, Pennsylvania 19475

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Mark Schuck
Sent: Tue 6/6/2017 4:29:12 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Mark Schuck
4101 Post Road
Trainer, Pennsylvania 19061

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Stephen Brady
Sent: Tue 6/6/2017 3:47:20 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Stephen Brady
5765 Landis Greene Drive
Doylestown, Pennsylvania 18902

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Brian Carlson
Sent: Tue 6/6/2017 3:49:21 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Brian Carlson
802 W Strasburg
West Chester, Pennsylvania 19382

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Brian Cavallaro
Sent: Tue 6/6/2017 3:50:28 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Brian Cavallaro
4101 Post Rd.
Trainer, Pennsylvania 19061

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Brian Powell
Sent: Tue 6/6/2017 3:51:01 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Brian Powell
404 Coventry Lane
Glen Mills, Pennsylvania 19342

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: John Gattone
Sent: Tue 6/6/2017 3:52:45 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

John Gattone
102 Cantwell Dr
Middletown, Delaware 19709

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Tracy Sadowski
Sent: Tue 6/6/2017 4:06:53 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Tracy Sadowski
504 Parks Edge Lane
Media, Pennsylvania 19063

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Julie Anderson
Sent: Tue 6/6/2017 4:07:57 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Julie Anderson
1209 Brook Drive
Wilmington, Delaware 19803

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Ryan Stauffer
Sent: Tue 8/8/2017 9:07:56 AM
Subject: Help Protect Refiners Jobs In Reference to Docket ID No. EPA–HQ– OAR–2017–0091

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS (Docket ID No. EPA–HQ– OAR–2017–0091) in a way that fixes this inequity.

Thank you.

Ryan Stauffer
106 Dorothy Way
Aston, PA 19014

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Willaim McEnroe
Sent: Fri 6/2/2017 6:21:25 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Willaim McEnroe
150 Ramunno Circle
Hockessin, Delaware 19707

To: Steven Shimberg[sjshimberg@sjsolutions.biz]
Cc: Echols, Mabel E. EOP/OMB[Mabel_E._Echols@omb.eop.gov]; Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]; Dravis, Samantha[dravis.samantha@epa.gov]; mimi.braniff@delta.com[mimi.braniff@delta.com]; MCSHANE, JOHN B[JOHN.MCSHANE@pes-companies.com]; Burgess, Scott H. EOP/OMB[Scott_H_Burgess@omb.eop.gov]
From: Whiteman, Chad S. EOP/OMB
Sent: Thur 6/1/2017 4:06:33 PM
Subject: RE: RFS OMB meeting handouts

Steve,

Thank you for taking the time to meet with us yesterday to share your views on the RFS RVO rulemaking. I also appreciate that you sent along the electronic copies of the documents that you presented during the meeting.

Best Regards,

Chad

Chad Whiteman

Senior Policy Analyst, Office of Information and Regulatory Affairs

Office of Management and Budget | Executive Office of the President

cwhiteman@omb.eop.gov

(202) 395-4718

From: Steven Shimberg [mailto:sjshimberg@sjsolutions.biz]
Sent: Wednesday, May 31, 2017 5:17 PM
To: Whiteman, Chad S. EOP/OMB <Chad_S_Whiteman@omb.eop.gov>; Burgess, Scott H. EOP/OMB <Scott_H_Burgess@omb.eop.gov>
Cc: Echols, Mabel E. EOP/OMB <Mabel_E._Echols@omb.eop.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Dravis.samantha@Epa.gov; mimi.braniff@delta.com; MCSHANE, JOHN B <JOHN.MCSHANE@pes-companies.com>; James_P_Herz@omb.eop.gov; Anthony_P_Campau@omb.eop.gov
Subject: RFS OMB meeting handouts

Chad and Scott,

Thanks for meeting this morning with Delta Air Lines, Monroe Energy and Philadelphia Energy Solutions. As promised, I am attaching copies of the two handouts from today's meeting.

As noted in the meeting, EPA assumed in the 2017 final rule an unrealistically high level of ethanol consumption – 14.56 billion gallons. See: TABLE V.B.1.iv–1—GASOLINE VOLUMES USE TO DETERMINE REASONABLY ATTAINABLY ETHANOL SUPPLY IN 2017, 81 Fed. Reg. at 89780, and TABLE V.B.3–1—DETERMINATION OF VOLUME OF BIODIESEL AND RENEWABLE DIESEL NEEDED IN 2017 TO ACHIEVE

19.28 BILLION GALLONS OF TOTAL RENEWABLE FUEL, 81 Fed. Reg. at 89781. >https://www.gpo.gov/fdsys/pkg/FR-2016-12-12/pdf/2016-28879.pdf<

That assumption is inconsistent with EIA data. The combination of EIA's data on E0 and the most recent STEO show that annual ethanol consumption in motor gasoline for 2017 *and* 2018 will be significantly *less* than 14.56 bg. See Table 4a. U.S. Petroleum and Other Liquids Supply, Consumption, and Inventories, U.S. Energy Information Administration | Short-Term Energy Outlook - May 2017 >https://www.eia.gov/outlooks/steo/tables/pdf/4atab.pdf<

When the 2018 NPRM was sent to OMB on May 11th, the RIN market reacted to rumors that EPA will compound the error made in the 2017 rule and assume even *higher* levels of ethanol consumption for 2018. D6 RIN prices surged overnight. In less than 3 weeks, D6 RIN prices increased by more than 85% -- from 40 cents/RIN to about 75 cents/RIN. As we discussed, that is a serious problem.

We look forward to continuing to work with you on this critical and difficult issue.

Sincerely,

Steve

Steven J. Shimberg

SJSolutions pllc

Environmental Law/Policy, Counseling/Advocacy

sjshimberg@sjsolutions.biz

202.689.4920

To: Chad Whiteman[Chad_S_Whiteman@omb.eop.gov]; Scott_H_Burgess@omb.eop.gov[Scott_H_Burgess@omb.eop.gov]
Cc: Mabel_E._Echols@omb.eop.gov[Mabel_E._Echols@omb.eop.gov]; Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]; Dravis, Samantha[dravis.samantha@epa.gov]; mimi.braniff@delta.com[mimi.braniff@delta.com]; MCSHANE, JOHN B[JOHN.MCSHANE@pes-companies.com]; James_P_Herz@omb.eop.gov[James_P_Herz@omb.eop.gov]; Anthony_P_Campau@omb.eop.gov[Anthony_P_Campau@omb.eop.gov]
From: Steven Shimberg
Sent: Wed 5/31/2017 9:17:07 PM
Subject: RFS OMB meeting handouts
Monroe and PES on point of obligation.docx
Monroe and PES on E0.docx

Chad and Scott,

Thanks for meeting this morning with Delta Air Lines, Monroe Energy and Philadelphia Energy Solutions. As promised, I am attaching copies of the two handouts from today's meeting.

As noted in the meeting, EPA assumed in the 2017 final rule an unrealistically high level of ethanol consumption – 14.56 billion gallons. See: TABLE V.B.1.iv–1—GASOLINE VOLUMES USE TO DETERMINE REASONABLY ATTAINABLY ETHANOL SUPPLY IN 2017, 81 Fed. Reg. at 89780, and TABLE V.B.3–1—DETERMINATION OF VOLUME OF BIODIESEL AND RENEWABLE DIESEL NEEDED IN 2017 TO ACHIEVE

19.28 BILLION GALLONS OF TOTAL RENEWABLE FUEL, 81 Fed. Reg. at 89781. https://www.gpo.gov/fdsys/pkg/FR-2016-12-12/pdf/2016-28879.pdf

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We look forward to continuing to work with you on this critical and difficult issue.

Sincerely,

Steve

Steven J. Shimberg

SJSolutions pllc

Environmental Law/Policy, Counseling/Advocacy

sjshimberg@sjsolutions.biz

202.689.4920

Renewable Fuel Standards

Action needed: Use EIA data on E0 when proposing and setting 2018 RVOs.

- **The 2018 NPRM should incorporate EIA estimates of E0 consumption. This NPRM is an opportunity to correct EPA's pattern of significantly underestimating E0 use and overstating, by hundreds of millions of gallons, the amount of ethanol used in E10. This error leads to inflated RVOs which lead to inflated RIN prices.**

In a recent analysis, EIA determined that the nation uses 5.3 *billion* gallons of E0[1]. In calculating the proposed volumes for 2017, EPA chose to assume that only 200 *million* gallons of E0 will be used. As a result, EPA overstated ethanol consumption by more than 500 million gallons.

The 2017 Final Rule was based on the unfounded expectation that "the RFS program would result in all but a tiny portion—estimated at 200 million gallons—of gasoline to contain at least 10% ethanol."[2] EPA adopted that position by ignoring all E0 use except projected use by recreational marine engine owners. That approach is not defensible, especially in light of EIA data showing that domestic E0 consumption exceeds five *billion* gallons. The 2018 proposed RVO should correct this mistake. Correcting this gross understatement of E0 usage requires EPA to reduce its projections of ethanol use in the United States by several hundred million gallons.

Doing so would harmonize EPA's estimates regarding E0 consumption with the estimates of its sister agency, EIA. In the 2014-2016 Final Rule, EPA declined to rely on EIA data regarding domestic E0 use on the grounds that it was "not an appropriate basis for determining the amount of E0 actually sold at retail, and thus cannot be used to estimate likely E0 sales."[3] EIA has recognized that "actual use of E0 in vehicles, boats, and other equipment with gasoline-burning engines was likely [lower than shown in EIA data] because *some volumes of E0* that enter the domestic market *may have been* blended with ethanol *at smaller terminals that are out of scope for EIA reporting or blended at the point of retail sale*."[4]

But EIA's May 2016 analysis addressed this point directly. The adjusted analysis still "impl[ies] a remaining supply of . . . *5.3 billion gallons*[] of unblended E0 to final consumers in the United States in 2015."[5] In other words, according to EIA's analysis of E0 supply, EPA has underestimated E0 by 5.1 billion gallons—and, by treating that fuel as E10 instead of E0, EPA has overstated ethanol consumption by over 500 million gallons.

The docket shows that the Office of Management and Budget raised this same issue with EPA shortly after the EIA published the aforementioned article, and before EPA publicly issued the NPRM for 2017. Specifically, in response to the "illustrative" scenarios that EPA proposed for the 2017 NPRM, an OMB commentator remarked: "The E0 volumes are well below an EIA estimate of likely actual volumes

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[1] EIA, Almost All U.S. Gasoline Is Blended with 10% Ethanol (May 4, 2016), http://www.eia.gov/todayinenergy/detail.cfm?id=26092
[2] 2017 Final Rule, 81 Fed. Reg. at 89775.
[3] 2014-2016 Final Rule, 80 Fed. Reg. at 77,462.
[4] EIA, Almost All U.S. Gasoline Is Blended with 10% Ethanol (May 4, 2016), http://www.eia.gov/todayinenergy/detail.cfm?id=26092 (emphasis added).
[5] Id. (emphasis added).

consumed today."[6] EPA responded:

> We have taken the same approach to E0 volumes for 2017 as we did in the 2014-2016 final rule. Specifically, the E0 estimates in the referenced table represent the demand for E0 among owners of recreational marine engines that we believe would continue under the influence of the 2017 standards. . . . The volume of E0 consumed today among all consumers is not the basis for estimating E0 volumes for 2017. Moreover, we believe that EIA data estimates of actual E0 volumes do not account for all ethanol blending.[7]

That response is not adequate. EIA data show that EPA is certainly mistaken in the assumption that recreational marine engine owners are the only users of E0, and while EIA data may not account for all ethanol blending, rational decision-making requires EPA to make a more sincere and comprehensive effort to reconcile the *five-billion-gallon* gap between EIA's estimate of E0 consumption and the estimate used by EPA, and to explain why EIA's effort to adjust for E0 blended with ethanol at smaller terminals is inadequate.

To the extent EPA is purposefully ignoring all E0 except the amounts consumed by recreational marine engines in order to "incentiviz[e] the market to continue to transition from E0 to E10 and other higher level ethanol blends,"[8] that decision is not justified. There is no factual basis for believing that the RFS program can lead consumers, in 2017 or 2018, to eliminate the 5 billion or more gallons of E0 that they have used consistently for years. The 2018 rule must take into account the actual use of all E0 and its corresponding impact on ethanol supply.

---

[6] Summary of Interagency Working Comments on Draft Language under EO 12866 and EO 13563 Interagency Review 5 (May 11, 2016), https://www.regulations.gov/document?D=EPAHQ-OAR-2016-0004-0080.

[7] Id. at 6.

[8] 2017 Final Rule, 81 Fed. Reg. at 89775.

Renewable Fuel Standards

Action needed: Grant pending petitions to expand the regulatory definition of "obligated party"; initiate and complete a rulemaking ASAP.

Background on Point of Obligation

On November 10, 2016, EPA issued a proposed denial of petitions filed by multiple merchant refiners and AFPM, the refiner trade association. The petitions ask EPA to expand the regulatory definition of "obligated party" under the Renewable Fuel Standard (RFS) to align the point of obligation with the point of compliance.

The Agency issued a factually inaccurate and poorly reasoned 50 page paper to explain the proposed denial and opened a public comment period that closed on February 22, 2017.

There is sufficient evidence in the docket to support a decision by EPA to change course, grant the petitions, and initiate an expedited rulemaking to expand the regulatory definition of "obligated party" under the RFS.

This action is necessary to preserve merchant refining and jobs. Under the current system, these refineries must buy credits known as renewable identification numbers (RINs) and turn them in to EPA to demonstrate compliance with the RFS each year.

RINs have become the single largest operating expense for these merchant refineries, exceeding labor, maintenance and energy costs. These refineries are now spending well over $1 billion annually for RINs. This cost is unsustainable and, if not changed, will likely cause a number of refining bankruptcies.

The current definition of "obligated party" distorts the market and creates a windfall for blenders who control RINs and can sell them to refiners, importers or unobligated speculators.

Aligning the point of obligation with the point of compliance will improve the efficiency, fairness and effectiveness of the RFS program. In addition to helping to preserve merchant refiners and refining jobs, this action will benefit renewable fuel producers and small retailers.

Under a new definition that includes refiners, importers and blenders who own fuel at the terminal rack – the point at which most blending decisions are made -- the market would operate more efficiently and equitably.

Notwithstanding the unsupported assertions being made by opponents of the change, evidence in the administrative record shows that:

1) The current program is neither efficient nor effective;
2) The current program unnecessarily creates "winners and losers"; it is harming merchant refiners, small retailers and is a serious threat to thousands of jobs;
3) Changing the point of obligation will not increase the complexity of the program. It will not –

17cv1906 Sierra Club v. EPA - 6/22 Production ED_001523_00008222-00001

a) Significantly increase the number of obligated parties; the number of obligated parties will stay about the same as it is now;

b) Adversely affect small entities;

c) Create substantial burdens for newly obligated parties;

d) Cause significant market disruption;

e) Increase the potential for noncompliance; or

f) Adversely affect EPA's ability to conduct program oversight and enforcement.

4) Changing the point of obligation will make the program more efficient and effective; it will --

a) Improve incentives to promote renewable fuel use;

b) Reduce opportunities for speculation, manipulation and fraud in the RIN market;

c) Eliminate a serious threat to the continued viability of merchant refiners and thousands of jobs that rely on the merchant refining industry; and

d) Benefit small retailers by creating a level playing field for all transportation fuel market participants.

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Streett, Mary
Sent: Wed 5/31/2017 2:50:29 PM
Subject: RE: Meeting Request for BP's Head of Downstream with Administrator Pruitt

Thank you Samantha!

Do you have time for a quick call? Wanted to follow up on a question re: Tier III.

Best,

Mary

Mary M. Streett

Vice President, US Government Affairs

BP America, Inc.

phone: 1 202 346 8552 | mobile: 1 312 480 0464 | e-mail: mary.streett@bp.com
BP America | 1101 New York Avenue NW, Suite 700 | Washington, DC 20005

From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Monday, May 29, 2017 9:07 AM
To: Streett, Mary
Subject: Re: Meeting Request for BP's Head of Downstream with Administrator Pruitt

Mary,

Happy Memorial Day, and huge congrats on your new job! Sad for Geoff to leave the states, but very happy for his new opportunity as well.

Please note my EPA email address: Dravis.samantha@epa.gov - need to send correspondence here.

I will send this along to Administrator Pruitt's scheduling team and try to set this up ASAP. Thanks and look forward to seeing you soon!

Best,

Samantha

Sent from my iPad

On May 27, 2017, at 1:28 PM, Samantha Dravis <Personal Email/Ex. 6> wrote:

---------- Forwarded message ----------
From: **Streett, Mary** <Mary.Streett@bp.com>
Date: Thu, May 25, 2017 at 4:44 PM
Subject: Meeting Request for BP's Head of Downstream with Administrator Pruitt
To: Samantha Dravis <Personal Email/Ex. 6>

Hello Samantha -

I hope you are well and have something fun planned for the long weekend!

I am writing to request a meeting with Administrator Pruitt and the Head of BP's Fuels North America business, Doug Sparkman. Doug is planning to be in DC on June 28-29. The purpose of the meeting would be introductory -- to explain BP's downstream business in the US, with a particular focus on Point of Obligation, and of course any other issues you all would like us to address.

Thank you in advance for your consideration. I look forward to hearing from you!

Sincerely,

Mary

Mary M. Streett

Vice President, US Government Affairs

BP America, Inc.

phone: 1 202 346 8552 | mobile: 1 312 480 0464 | e-mail: mary.streett@bp.com
BP America | 1101 New York Avenue NW, Suite 700 | Washington, DC 20005

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Christopher Repine
Sent: Fri 5/26/2017 10:40:53 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

This nonsensical set-up allows large integrated oil companies that blend more fuel than they refine and big convenience store gasoline chains (who do much of the blending) to collect valuable credits for the renewable fuel they blend into the pure gasoline they get from refineries. Independent refiners, who do little or no blending themselves, then end up purchasing those credits in order to demonstrate compliance with a process they have little control over. Small and independent refiners are at risk of going offline due to this backwards regulation, with 75,000-150,000 U.S. workers potentially impacted.

Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Christopher Repine
3664 marian drive
Garnet valley, Pennsylvania 19060

To: Dravis, Samantha[dravis.samantha@epa.gov]; Bolen, Brittany[bolen.brittany@epa.gov]; Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]
Cc: Kime, Robin[Kime.Robin@epa.gov]
From: Williams, Brendan
Sent: Fri 5/26/2017 6:45:50 PM
Subject: DE Governor Letter on RFS POOB
OGOV Letter to EPA - Point of Obligation - 5.25.2017.pdf

I hope you are all doing well. I wanted to make sure you received a copy of the attached letter that Governor Carney sent Administrator Pruitt in support of moving the RFS Point of Obligation. I hope you have a great holiday weekend!

Regards,

Brendan Williams

Government Relations

PBF Energy

601 Pennsylvania Avenue, NW

Suite 900 South

Washington, DC 20004

O: (202) 434-8254

M: (703) 863-6825

brendan.williams@pbfenergy.com

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STATE OF DELAWARE
OFFICE OF THE GOVERNOR
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MARTIN LUTHER KING, JR. BOULEVARD SOUTH
DOVER, DELAWARE 19901

JOHN CARNEY
GOVERNOR

PHONE: 302-744-4101
FAX: 302-739-2775

May 25, 2017

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Mr. Pruitt,

On behalf of the State of Delaware, we appreciate your diligent and thoughtful consideration of the point of obligation of the Renewable Fuel Standards (RFS) Program as it relates to the Renewable Identification Numbers (RINs). It is evident that RINs are a clear and present impediment to the refining industry in Delaware and the Environmental Protection Agency should more fairly transition the point of obligation away from the refineries and, more appropriately, to where the RIN is generated.

Due to Delaware's central location in the Mid-Atlantic, between major cities like New York, Philadelphia, Baltimore and Washington, D.C., and its proximity to major shipping lines in the waters off the eastern seaboard, our refining industry has been a steady and reliable source of jobs in Delaware. We have seen the refinery make major investments in creating a safer, cleaner and more community friendly industry. Without their presence here, hundreds of Delawareans would be without a job.

These jobs may be in jeopardy, in part, because of compliance costs associated with RINs, but also because of the competitive nature of oil exports and other market forces. Without your help, refineries across America may be forced to make some difficult decisions. Here in Delaware, job losses would be real, which would have a detrimental effect on our entire economy. I believe that it would be in our national interest to continue to support refinery jobs, especially those in the northeast.

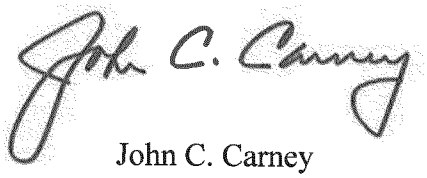
Specific to Delaware, our refineries simply do not have the large terminals and distribution infrastructure to blend ethanol into gasoline, so they are required to buy credits from integrated oil

companies that do have such capabilities and, thus, have excess credits. Because of this, our only refinery incurred over $90 million in RIN costs last year due to this flawed system.

While there is debate around whether the RFS is truly working for both our economy and our environment, I hope we can work together to craft policies that appropriately balance these two interests. We must find ways to stabilize the RIN market and ensure that independent merchant refineries here in Delaware and the northeast continue to run, helping to reduce our dependence on foreign oil.

With all of this in mind, I respectfully request that you consider granting the petitions to move the point of obligation for the RFS and quickly proceed with a rulemaking. This decision will help ensure Delawareans keep their jobs, provide for their families and make our economy stronger than ever.

Sincerely,



John C. Carney

Governor

Cc: Mr. Gary Cohn, Director, National Economic Council

To: Walker, Ryan[RYAN.WALKER@bp.com]
From: Walker, Ryan
Sent: Tue 5/23/2017 10:25:09 PM
Subject: ICYMI: New Video Breaks Down The Cost Of Moving The RFS Point Of Obligation

ALL—

In case you missed it, I wanted to call your attention to the below press release and video. As a member of the Main Street Energy Alliance, BP opposes moving the RFS point of obligation. Please let me know if you have any questions or would like additional information.

Sincerely,

Ryan

Ryan P. Walker | Senior Director, Federal Government Affairs | BP America, Inc.

1101 New York Avenue NW, Suite 700 | Washington, DC 20005

Direct: (202) 346-8542 | Cell: (202) 907-4829 | Email: Ryan.Walker@bp.com

THE MAIN STREET
ENERGY ALLIANCE

New Video Breaks Down The Cost Of Moving The RFS Point Of Obligation

Washington, D.C., May 22, 2017 – Today, the Main Street Energy Alliance

(MSEA) released the following statement highlighting a new video about the negative impact of shifting the Renewable Fuel Standard's (RFS) point of obligation:

"It's important for Americans to understand that shifting the point of obligation in the Renewable Fuel Standard will disadvantage small business owners and decrease the overall consumption of renewable fuels in the country," said Michael Steel, a spokesman for MSEA. "The issue is quite complex, but this new video effectively walks viewers through the facts and should serve as an educational tool for those who wish to inform themselves about the issue."

Representing more than 30 energy companies and trade associations, including fuel retailers and biofuel producers, MSEA is urging the administration to resist the calls of a few special interests to alter the point of obligation requirement under the Renewable Fuel Standard.

You can view the video on the MSEA website here. Please visit the website for more information about the coalition: www.mainstreetenergyalliance.com

Our mailing address is:
805 15th St NW
Washington, DC 20002

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You can update your preferences or unsubscribe from this list

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Diane Flemming
Sent: Wed 5/24/2017 9:06:49 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

This nonsensical set-up allows large integrated oil companies that blend more fuel than they refine and big convenience store gasoline chains (who do much of the blending) to collect valuable credits for the renewable fuel they blend into the pure gasoline they get from refineries. Independent refiners, who do little or no blending themselves, then end up purchasing those credits in order to demonstrate compliance with a process they have little control over. Small and independent refiners are at risk of going offline due to this backwards regulation, with 75,000-150,000 U.S. workers potentially impacted.

Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Diane Flemming
2401 Creekside Drive
Newark, Delaware 19711

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Stephen Lyons
Sent: Thur 5/25/2017 8:57:33 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Stephen Lyons
131 Sussex Road
West Chester, Pennsylvania 19380

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Virginia Capetola
Sent: Thur 5/25/2017 1:02:40 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

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Thank you.

Virginia Capetola
4101 Post Road
Trainer, Pennsylvania 19061

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Cheryl Clarke
Sent: Thur 5/25/2017 12:26:13 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

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Thank you.

Cheryl Clarke
6437 Clearview Street
Philadelphia, Pennsylvania 19119

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Chris Ruggiero
Sent: Thur 5/25/2017 12:26:12 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Chris Ruggiero
4101 Post Road
Trainer, Pennsylvania 19061

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Steven Makey
Sent: Fri 8/4/2017 4:24:44 PM
Subject: Help Protect Refiners Jobs In Reference to Docket ID No. EPA–HQ– OAR–2017–0091

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS (Docket ID No. EPA–HQ– OAR–2017–0091) in a way that fixes this inequity.

Thank you.

Steven Makey
1104 Winghaven
Maumee, OH 43537

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Julie Yamauchi
Sent: Wed 5/24/2017 8:51:14 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Julie Yamauchi
143 St. Moritz Drive
Erial, New Jersey 08081

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Kassy C
Sent: Wed 5/24/2017 8:50:41 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Kassy C
2231 Prior Road
Wilmington, Delaware 19809

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Tara Stahl
Sent: Wed 5/24/2017 7:37:36 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Tara Stahl
224 Carson Ave.
Gibbstown, New Jersey 08027

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Jason Reichert
Sent: Wed 5/24/2017 1:24:29 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Jason Reichert
4101 Post Road
Trainer, Pennsylvania 19061

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: William Ottinger
Sent: Wed 5/24/2017 10:57:49 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

William Ottinger
4 Cedar Street
Marcus Hook, Pennsylvania 19061

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Michael Evans
Sent: Wed 5/24/2017 2:17:19 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Michael Evans
9 Cobblestone Lane
Aston, Pennsylvania 19014

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: eleanor mcclure
Sent: Wed 5/24/2017 2:56:59 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

eleanor mcclure
1543 chichester ave.
linwood, Pennsylvania 19061

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Richard Croff
Sent: Wed 5/24/2017 3:21:18 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Richard Croff
315 Cherry Lane
Kennett Square, Pennsylvania 19348

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Michael Mcclure Jr
Sent: Wed 5/24/2017 2:50:08 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Michael Mcclure Jr
1629 ward st
Linwood, Pennsylvania 19061

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: david luthke
Sent: Wed 5/24/2017 2:13:07 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

david luthke
614 e. sixth st
florence, New Jersey 08518

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Rob Hazlett
Sent: Wed 5/24/2017 12:54:59 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Rob Hazlett
117 Crozerville Rd
Aston, Pennsylvania 19014

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Geary Hower
Sent: Wed 5/24/2017 12:53:56 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Geary Hower
6 Broadbent Road
Wilmington, Delaware 19810

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: David Durbano
Sent: Wed 5/24/2017 12:52:25 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

David Durbano
2215 N Lee Ln
Aston, Pennsylvania 19014

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Keenan Kendrick
Sent: Tue 5/23/2017 12:13:21 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Keenan Kendrick
7 Dakota Ave
Wilmington, Delaware 19803

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Stephen Ayling
Sent: Tue 5/23/2017 4:25:28 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Stephen Ayling
3003 Stuart Way
Lansdale, Pennsylvania 19446

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Matt McGlaughlin
Sent: Sun 5/21/2017 7:53:37 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Matt McGlaughlin
133 Netherwood Drive
Springfield, Pennsylvania 19064

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Kim Kaighn
Sent: Sat 5/20/2017 6:45:49 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Kim Kaighn
421 South Ivy Lane
Glen Mills, Pennsylvania 19342

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Otis Gillespie
Sent: Fri 5/19/2017 9:09:14 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Otis Gillespie
52 Matthews Road
Newark, Delaware 19713

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: John Bowen
Sent: Thur 5/18/2017 3:24:55 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

John Bowen
320 Kathmere Road
Havertown, Pennsylvania 19083

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: mark salvadore
Sent: Thur 5/18/2017 3:10:57 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

mark salvadore
713 tryens road
aston, Pennsylvania 19014

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Brendan Williams
Sent: Mon 6/12/2017 8:58:35 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Brendan Williams
922 North Overlook Drive
Alexandria, Virginia 22305

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Rob Fields
Sent: Thur 5/18/2017 3:07:07 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Rob Fields
2406 Sellers Lane
Wilmington, Delaware 19802

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: cheryl walls
Sent: Mon 6/12/2017 8:26:58 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

cheryl walls
10 spruce st
marcus hook, Pennsylvania 19061

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Dan Quan
Sent: Thur 5/18/2017 12:55:30 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS in a way that fixes this inequity.

Thank you.

Dan Quan
311 Myrtle Ave
Turnersville, New Jersey 08012

To: Dravis, Samantha[dravis.samantha@epa.gov]; Bolen, Brittany[bolen.brittany@epa.gov]; Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]
From: Williams, Brendan
Sent: Fri 6/9/2017 7:36:28 PM
Subject: Philadelphia Inquirer Oped re: Point of Obligation

I hope you all are doing well. I wanted to pass on this Philadelphia Inquirer oped on the RFS point of obligation:

http://www.philly.com/philly/opinion/commentary/to-save-jobs-epa-should-reform-fuel-standard-20170609.html?mobi=true

I hope you have a great weekend!

Regards,

Brendan Williams

Government Relations

PBF Energy

601 Pennsylvania Avenue, NW

Suite 900 South

Washington, DC 20004

O: (202) 434-8254

M: (703) 863-6825

brendan.williams@pbfenergy.com

www.pbfenergy.com

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To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Teresa Breslin
Sent: Fri 6/9/2017 12:04:27 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Thank you.

Teresa Breslin
220 Baldwin St
Philadelphia, Pennsylvania 19127

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Greg McEntee
Sent: Thur 6/8/2017 2:50:28 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Thank you.

Greg McEntee
2506 Channin Drive
Wilmington, Delaware 19810

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: matthew birney
Sent: Thur 6/8/2017 5:13:48 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

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Thank you.

matthew birney
129 ponds view dr
oxford, Pennsylvania 19363

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Robert Kurtas
Sent: Wed 6/7/2017 2:37:01 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Thank you.

Robert Kurtas
52 Governor Markham Dr
Glen Mills, Pennsylvania 19342

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Wade Luther
Sent: Wed 6/7/2017 1:16:42 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

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Thank you.

Wade Luther
202 Carriage Ln
Newtown Square, Pennsylvania 19073

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Carlo Rapposelli
Sent: Wed 6/7/2017 11:58:12 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

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Thank you.

Carlo Rapposelli
405 Camelot Drive
Brookhaven, Pennsylvania 19015

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Joe Morgan
Sent: Wed 8/9/2017 4:03:37 PM
Subject: Help Protect Refiners Jobs In Reference to Docket ID No. EPA–HQ– OAR–2017–0091

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Please, help save our jobs and make this right. Please move the point of obligation for the RFS (Docket ID No. EPA–HQ– OAR–2017–0091) in a way that fixes this inequity.

Thank you.

Joe Morgan
168 asbury station rd
woolwich twp., NJ 08085

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: James Slivenski
Sent: Wed 6/7/2017 11:13:23 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Thank you.

James Slivenski
233 Ponds Court
Cherry Hill, New Jersey 08034

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Steve Boyer
Sent: Wed 6/7/2017 2:02:25 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

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Thank you.

Steve Boyer
4 Oakbourne road
West Chester, Pennsylvania 19382

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Matt Day
Sent: Wed 6/7/2017 12:23:52 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

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Thank you.

Matt Day
323 Patriot Drive
Swedesboro, New Jersey 08085

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Mark Zubrzycki
Sent: Wed 6/7/2017 8:31:27 AM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

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Thank you.

Mark Zubrzycki
1903 Huddell Ave
Linwood, Pennsylvania 19061

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Shailesh Govani
Sent: Thur 8/10/2017 5:36:30 PM
Subject: Help Protect Refiners Jobs In Reference to Docket ID No. EPA–HQ– OAR–2017–0091

Samantha Dravis,

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Thank you.

Shailesh Govani
19 Mcbride way
Bridgewater, NJ 08807

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Joseph Coleman
Sent: Tue 6/6/2017 9:07:56 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

The time is now to help prevent a massive loss of good-paying American jobs. The EPA currently implements the Renewable Fuel Standard in a way that makes all U.S. refiners responsible for ensuring that certain levels of renewable fuels are blended into gasoline, even if they do not have capabilities to do such blending.

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Thank you.

Joseph Coleman
1009 Valleybrook road
Garnet Valley, Pennsylvania 19060

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Sharon Watkins
Sent: Tue 6/6/2017 8:07:08 PM
Subject: Help Protect Refiners Jobs-Changing the "Point of Obligation"

Samantha Dravis,

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Thank you.

Sharon Watkins
3733 Steven James Drive
Garnet Valley, Pennsylvania 19060

To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Bolen, Brittany[bolen.brittany@epa.gov]
From: Burhop, Anna
Sent: Wed 5/24/2017 1:34:22 PM
Subject: ACC Comments on EPA Evaluation of Existing Regulations (May 15, 2017)
ACC Comment on EPA Evaluation of Existing Regulations 5.15.17.pdf
ACC Formaldehyde Panel Letter to EPA on Regulations and the Formaldehyde....pdf
ACC Biocides Regulatory Reform May 15.docx
ACC_Hexavalent_Chromium_Panel_Comment.pdf
ACC-CPTD TCE response to EPA-HQ-OA-2017-0190.pdf
ACC-PCB Panel response to EPA-HQ-OA-2017-0190.pdf
EPA Reg Reform - DII Comments 051117.docx
Revisit EGBE TRI Delisting Petition Final May 2017.pdf

Samantha,

As we discussed yesterday, attached are the comments that ACC submitted last Monday. In addition to the broader comments, our panels also submitted chemical-specific comments:

- Formaldehyde
- Biocides
- Hexavalent Chromium
- PCBs
- TCE
- Diisocyanates
- Glycol Ethers

Thanks again for taking the time to come to the meeting yesterday. The group really appreciated it and enjoyed having the time to pick your brain a bit.

It was great to finally meet you!

-Anna

Anna Burhop| American Chemistry Council

Director, Environment

Regulatory and Technical Affairs

700 2nd Street NE | Washington, DC | 20002

(202) 249-6440

anna_burhop@americanchemistry.com

www.americanchemistry.com

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American Chemistry Council | Biocides Panel

May 15, 2017

Submitted via http://www.regulations.gov

EPA Regulatory Reform Task Force
c/o Sarah Rees
Director, Office of Regulatory Policy and Management
Office of Policy (mail code 1803A)
US Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington DC 204060

Re: Evaluation of Existing Regulations, Docket EPA-HQ-OA-2017-0190

Dear Dr. Rees:

The American Chemistry Council's (ACC) Biocides Panel (Panel)[1] appreciates the opportunity to respond to the U.S. Environmental Protection Agency's (EPA or Agency) request for recommendations on regulations, guidance, policy or practices that should be repealed, replaced, or modified pursuant to President Trump's Executive Order 13777, "Enforcing the Regulatory Reform Agenda."[2] The Panel identifies below regulations and policies in the regulation of antimicrobial pesticides that are unnecessary, ineffective, and/or impose costs that exceed benefits and suggests actions EPA should take to address these issues. We also provide some suggestions for improvement in the way EPA regulates antimicrobials. Action on these suggestions would yield greater government efficiencies, greater predictability as to the legal requirements for the antimicrobial pesticide registrant community and ultimately save tax dollars.

I. Mutual Recognition between FDA and EPA is Needed

There are clear opportunities for EPA and the U.S. Food and Drug Administration (FDA) to reduce duplication of work. As described below, when FDA and EPA have standards that are sufficiently similar to one another, FDA and EPA could cut down on administrative burdens and duplication by recognizing each other's reviews.

A. EPA's Pesticides Program Should Return to Following the Long Established Position of FDA's Foods Program that a Potable Water Rinse Removes

[1] The Panel is composed of more than 50 companies that manufacture and formulate antimicrobial pesticides for use in industrial processes, material preservation, marine antifouling, industrial water treatment, public health applications and numerous other uses. The Panel focuses on the broad range of scientific, regulatory, legislative, legal and educational issues unique to antimicrobial pesticides, as well as those issues affecting all pesticide products.

[2] *See* 82 Fed. Reg. 17793 (April 13, 2017).

Residues of Concern

EPA's Office of Pesticide Programs (OPP) Antimicrobials Division (AD) recently expanded the scope of its dietary risk assessments for antimicrobial pesticides, including both active and inert ingredients. This change has been implemented as EPA implements its 2013 data requirement regulations for antimicrobials, 40 CFR Part 158, Subpart W (158W) but is not required by those rules. Without any public documentation or process, the Agency has set aside both its own and the FDA's longstanding approach to potable water rinse (PWR) and adopted a new regulatory interpretation that imposes burdens on both EPA and registrants with no corresponding benefit. Significantly, in many cases, EPA is re-reviewing substances already cleared by FDA for the same uses but doing so using a different standard.

The Food Quality Protection Act (FQPA) of 1996 changed the jurisdictional division of antimicrobials used in food-related applications between the Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA). FQPA amended certain provisions of the Federal Food, Drug and Cosmetic Act (FFDCA), and in the process, transferred to EPA from FDA regulatory jurisdiction certain new food safety criteria as requirements for pesticide registration.

Accordingly, EPA is now responsible for the administration of section 408 of the FFDCA, which requires pesticide residues on food to have a tolerance or exemption from tolerance.[3] FDA, on the other hand, is responsible for administration of section 409 of the FFDCA, which requires food additives—including antimicrobials used in food or that may become a component of food as a result of their intended use—to meet certain standards. For over 50 years, FDA's position has been that a PWR removes residues of substances used on food contact surfaces (e.g., components of dish washing liquids) such that they do not require regulation. EPA applied the same rationale as FDA after it assumed jurisdiction over antimicrobial residues in 1996 until this year. In other words, the use of a hard surface disinfectant (HSD) when followed by a PWR was considered a non-food use and, thus, a dietary risk assessment was not required.[4]

More recently, however, EPA has taken the position that it will no longer accept the FDA approach.[5] EPA has not publicized its rationale for this change in position or for its sudden implementation. No public process has taken place. Notice and comment rulemaking to support

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[3] While tolerances apply only to foods in commerce, EPA applies the same standard to pesticide residues on foods in homes through FIFRA section 2(bb), which provides that "[t]he term "unreasonable adverse effects on the environment" means . . . (2) a human dietary risk from residues that result from a use of a pesticide in or on any food inconsistent with the standard under section 408 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 346a) . . ." 7 U.S.C. § 136(bb).

[4] EPA's past policy was consistent with FDA's policy that products with a PWR do not require a tolerance. *See* "Sanitizing Solutions: Chemistry Guidelines for Food Additive Petitions." US Food and Drug Administration. January, 1993. EPA continued this policy in effect until very recently. In fact, EPA continues to reference this FDA guidance document, included it in the 158W docket, and uses the FDA method for the default determination of dietary consumption.

[5] *See*, Letter from Stephen Knizner, Director, Antimicrobials Division, to Hasmukh Shah, Manager, Biocides Panel, November 15, 2016 (Attachment A).

this change that has regulatory consequences has not occurred. EPA representatives have said in meetings with the Panel, and in a letter to the Panel in November 2016, that data submitted showing measurable residues of one active ingredient following a potable water rinse, underlie its new position. However, there is no public documentation of EPA's change in position. EPA has failed to acknowledge the magnitude of its change, seek input on the issue of whether this response is an appropriate response or, most importantly, to consider alternative approaches based on existing science.

Instead, AD unilaterally and without any advance notice or public process has begun asserting that an antimicrobial for use on hard surfaces even if followed by a PWR will be considered a food use unless the registrant demonstrates "no reasonable expectation of residues." AD has not provided any guidelines on what the "no reasonable expectation of residues" means. EPA fails to acknowledge that proving such a negative is a scientific impossibility or that FDA, and even EPA until recently, has applied *de minimis* thresholds for decades.

The requirement for risk assessments and tolerance exemptions will apply to all antimicrobial active and inert ingredients regardless of whether a potable water rinse is required on the label. The burden on EPA and industry will be massive, with literally thousands of inert ingredients (such as fragrance components) suddenly requiring approval. It also results in the anomalous situation that uses FDA does not consider as potentially leaving residues on food are considered to do so by EPA. For example, a dishwashing detergent that makes no antimicrobial claims is regulated only by FDA. Due to the dishwasher's rinse function, FDA considers these products to leave no residue and thus does not require an approval. If the same product, however, were to have an antimicrobial claim, EPA will require additional data, perform a dietary risk assessment and possibly require a tolerance exemption.

EPA's additional requirement imposes tremendous burdens on industry and EPA for little, if any, benefit. There are other ways--applying sound science--to address legitimate concerns raised by residue data (for one active ingredient) submitted to EPA, rather than entirely discarding a policy that has served EPA, FDA and the public well for over 50 years. It also makes little sense for two agencies with jurisdiction over virtually the same uses to follow such different procedures.

This is a significant issue of concern for the Panel's member companies and all registrants and applicants of antimicrobials. The Panel urges EPA to revert to the approach developed by FDA and, until very recently, applied by EPA. This requires no regulatory action, just a change in EPA policy. Such action presents an opportunity to reduce burdens that were imposed without being fully vetted through the necessary process. These burdens will weigh on EPA as much as industry, and they will waste EPA resources on efforts that cannot be justified in relation to the commensurate risk to the public. In the event EPA finds it imperative to develop a new approach, it should proceed through notice and comment, which the Panel submits is legally required for such a significant and burden-increasing change.

B. EPA Should Accept GRAS Substances and other FDA Authorizations in lieu of Performing Separate Assessments

Prior to 1996, FDA regulated hard surface sanitizers used on food contact surfaces as indirect

food additives. FDA's regulations at 21 CFR § 174.5(d)(1) permit unrestricted use of substances that are generally recognized as safe (GRAS) for any use in food as indirect food additives. Under this regulation, FDA recognized that the likely intake of antimicrobials from indirect food additive uses would be trivial compared to any use involving direct addition to food. FDA also recognized that performing additional risk assessments for such trivial uses in antimicrobials was a waste of the Agency's resources. Pursuant to this regulation, FDA had no restriction on indirect uses of GRAS substances other than good manufacturing practice. Thus, prior to August 1996, substances with GRAS uses in food could be freely and legally used in antimicrobials with food contact applications, including hard surface sanitizers. The logic and the applicable science underpinning FDA's conclusion have not changed; yet EPA now burdens itself and the industry with unnecessary risk assessments and unnecessary regulations.

Given the Administration's objective to reduce unnecessary regulations, EPA should consider avoiding a needless number of regulations by adopting one that is similar to FDA's regulation at 21 CFR 174.5(d)(1). By following FDA's standing determination that a substance that has GRAS uses in food is acceptable generally in indirect food uses, EPA could exempt such substances from the requirement of a tolerance when they are used as inerts in antimicrobial formulations. This would avoid the development of hundreds of new regulations that regulations that even FDA has concluded are unnecessary. EPA would also avoid wasting resources that are needed elsewhere. If EPA were to proceed as suggested, it should exempt substances whether in the GRAS use listed in FDA's regulations or favorably reviewed by FDA under its current GRAS notice program or in another equivalent manner and permitting such substances to be used as inerts in antimicrobials.

In addition to GRAS reviews by FDA itself, the FDA recognizes reviews by other organizations that establish GRAS status of substances for use in food under FFDCA. A prime example is the process established by the Flavor Extracts Manufacturer's Association (FEMA) to assess food flavors for GRAS status under the law. Food flavors are often natural or synthetic versions of substances in food which yield the flavor of the food. Today, most food flavors marketed in the US meet the FEMA standard for GRAS and are marketed solely on that basis. For over 50 years, FEMA has conducted its reviews and shared its findings with FDA. During that period, FDA has never formally challenged FEMA's process or conclusions in any significant way. To the contrary, FDA lists information on flavors FEMA has reviewed in publically available databases on FDA's web site. Based on its knowledge of the rigor and credibility of the FEMA reviews, FDA has not sought to regulate as food additives many thousands of food flavors that FEMA has reviewed. Moreover, over two thousand such flavors have been confirmed as safe for their food uses by the FAO/WHO Joint Expert Committee on Food Additives and by the European Food Safety Authority. Therefore, EPA can have confidence in applying a standard that substances reviewed by FDA as GRAS for use in food contact petitions or notice processes as well as substances determined to be GRAS by other equivalent standards should be exempted from the requirement of a tolerance as inert ingredients in antimicrobials generally.

In addition, EPA should further accept as exempt from tolerance requirements as an inert in antimicrobials any substance that is expected to result in a trivial intake compared to its safe level in food or food contact materials. FDA has applied such an approach under its threshold of regulation (TOR) exemption process for over 25 years.[6] The TOR exemption permits substances

resulting in very low dietary intakes or in intakes that are small compared to established safe levels in food. EPA should follow this TOR exemption approach as well.

Finally, EPA should further accept for use as an inert component of an antimicrobial, any substance that FDA has authorized for indirect food use without restriction to food type or condition of use.[7] In establishing the safety of such a substance, FDA's review establishes a highly conservative intake assessment and may require larger margins of safety relative to animal testing than typically applied by EPA.[8]

C. EPA and FDA Should Issue the SOPs to Implement the MOU regarding Dual-Approval Antimicrobials

The Biocides Panel worked closely with FDA and EPA between 2011 and 2013 to establish a memorandum of understanding (MOU) to eliminate duplicate reviews of antimicrobial uses.[9] Following execution of the MOU, FDA and EPA committed to adoption of standard operating procedures (SOPs) for implementing the MOU. It is almost four years since the MOU was signed yet the SOPs have not been issued. Industry has been hesitant to submit to the dual review process anticipated in the MOU without clear SOPs. EPA can facilitate development of products subject to joint jurisdiction by following through on the commitment to develop and publish SOPs. This will provide a clearly described process so industry can take advantage of the MOU to avoid unnecessary duplication.

D. EPA and FDA should Develop a Single, Harmonized Approach to Food Additives/Antimicrobial Residues that Eliminates the need for Dual Agency Review

For those antimicrobials that require approval under section 408 of FFDCA, EPA should not duplicate FDA's risk assessment. FDA has long been recognized as an authority on safety assessments.[10] Thus, EPA should not reinvent a process that has evolved based on 50 years of strong science and is a global standard. EPA and FDA should work together (with FDA in the lead) to continue to evolve one standard for risk assessment for uses that are authorized as safe under section 409 of the FFDCA. In this way EPA should be able to accept FDA's assessment of intake and safety as meeting the requirements of section 408 of FFDCA.

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[6] 60 FR 36595 (July 17, 1995).

[7] *See* https://www.fda.gov/Food/IngredientsPackagingLabeling/PackagingFCS/FoodTypesConditionsofUse/default.htm.

[8] FDA always applies a minimum 1000-fold safety margin for subchronic animal data.

[9] *See* 80 Fed. Reg. 10682 (February 27, 2015) and docket EPA-HQ-OPPT-2003-0004 at https://www.regulations.gov/docket?D=EPA-HQ-OPPT-2003-0004.

[10] FDA's EU counterpart, the European Food Safety Authority applies similar principles to such safety assessments in Europe as do other regulators worldwide.

E. EPA Should Defer to FDA Jurisdiction over Antimicrobials Intended for Use on or in Class II-III Medical Devices.

FIFRA and the FFDCA provide EPA and FDA, respectively, with jurisdiction over antimicrobials that are intended for use in medical settings. As a result, antimicrobial products used in medical settings are often subject to overlapping and duplicative reviews and approvals by EPA and FDA. This redundancy results in substantial delay with respect to obtaining required approvals, as well as uncertainty within regulated industry regarding the approvals that may be required for a particular antimicrobial application in a medical setting.

The Panel suggests that EPA use the regulatory reform initiative to resolve this issue by adopting FDA's approvals for certain antimicrobials used in medical devices. Specifically, the Panel suggests that EPA defer to FDA jurisdiction with respect to the following products:

i. Any liquid or non-liquid antimicrobial product, including any "pesticide device" as defined under FIFRA, that is intended for use on a Class II-III device that includes sterilization claims and/or associated public health claims. In general: (i) Class II devices include those that contact mucous membranes on a human, do not penetrate the blood barrier, and should be sterilized; and (ii) Class III devices include those that are introduced directly into the human body and require sterilization.

ii. Any antimicrobial treatment that is included in a Class II-III device regardless of claims.

iii. Any antimicrobial product used in a medical device that is subject to a change in device classification that triggers the need for FDA review and approval.

FDA's review and evaluation process, as required under the FFDCA, is sufficient to evaluate the safety and efficacy of the antimicrobial products identified above. Additional FDA regulatory requirements, including Quality System Regulation/Good Manufacturing Practices and adverse event reporting requirements, help to further ensure that the antimicrobial products and applications are safe and effective for their intended use.

Accordingly, to the extent that FDA approval has been obtained for the antimicrobial products identified above, the Panel suggests that EPA regulation, registration, labelling and record keeping not be required for that antimicrobial use. EPA could achieve this result by issuing its own guidance document or a joint guidance document with FDA that sets forth EPA's position that it is deferring to FDA jurisdiction and approval for these antimicrobial products. Such a position could include an administrative adoption of FDA's approvals as being sufficient to satisfy EPA regulation, registration, labeling and recordkeeping requirements.

II. The Human Subjects Review Board Should be Given A More Limited Mandate and Reconstituted

EPA created the Human Subjects Review Board (HSRB the Board) in response to section 201 of

the FY 2006 Appropriations Act.[11] The HSRB is a Federal Advisory Committee intended to implement enhanced protections for human subjects intentionally exposed to pesticides for research that would be submitted to or relied upon by EPA. The Panel's Antimicrobial Exposure Task Force II (AEATF) has worked with EPA and the HSRB for the past 11 years to obtain approval of 7 studies evaluating exposure to antimicrobial pesticides during application. As a result of this experience, the Panel has the following recommendations to streamline the HSRB process.

The Panel supports and recognizes the intended purpose of the HSRB and, thus, based on our experience and our support for the Board, we suggest the following to increase increase its efficiencies and reduce costs. Most importantly, the Panel suggests that EPA consider limiting the HSRB to reviewing intentional human exposure studies *intended to evaluate toxicity endpoints*. This is consistent with the statutory mandate and will result in greatly reduced burdens. Protection of human subjects will not be compromised in studies that do not evaluate toxicity endpoints because these studies involve exposures allowed under current labelling and other protections remain in effect.

The Panel is also concerned that the HSRB is not constituted appropriately to review many of the studies put before it. For example, the HSRB recently was called upon to review human studies involving sensitization, yet there was only one member with a background in this highly specialized area of toxicology and medicine. Thus, the Panel suggests EPA ensure that the HSRB is appropriately constituted for the studies it is asked to review. This can be accomplished by considering the areas in which studies are being proposed during the preparation for each meeting, and then adding a modest number of relevant experts for review of studies in a particular discipline during that meeting. It may be most effective to have a standby group of pre-cleared experts in scientific specialties (*e.g.,* dermal sensitization) who can be called upon when studies in their areas of expertise are being reviewed.

III. EPA Should Develop and Implement New and Amended Efficacy Methods Through a Robust, Transparent Process

An important step in the process of obtaining EPA approval to market a new antimicrobial product is efficacy testing. For public health products, EPA requires submission of efficacy data. To be accepted by EPA, efficacy studies must be conducted in accordance with protocols that have been recognized and accepted by EPA. Some of these protocols are developed through standard-setting organizations such as AOAC International. Others are developed privately, reviewed and accepted by EPA, and others are developed in-house by EPA's microbiology laboratory in the Biological and Ecological Effects (BEAD) Division of OPP. The BEAD Laboratory also has a process of continually changing its implementation of accepted methods through amendments to its Standard Operating Procedures (SOPs). These are not subject to any review and, once implemented, all members of the regulated community are expected to follow them.

Through its BEAD laboratory process, EPA has implemented several efficacy testing policies

[11] *See* 71 Fed. Reg. 6071 (February 6, 2006).

that have not been adequately vetted by the scientific community. These typically have not been tested on multiple actives in multiple laboratories to ensure reproducibility. Thus, there is no certainty the methods appropriately measure efficacy. For example, EPA recently implemented new efficacy testing guidance for the human pathogen *Candida auris* (a yeast).[12] The EPA seeks to require use of a new, non-validated, efficacy method for *C. auris* rather than using the long-accepted method required to demonstrate efficacy against all other yeasts. Similarly, EPA has for decades relied upon the AOAC Use Dilution Method and the AOAC Germicidal Spray test to assess efficacy of hard surface antimicrobials. While the AOAC test methods have not changed, the BEAD laboratory has continually changed its procedures for implementing those two methods over those years. This has changed the test, resulting in products that passed using the procedures in place at the time of registration no longer passing.

EPA should adopt new efficacy testing methods that reflect the current state of science. However, it also has a responsibility to make sure those methods are robust, reliable and reflect a realistic level of effectiveness. To accomplish this goal, EPA should follow a transparent public process to adopt its principal new methods. Where protocols involve widely-used types of products (e.g. hard surface antimicrobials or pre-moistened towelettes), the process should include completion of full collaborative studies to ensure results are fully validated and reproducible. Protocols for niche products or emerging areas or pathogens (*e.g.,* active antimicrobial surfaces) can be subject to a different process, but the Agency should be careful to apply a consistent standard to reviewing all such applications.

IV. Conclusion

The Panel requests that EPA carefully consider these suggestions. Each offers real opportunities to allow EPA to accomplish its statutory goals in a less burdensome way.

Please feel free to contact Komal K. Jain at (202) 249-6212 or komal_jain@americanchemistry.com if you have any questions about these comments or require additional information.

Sincerely,

Komal K. Jain
Senior Director, American Chemistry Council
Biocides Panel

[12] Interim Guidance for the Efficacy Evaluation of Products for Claims against Candida auris; *see* https://www.epa.gov/pesticide-registration/interim-guidance-efficacy-evaluation-products-claims-against-candida-auris-0 (last accessed May 13, 2017).

May 15, 2017

EPA Regulatory Reform Task Force
c/o Sarah Rees
Director, Office of Regulatory Policy and Management
Office of Policy (mail code 1803A)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

Submitted electronically via www.regulations.gov

Re: Docket EPA-HQ-OA-2017-0190

Dear Dr. Rees:

The American Chemistry Council (ACC) [1] welcomes the opportunity to comment on existing EPA regulations in need of repeal, replacement, or modification in response to the Federal Register notice published on April 13, 2017 (82 FR 17793). ACC has publicly called for and supported efforts to better address the burden of regulation and implement regulatory reform. The chemical industry needs a sound regulatory landscape in order to maximize the historic competitive advantage provided by shale gas. This shale gas advantage represents a game-changer for U.S. manufacturing, and the Administration can and should leverage this competitive advantage through improved public policy.

Reducing overly complex regulatory burdens is a key step for enhancing the chemical industry's ability to help drive economic growth and job creation throughout the broader economy. ACC represents a diverse set of companies engaged in the business of chemistry, which drives innovations that e nable a more sustainable future, provides 810,000 manufacturing and high -tech jobs—plus nearly six million related jobs —that

[1] The American Chemistry Council (ACC) represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing. The business of chemistry is a $797 billion enterprise and a key element of the nation's economy. It is one of the nation's largest exporters, accounting for ten cents out of every dollar in U.S. exports. Chemistry companies are among the largest investors in research and development. Safety and security have always been primary concerns of ACC members, and they have intensified their efforts, working closely with government agencies to improve security and to defend against any threat to the nation's critical infrastructure.

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support families and communities, and enhances safety through a diverse set of products and investments in R&D.

Existing Regulations Deserve More Scrutiny

Historically, agencies, including EPA, spend relatively little time on improving existing regulations through retrospective review and devote the bulk of their resources to the development and issuance of new regulations and regulatory requirements. This is unfortunate, because the country could achieve greater protection at less cost if it were to regulate in a smarter manner, such as focusing on minimizing regulatory burden while still protecting human health and the environment.[2] For this reason, regulatory experts and economists support greater attention to retrospective review to improve existing regulations.[3] Under the Trump Administration's regulatory reform agenda, federal agencies are being asked to shift resources from developing and issuing new rules to examining and eliminating or improving existing regulations to reduce burdens. ACC supports this shift in focus.

The Appropriate Societal Goal is to Reduce Opportunity Cost

At the heart of the Trump Administration's regulatory reform agenda is the goal of reducing the opportunity cost of existing regulations. In his February 2, 2017, memorandum to federal agencies, Dominic Mancini, Acting Administrator of the Office of Information and Regulatory Accountability (OIRA), wrote, "Costs should be measured as the opportunity cost to society. OMB Circular A-4 defines this concept." According to Circular A-4, "The principle of willingness to pay captures the notion of opportunity cost by measuring what individuals are willing to forgo to enjoy a particular benefit."

In his April 5 memorandum to federal agencies (M-17-21), Acting Administrator Mancini expanded upon this point:

> For regulations that expand consumption and/or production options — sometimes referred to as "enabling" regulatory actions or regulations — cost savings should include the full opportunity costs of the previously foregone activities. Opportunity cost in this context would equal the sum of consumer and producer surplus, minus any fixed costs. ...Generally, "one-time" regulatory actions (i.e., those actions that are not periodic in nature) that expand production or consumption options would qualify as EO 13771 de-regulatory actions.

This criterion—reducing opportunity cost—is not new and enjoys widespread support from economists and policy analysts alike. It also resonates with elected officials seeking to preserve the benefits of regulation while fostering innovation and economic growth.

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[2] Tengs, Tammy O., and John D. Graham. "The opportunity costs of haphazard social investments in life-saving." In *Risks, costs, and lives saved: Getting better results from regulation,* Robert Hahn, Ed. (1996): 172.

[3] Aldy, Joseph E. "Learning from experience: an assessment of the retrospective reviews of agency rules and the evidence for improving the design and implementation of regulatory policy." Administrative Conference of the United States (2014).

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To this end, ACC recommends a three-step screening process for reducing opportunity cost: (1) focus on regulatory requirements of greatest concern to manufacturers; (2) apply a screen to identify reforms where opportunity cost reductions are relatively clear or obvious; and (3) prioritize reforms that can be implemented as quickly as possible (i.e., "reform-ready" proposals) to ensure that the resulting public benefits accrue as quickly as possible. Each step in this sequential process is important, as the remainder of this section describes.

1) Focus on Regulations Affecting Manufacturers

ACC recommends that the Task Force focus on regulations imposing unnecessary costs on the U.S. manufacturing sector, because the economic activity generated from manufacturing has a greater multiplier effect than that of any other major sector of the economy. According to the National Association of Manufacturers:

> For every $1.00 spent in manufacturing, another $1.81 is added to the economy. That is the highest multiplier effect of any economic sector. In addition, for every one worker in manufacturing, there are another four employees hired elsewhere.[4] With that said, there is new research suggesting that manufacturing's impacts on the economy are even larger than that if we take into consideration the entire manufacturing value chain plus manufacturing for other industries' supply chains. That approach estimates that manufacturing could account for one-third of GDP and employment. Along those lines, it also estimated the total multiplier effect for manufacturing to be $3.60 for every $1.00 of value-added output, with one manufacturing employee generating another 3.4 workers elsewhere.[5]

U.S. manufacturers represent a powerful engine of economic growth, so the Task Force should pay particular attention to regulations affecting U.S. manufacturers, including chemical manufacturers. Within the broad manufacturing sector, the value-add provided by the business of chemistry is particularly notable. About 96% of all manufactured goods are directly touched by the business of chemistry, which is an almost $800 billion enterprise that employs more than 800,000 people in the USA.

2) Screen Regulations of Concern Based on the Clarity of Opportunity Cost Reductions

The best candidate regulations for reform are those where reductions in opportunity cost are clear and obvious. The following types of regulations fit this description: existing regulations that are outdated based on the evolution of science or new technology; existing regulations that address an insignificant problem as determined by credible new science or data; existing regulations that are ineffective due to a credible (e.g., peer-reviewed) retrospective review; existing regulatory requirements that are particularly

[4] Source: NAM calculations using IMPLAN. See the NAM website at: http://www.nam.org/Newsroom/Facts-About-Manufacturing/

[5] Source: Manufacturers Alliance for Productivity and Innovation. See the MAPI website at: https://www.mapi.net/forecasts-data/how-important-us-manufacturing-today

uncertain or ambiguous ; and existing regulations that present an unnecessary barrier to entry for a product or service . In addition, reform candidates include existing regulatory requirements where net benefits are not maximized per a credible (e.g., third-party, peer-reviewed) cost-benefit analysis.

When prioritizing among dozens, if not hundreds, of regulations of concern nominated by the public , the Task Force would be on solid economic footing if it focused on regulations where there is a clear pathway to reduction of the opportunity cost.

3) Prioritize Reforms that can be Implemented Quickly

Once candidates for reform are identified, prioritization can be facilitated by identifying the time needed to achieve reform. In other words, regulators ought to prefer reforms that can be achieved quickly (e.g., within a few months) versus slowly (e.g., over multiple years). For example, a reform that can be achieved without going through a lengthy public comment period should be preferred over a reform that requires notice-and-comment rulemaking in this particular circumstance . The sooner the reform can be implemented, the sooner the net benefits will accrue to the public. In addition, because agencies are required to eliminate two regulations for every new significant rule per EO 13771, agencies would be wise to "bank" opportunity cost savings as soon as possible in order to "pay" for future regulatory actions.

The Task Force should reach for the "lowest hanging fruit" when it comes to selecting among candidate reforms.

Specific Recommendations for Reform

ACC utilized this three-step process to identify specific candidates for reform. Of several dozen regulatory requirements identified by ACC members, the following meet the previously described screening criteria and are deemed "most promising" in terms of their potential to reduce the opportunity cost relatively quickly, meaning in less than one year's time. We recommend that EPA prioritize these specific reforms.

Eliminate "Once In, Always In" Policy

In 1995, EPA issued a memorandum setting forth a policy to address when a "major" stationary source of hazardous air pollutants (HAPs) can reduce its emissions to become an "area" source and therefore not subject to Clean Air Act (CAA) Section 112 major source requirements such as the stringent maximum achievable control technology (MACT).[6] This memo allowed a major source to become an area source by obtaining federally enforceable limits on its potential to emit HAPs if it did so before the initial compliance date of the applicable MACT standard. The memo only allowed this narrow window for a major source to voluntarily reduce its emissions to become an area source, meaning if a source did not reduce its emissions during this one-time opportunity, it

[6] Memorandum from John Seitz, Director OAQPS to [Regional Administrators], "Potential to Emit for MACT Standards – Guidance on Timing Issues." May 16, 1995. https://www.epa.gov/sites/production/files/2015-08/documents/pteguid.pdf

would be required to comply with the MACT standards in perpetuity. Therefore, this policy became known as the "Once In, Always In" policy.

The policy is neither required nor supported by the Clean Air Act. The memo was meant to be initial and transitional guidance until a formal policy could be established through rulemaking; however, EPA has never codified the policy and instead appli es it with binding effect as though it were a rule. The regulated community has long opposed this policy and EPA's enforcement of it as if it were a rule.

EPA should withdraw this policy to allow a major source to voluntarily accept enforceable emissions limitations below the major source threshold and be reclassified as an area source with respect to MACT applicability. Withdrawing "Once In, Always In" would result in positive environmental, economic, and energy impacts. There will be a strong incentive for those sources able to reduce their HAP emissions below major source thresholds to do so in order to lessen the administrative burdens and costs of complying with myriad regulations applicable to major sources. Because the "Once In, Always In" policy was issued by Agency memorandum, it could be withdrawn without going through the public notice-and-comment process.

Fix New Source Review (NSR)

In 2001, President Bush's National Energy Policy Development Group issued findings and recommendations for a National Energy Policy which included a recommendation that EPA review NSR regulations, including administrative interpretation and implementation of those regulations. In 2002, EPA finalized changes to NSR that would provide greater regulatory certainty while preserving environmental protections and benefits derived from the NSR program. In spite of legal challenges to various aspects of this NSR reform, the D.C. Circuit Court largely upheld EPA's rul es. In September 2006, the Bush-EPA proposed various revisions to the NSR regulations to "remove barriers that the NSR program can impose to prevent…sources from operating their facilities in the most efficient manner." [7] The rulemaking was not finalized before President Bush left office, but EPA should revisit and finalize the multiple improvements that could be made to the program that were included in the rule package. Some r egulatory exp erts have offered specific recommendations to improve the program via guidance, via regulation, and via legislation.[8]

In addition to these short -term reform opportunities , ACC identified the following specific candidates for reform where opportunity cost savings could be achieved over a longer period of time (longer than one year). We recommend that EPA also pursue these specific reforms, because the opportunity cost savings could be significant and justify a longer implementation period.

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[7] *See,* "Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Debottlenecking, Aggregation, and Project Netting," 71 FR 54235, (Sept. 14, 2006). https://www.gpo.gov/fdsys/pkg/FR-2006-09-14/pdf/E6-15248.pdf

[8] Fraas, A., John D. Graham, and Jeff Holmstead. "EPA's new source review program: time for reform? *Environmental Law Review* (2017).

Review and Repeal 2015 NAAQS for Ground-level Ozone

In 2015, EPA finalized a more stringent ozone NAAQS despite the fact that the Obama-EPA's out-of-cycle reconsideration of the 2008 ozone NAAQS left states scrambling to fully implement the 2008 standard. EPA did not finalize designations until May 2012 and failed to finalize SIP guidance until February 2015. Significant portions of the population live in areas that do not meet the 2008 standard primarily due to EPA's reconsideration and the subsequent implementation delays. These areas should be given appropriate time to implement the 2008 standard of 75 ppb and come into attainment before pivoting to meeting the 70 ppb standard, particularly in light of EPA's conclusion that almost the entire U.S. would meet a 70 ppb standard by 2025 by implementing on-the-books rules.

Should EPA proceed with design ating areas as non -attainment with the 70 ppb standard as soon as October 2017, communities and areas designated as "nonattainment" will have a harder time attracting and retaining industry and sustaining economic activity and growth. Industry located in a n onattainment area faces increased operating costs, permitting delays, and restrictions on building or expanding facilities. These challenges increase the "time to market" for innovative new products. Air permitting is further complicated since new facilit ies and proposed expansions in nonattainment areas cannot proceed until their precursor emissions are offset at ratios greater than 1:1. Some areas will be subject to these offset programs for the first time under the 2015 standard, which will present additional burdens for the areas. Offsets are not always readily available even in areas that have been desig nated non-attainment previously, and, in some cases, offset prices can be extremely high. For example, offset prices in the Houston -Galveston-Brazoria, TX, nonattainment area are currently more than $200,000/ton for NOx and $300,000/ton for VOC.

For these reasons, ACC both supports EPA expeditiously reviewing the 2015 Ozone NAAQS and congressional action to delay designations under the standard, should EPA opt to maintain it. This will allow states to capture these anticipated air quality improvements before progressing designations.

During the 2015 ozone NAAQS rulemaking, and in subsequent evaluations, EPA correctly identified that there are instances where naturally occurring, or background, ozone concentra tions exceed the selected level of the standard. In the final rule, EPA decided not to consider proximity to background ozone levels even though the Agency retains the discretion to do s o – and has done so in the past: in 1997, proximity to background ozone levels was one of three factors that led EPA to reject a 70 ppb standard and instead establish the standard at 0.08 ppm. Still, during the most recent evaluation, EPA did not make full use of the flexibility afforded in the statute to provide relief to areas affected by substantial backgr ound ozone concentrations. To the contrary: EPA proposed in its November 17, 2016, SIP Implementation Rule to further narrow the application of international transport provisions. In the event EPA proceeds with implementing the 70 ppb standard, it should at least provide the maximum flexibility to address background ozone and provide meaningful implementation tools to ease state and regulated community burden.

In addition and due to the 70 ppb standard being so close to background concentrations, EPA should revisit its Exceptional Events Rule (EER) to provide for exclusion of air quality data influenced by lightning and biogenic events. EPA should not unnecessarily limit EER's applicability to only the narrow band of five regulatory actions. In particular, exceptional events data should be excludable from the calculation of background concentrations used in PSD permit air quality analysis. Finally, EPA should address international transport through EER to the broadest degree possible. A natural confluence of weather patterns that exacerbates routine international transport should be excludable as an exceptional event. EPA could also amend methodologies and data handling conventions in Appendix I to 40 C.F.R. Part 50 to address data where the principal contributor to an exceedance is attributable to background concentrations.

Streamline Rules on Leak Detection and Repair

EPA's Leak Detection and Repair (LDAR) rules are antiquated, in need of consolidation, and too costly. An alternative to the time-intensive effort required to overhaul these rules is to improve EPA's rule on using optical gas imaging cameras (40 CFR 60.18). Current LDAR rules require Method 21 point-by-point monitoring for leaks for every LDAR component, which includes but is not limited to valves, pumps, compressor seals, and pressure relief devices. Infrared cameras are now voluntarily used in manufacturing to detect leaks in a much more expedient and efficient manner. There seems to be no real need to overlap a periodic individual component monitoring program (Method 21) with the alternative (camera) leak monitoring, but this is what the Agency has done – resulting in no effective advantage for the camera monitoring option.

An option to use the optical gas imaging camera technology should be allowed in lieu of traditional Method 21 LDAR monitoring. To further incentivize the use of the optical gas imaging camera, EPA should remove the current requirement in the alternative work practice (40 CFR 60.18 (g)(h) and (i) to require an associated annual Method 21 survey of each component. The annual Method 21 survey adds additional costs and complexity and does not result in additional emission reductions.

To further improve the alternative work practice for the optical gas imaging camera, EPA should revise the recordkeeping requirements to clarify that a video record is not required for each individual valve, connector, or other piece of equipment surveyed. A video record of each area or portion of the plant that covers multiple pieces of equipment should suffice, such as a short video segment to document leaking components only.

In addition, the cost of connector monitoring via EPA Method 21 versus environmental benefit is extremely high in most circumstances. Thus, EPA should evaluate whether the current rules that require connector monitoring should be revised and perhaps exclude it from these existing rules, as appropriate.

Reduce Oversight Charges to PRPs at CERCLA Sites

The majority of potentially responsible parties (PRPs) agree that CERCLA oversight charges, including multipliers to address "indirect costs" not associated with a particular site, have become excessive due to guidance documents (i.e., directives) that should be

modified to limit charges to just those applicable at the site. [9] GAO and EPA's Inspector General have also been critical of the Agency's oversight charges. There are many ways EPA could reform these practices, including amending the National Contingency Plan at 40 CFR 300 to define and put reasonable limits on EPA's oversight charges, and modifying directives[10] that created this problem. Another alternative would be to modify the 2002 Memorandum entitled, "CERCLA Future Response Costs: Settlement, Billing and Collection," to clarify the documentation requirements for EPA to demonstrate that a response cost is not inconsistent with the NCP. The memo should also be modified to state that it can be relied on by PRPs.

Improve the Whole Effluent Toxicity (WET) Test

EPA addresses WET in NPDES permits to control the discharge of specific substances. EPA first distributed its draft WET implementation guidance in December 2004, in which the Agency noted that the WET guidance was designed to provide recommendations for the implementation of NPDES WET programs to state authorities. EPA has also issued guidance on the "Test of Significant Toxicity" (TST) approach, which is designed to help determine if discharges have a "reasonable potential" under WET and thus receive permit limits for WET. In May 2012, EPA issued a WET Spreadsheet, which is designed to be used to determine this "reasonable potential" and to assess permit compliance. [11] A significant concern during the development of the WET test was EPA's overlooking the presence of "false positives." Despite this, states including California have adopted it and rolled this test into their programs.

EPA should reexamine the WET test to account for some of the concerns raised during its development. This issue is discussed in greater detail in the comments submitted by the Federal Water Quality Coalition, which ACC supports. [12]

Add Aerosol Cans to Federal Universal Waste Regulations (40 CFR 273)

Non-empty aerosol cans are not included in the federal definition of a universal waste despite their fulfillment of the relevant criteria. EPA's three goals in administering the universal waste program are to: 1) encourage resource conservation while ensuring adequate protection of human health and the environment; 2) improve implementation of the current Subtitle C hazardous waste regulatory program; and 3) provide incentives that result in less of these wastes disposed in municipal landfills or incinerators. When EPA first promulgated the universal waste regulatory program in 1995, it listed selection criteria for wastes to be considered universal.[13] These include a waste generated in a wide variety of nonindustrial settings, generated by a vast community, and ones that may be present in significant volumes in nonhazardous waste management systems. Non-empty

[9] In 2015, EPA billed private parties more than $100 million in oversight charges. See EPA, "Superfund Remedial Annual Accomplishments."
[10] For example, OSWER Directive No. 9832.13, "Transmittal of the Superfund Cost Recovery Strategy," July 16, 1988, requires a PRP to pay for "costs incurred by EPA in obtaining assistance from third parties...and may also involve the recovery of past costs incurred by the Agency" (page 32).
[11] http://cfpub.epa.gov/npdes/docs.cfm?view=allprog&program_id=45&sort=date_published.
[12] ACC also supports the FWQC's comments on EPA's TMDL policies.
[13] 60 FR 25493 (May 11, 1995).

aerosol cans, as well as paint and paint -related wastes and waste antifreeze, satisfy all of these criteria. States like Californ ia and Colorado have been safely and responsibly managing aerosol waste cans as a universal waste for several years. Ohio also proposed addition of all three (non -empty aerosol cans, paint and paint related wastes, hazardous antifreeze) in late 2016.

EPA should amend the federal universal waste rules codified at 40 CFR 273 to designate non-empty aerosol spray cans , including paint and paint -related wastes, and waste antifreeze, as a new category of universal waste. This would provide generators increased flexibility by not counting them against the generators' monthly total of hazardous waste (thereby affecting its generator status) as well as reduce notification and recordkeeping requirements. This chang e would come without any interruption in the safe and responsible management of waste aerosol cans.

Enhance Coordination of the e-Manifest System (40 CFR 260, 262-265, 271)

EPA is current ly working with states, industr y, and related stakeholders to develop a national electronic manifest system that will facilitate the electronic transmission of the uniform manifest form. It is intended to make the use of the manifest more effective and convenient for its users. Some states already administer an e-Manifest program similar to the one EPA is de veloping for the national level , and U.S . DOT separately regulates shipments of hazardous waste under 40 CFR 171 -180. Under these requirements, facilities are required to sign and verify a hard copy hazmat shipping p aper. EPA has stated on its website that , independent of its own national e -Manifest syst em, "A paper copy will still be required to meet U.S. DOT purposes."[14]

EPA should ensure that its new national e -Manifest system aligns with existing state - level e-manifest programs, including the reporting timelines. To the extent possible, EPA and U.S. DOT should coordinate to ensure that manifest requirements between the t wo agencies are not duplicative, and U.S. DOT should consider accepting electronic versions of its shipping paper.

Improve "Mixture" and "Derived From" Rules (40 CFR 261.3(a) and 261.3(c)(2)(i))

EPA's "mixture" rule generally provides that a mixture of solid waste and one or more hazardous wastes listed in subpart D of Part 261 is a hazardous waste unless it has been excluded from §§261.3(a)(2) under §§260.20 and 260.22, or §§261.3(g) or (h). Separately, under the "derived -from" rule, any solid waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge, spill residue, ash emission control dust, or leachate (but not including precipitation run -off) is a hazardous waste, except as otherwise provided in §§261.3(c)(2)(ii), (g) or (h). Thus, sludges from waste treatment or leachate from a hazardous waste disposal facility i s often classified as hazardous simply because it was generated from a hazardous waste. The mixture and derived -from rules operate regardless of whether the mixing or treatment eliminates the properties (in that particular batch) that originally caused EPA to list the waste. This has resulted in potential over-classification of mixtures or treated materials as

[14] https://www.epa.gov/hwgenerators/hazardous-waste-electronic-manifest-system-e-manifest#frequent.

hazardous wastes, introducing a number of potentially unnecessary regulatory requirements for their management that may not be necessary given that some of these wastes may lack the appropriate hazardous nature.

EPA should modify or amend both these existing rules to require that the hazard determination be made based on the actual composition of the waste at the time of disposal following its treatment or mixture. EPA itself has acknowledged "inequities" in both of these rules. This change would greatly improve the appropriate classification and management of wastes that are actually hazardous.

Finalize Denial of PEER Petition to Revise RCRA Corrosivity Characteristic

In April 2016, EPA tentatively denied a petition from the Public Employees for Environmental Responsibility (PEER) that requested EPA revise the alkaline hazardous waste thresholds under RCRA used to designate a waste as "corrosive." The Agency's denial was appropriately supported in part by information compiled in comments by a coalition of industry trade associations in September 2015. ACC participated in this coalition to highlight the significant concerns associated with an unnecessary revision of the corrosivity characteristic, including the universe of wastes that would be inappropriately classified as corrosive under the revised pH level. EPA granted PEER's request for a 210-day extension to the comment period on its tentative denial. ACC, through its industry coalition, submitted supplemental comments during this extended period that supported EPA's decision and confirmed that its denial was an appropriate choice.

As EPA stated in its decision, it would be inappropriate to revise the corrosivity characteristic as requested by the PEER petition. Despite this fact, PEER has significantly delayed the denial process for more than a year. ACC recommends that EPA resolve this matter by finalizing its denial of the PEER petition.

Modify Regulation of Wastewater Emissions Under the Clean Air Act

40 CFR 63 Subpart G and JJJ contain MACT standards for HAPs for the production of synthetic organic chemicals and Group IV Polymers and Resins. Within these subparts, HAP emissions from wastewater streams generated by the production processes are defined as either Group 1 or Group 2 with HAP concentration thresholds. Group 1 streams (those with over 1,000 ppm organic HAP) must be managed by either recovery systems, incineration, or in closed/covered wastewater treatment systems. These two regulations were among the first in the MACT program written by EPA. Later, a better, more cost-effective approach was developed for first, the pharmaceutical industry (Subpart GGG) and, then, for the miscellaneous chemical manufacturing industry (Subpart FFFF) based on learnings from the earlier rules. This was to establish a separate category for "soluble HAPs" with a higher Group 1 threshold of 30,000 parts per million.

Methanol, an organic compound used in chemical manufacturing, is infinitely soluble in water and also highly biodegradable. Subpart G and JJJ cause chemical manufacturers to spend inordinate amounts of capital and operating expense to avoid managing wastewater

streams with over 1,000 ppm methanol in open -type wastewater treatment systems. This additional cost results in negligible impacts to the environment. This overly -protective and seemingly arbitrary/unfounded regulation also impedes the manufacture of other potential products. For these reasons, ACC supports de-listing methanol as a HAP.

Modify the RCRA Tank System Daily Inspection Requirement

Daily tank system visual inspections are required on all pipes, valves, pumps, tanks, secondary containment, and any other equipment that contacts hazardous waste and is part of the tank system. The costs associated with conducting these inspections on a daily basis is overly burdensome, and the requirement for these inspections to occur daily is unnecessary. For example, data from one ACC member facility indicates that the annual cost associated with daily inspections for one facility's 14 tanks is $118,625. On the other hand, the annual cost for these same tank inspections on a weekly basis would be $16,900—a significant difference of $101,725 at just one facility. Another ACC member facility spends seven hours every day inspecting its four RCRA tank systems. This results in an annual cost for daily inspections of about $153,300 . If these inspections were conducted on a weekly basis, the annual cost would be $21,840, a difference of $131,460. If EPA reduced the frequency of these required inspections, the cost savings modeled by these two facilities would be mirrored throughout industry, leading to a substantial burden reduction for a relatively simple change.

EPA should modify this overly burdensome daily inspection requirement for RCRA tank systems (40 CFR 265.195). ACC recommends that EPA change the required inspections to occur on a weekly basis instead of daily. If these weekly inspections revealed an issue of concern, EPA could then require daily inspections for a specified period of time following the company's remedy of the issue. The reduced frequency and additional flexibility in the frequency of these inspections would have a significant and immediately tangible reduction on the burden on industry.

Specific Recommendations on TSCA

On June 22, 2016, the Toxic Substances Control Act (TSCA) was amended by the Frank R. Lautenberg Act for Chemical Safety for the 21st Century Act (" LCSA"). LCSA was passed with overwhelming bipartisan support, the result of years of negotiation and with input from industry, environment, public health, animal rights, and labor groups . LCSA protects Americans' health and our environment, supports economic growth and manufacturing in the U.S., and promotes America's role as the world's leading innovator.

The LCSA overhaul of TSCA is substantial. EPA began implementation expeditiously, with many new provisions taking immediate effect on enactment. Enactment also started the clock on the promulgation of a series of important "framework" regulations essential to LCSA implementation. The three "framework" regulations for Inventory "reset," prioritization of chemicals for risk evaluation, and for the performance of risk evaluations, are nearing completion and scheduled to be promulgated in June 2017. After these rules are published, EPA has only an additional year (until June of 2018, again by statutory mandate) to develop any supporting policies, procedures, and guidance needed for LCSA implementation, including implementation of the framework regulations.

ACC is strongly committed to the effective implementation of LCSA. This support includes completion and promulgation of the regulations required by statute. Effective implementation of LCSA should remain an Agency priority. In that vein, ACC has offered numerous comments and suggestions to EPA in the regulatory dockets for the proposed framework and other LCSA implementing regulations. Our comments here are intended to supplement, and not detract, from those ongoing efforts.

New Chemicals Program

Statutory changes to the way EPA reviews new chemicals before manufacture and market entry took effect on June 22, 2016. An important change was that EPA must now make an affirmative safety determination before manufacture can start. The statute, however, did not change the safety standard itself, which continues to require measures to protect against unreasonable risks if needed. Likewise, the statute did not change the timeline expected for most pre-market reviews to be completed by the Agency within 90 days. Nevertheless, immediately upon enactment, a backlog swelled of Pre-Manufacture Notice (PMNs) review, the majority of which are not completed within the 90-day prescribed time frame period. Each of these represents a new chemical product that cannot be manufactured while the chemical company that developed it, and its supply chain, waits on EPA to complete the review. Chemistry touches 96% of all domestic products, so a delay at the top of the supply chain has adverse ripple effects throughout the economy. Inability to begin production of new chemicals directly impacts jobs and job creation, both with respect to the manufacture of the chemistry and the inability to develop improved and more competitive consumer products and services that rely on the new chemistries.

ACC has separately urged EPA to resolve this backlog as quickly as possible. Some recent Agency efforts appear to have nibbled at the backlog, but more needs to be done, and quickly, to restore the expeditious review of PMNs. As part of this effort, it would be helpful for EPA to commit to providing engineering reports and other documentation supporting PMN review to submitters and articulating a defined process for early and frequent consultation with respect to the adequacy of the PMN and supporting documentation, to reduce the overall process burden and review delays. It would also be helpful for EPA to post its new guidance and instructions on making PMN submissions in easy-to-find locations to a public website for transparency purposes (for example, guidance in the form of power point presentations offered at recent stakeholder meetings). Existing PMN guidance should be updated promptly to align with new LCSA interpretations and requirements.

Framework Rules

LCSA offers an integrated and systematic process to conduct risk evaluations of chemicals in commerce. The process is based on a careful and rational design that allows the Agency to target and focus on highest priorities for review first, which preserves Agency resources, assures pace and throughput of reviews, and delivers the greatest benefits and value for public health purposes. The first framework rule requires EPA to sort the chemicals on the TSCA Inventory based on whether they are currently used in

commerce. EPA can use this information as an input for risk -based, tiered screening for selection of chemicals for prior itization for risk evaluation. Recently reviewed new chemicals entering commerce, as well as chemicals no longer active in commerce, can be assigned lower priority for risk evaluation by the Agency.

Because the Inventory Reset rule and Prioritization rule would be under development for a year after LCSA enactment, to begin the first risk evaluations under the new statute promptly, Congress "kick started" the risk evaluation process by directing EPA to select the first 10 chemicals for risk evaluation from its Work Plan chemic als list. This has been done. The amended statute, however, contains throughput and pace requirements for risk evaluations, and to meet statutory requirements, additional chemicals wi ll need to be selected for high -priority designation to move them into the risk evaluation process. These selections must be made in accordance with the prioritization process to be set out by regulation in June. Completing the prioritization and risk evaluation rules in the manner directed by Congress is thus essential to achieving efficient and effective implementation of LCSA, and should continue to be a top priority for EPA.

Chemical Data Reporting

By regulation under Section 8 of TSCA , EPA requires chemical manufacturers and importers to report periodically with respect to chemicals on the TSCA Inventory. The last such submission cycle , ending in 2016 , was a major undertaking that placed a substantial burden on manufacturers to make an electronic submission of a wide variety of information about manufacture and import of chemicals. While this Chemical Data Reporting (CDR) rule originally focused on production and use of chemicals in commerce in large quantities, more recent reporting cycles have r equested information in smaller and smaller quantities.

We urge EPA seek opportunities to reduce the reporting burden on industry in the next chemical data reporting cycle , scheduled to occur in 2020 . It would be helpful for EPA to justify the needs for data to ensure that data collection appropriately supports prioritization screening under LCSA with appropriate focus, and does not impose an unnecessary collection burden on industry.

Nomenclature

Procedures to assign new chemicals "names" are complex, and there are multiple naming conventions recognized and reflected for ch emicals on the TSCA Inventory. A consequence of this is that over the years, many chemically identical substances appe ar on the Inventory multiple times with multiple names. Section 8(b)(3) of LCSA includes a new nomencla ture provision that allows the Agency to recognize chemically identical substances appearing on the Inventory multiple times as a single chemical substance. The Inventory Reset rule has not yet been promulgated, so it is unclear whether and how EPA plans to operationalize this provision as part of the Inventory Reset. However, effective implementation of this provision could yield meaningful and su bstantial regulatory burden reductions for industry, since companies may be able to streamline and aggregate numerous operations for chemically identical substances – everything from storage to transportation to training. A nomenclature equivalency exercise should be

conducted as a counterpart to the Inventory Reset process. At the same time, where current nomenclature assigns the same CAS name to substances that pose different hazards, EPA has the opportunity to address these assignments in a manner that will help support LCSA implementation, which itself depends on inputs of high quality and accurate information. As a counterpart to the Inventory Reset process, EPA should evaluate opportunities to improve current nomenclature to ensure that hazard information and classifications are accurate for each substance.

Conclusion

Thank you for the opportunity to submit recommendations for reform. ACC recognizes that the Task Force will have to choose among hundreds of potential reforms. A screening and prioritization process based on reducing opportunity cost is appropriate and consistent with the Trump Administration's regulatory agenda. ACC utilized such a process and identified several specific reforms for the Task Force to consider. In some cases, the Agency can implement the reform relatively quickly. In other cases, implementation will take lo nger. In every case, reform can reduce the opportunity cost, which will benefit the public without sacrificing regulatory objectives. With respect to implementation of the recently enacted TSCA reform law, ACC recommends that the Agency adhere to the implementation schedule as required under the statute, with the aim of providing sufficient transparency and certainty for the regulated community and to avoid creating any disincentives for market innovation.

Sincerely,

Anna Burhop

17cv1906 Sierra Club v. EPA - 6/22 Production ED_001523_00008276-00014

May 15, 2017

U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Mail Code 7401-M
EPA East Building
Washington, DC 20460
Submitted via www.regulations.gov

Re: Docket ID # EPA-HQ-OA-2017-0190; Stakeholder Input on Regulations Appropriate for Repeal, Replacement or Modification; the Formaldehyde Emission Standards for Composite Wood Products

Dear Sir or Madam:

The American Chemistry Council's[1] Formaldehyde Panel (Panel) appreciates this opportunity to provide comments to the EPA's Office of Pollution Prevention and Toxics (OPPT) regarding regulatory reform opportunities involving regulations governing chemical safety activities under the Toxic Substances Control Act (TSCA) and identification of those regulations that might be appropriate for repeal, replacement or modification per Executive Order 13777 on Enforcing the Regulatory Agenda. In follow-up to the oral comments presented by the Panel during the May 1, 2017 public meeting, the Panel has identified aspects of the Formaldehyde Emission Standards for Composite Wood Products [2] that should be modified to alleviate unnecessary regulatory burdens.

The Panel has long supported the establishment of national emission standards which are performance-based and set emissions levels that are equivalent to the levels established under the California Air Resources Board (CARB) Airborne Toxic Control Measure (ATCM). Although EPA states the final rule is "consistent, to the extent EPA deemed appropriate and practical considering TSCA Title VI, with the requirements currently in effect in California under the California Air Resources Board's (CARB) Air Toxics Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products (ATCM) (Ref. 1),"[3] it instead goes well beyond Congressional intent and is inconsistent with the CARB standard. The rule as currently written represents a departure from the performance-based standard intended by Congress and as implemented under the CARB ATCM. Notably, the differences in the EPA's final rule and the CARB standard will create compliance confusion, stifle innovation and increase manufacturing

[1] The American Chemistry Council (ACC) represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing.
[2] 81 Fed. Reg. 89674 (Dec. 12, 2016).
[3] Id. at 89675.

17cv1906 Sierra Club v. EPA - 6/22 Production ED_001523_00008277-00001

costs. The Panel submitted significant detailed comments in October 2013[4] and May 2014,[5] when the EPA's rule was in development, but the issues raised in our previous comments have not been adequately or sufficiently addressed. Below we highlight two specific issues in the final rule that should be modified to ensure that it does not unduly disadvantage technologies that clearly meet the emissions standards.

1. **The EPA's Final Rule Should Adopt CARB's Approach For The Treatment of Laminated Products**

   While the emissions levels set in the EPA's final rule are equivalent to the CARB ATCM for formaldehyde emissions from composite wood products, the treatment of laminated products bonded to urea formaldehyde resins is a departure from the technology neutral CARB ATCM standard. EPA's current approach creates a situation where laminated products made by attaching a wood or woody grass veneer to a compliant core or platform with either a phenol-formaldehyde resin or a resin formulated with no added formaldehyde as part of the resin cross-linking structure are treated differently than other laminated products.

   Recommended Amendment to Final Rule - Section III.A.3 of the final rule should be modified to explicitly exempt all laminated products from the definition of hardwood plywood. Any future EPA action associated with laminated products should be evaluated through a separate formal notice and comment period.

2. **The EPA's Final Rule Should Not Endorse a Move Away From Urea-Formaldehyde-Based Resin Technologies**

   EPA's final rule encourages a move away from urea-formaldehyde-based resins, despite the fact that this chemistry has been proven to meet established CARB emissions standards. The approach in EPA's final rule to regulating laminated products would favor the use of no added formaldehyde resins over formaldehyde-based resins. The experience under CARB and the scientific underpinnings of testing and certification processes demonstrate that a performance-based approach that does not discriminate against technologies meeting the standards can ensure compliance with the statutorily mandated emissions limits while meeting diverse market needs and minimizing economic impact. There is no basis to support an approach to regulate laminated products that would promote the use of no added formaldehyde resins over formaldehyde-based resin technologies, including ultra-low emitting formaldehyde resins. Notably, manufacturers of composite wood products continue to rely on urea-formaldehyde-based resin technologies in products that comply with or perform better than the CARB Phase 2 emissions standards, which is a testimony to the effectiveness and capability of urea-formaldehyde-based resins.

   By taking a performance-based approach tied to emissions limits, the CARB program encouraged advancement in all technologies and provided the widest array of options for panel

[4] Docket ID # EPA-HQ-OPPT-2012-0018-0581.
[5] Docket ID # EPA-HQ-OPPT-2012-0018-0610.

manufacturers and the downstream chain of commerce. CARB's performance-based regulation for laminated products is consistent with the ASTM test methodology for assessing performance under temperature and humidity conditions. Notably, the statute prescribes the use of temperature and humidity levels set by ASTM E -1333 test method and if a laminated product meets the emission test under those conditions, it would be in compliance, regardless of whether it contained ultra-low emitting formaldehyde or no-added formaldehyde resins. Manufacturers of laminated products should have the flexibility to comply with EPA's rule using any chemistry meeting set emission standards.

Recommended Amendment to Final Rule - This final rule should clearly include an exemption for laminated products made with compliant platforms.

Recommended Amendment to Final Rule - This final rule should refrain from prescribing resin chemistries or formulations that can qualify as ultra-low emitting formaldehyde technology.

As summarized above, to improve the final rule, EPA should exempt the inclusion of laminated products from the final rule and address this issue in a separate formal notice and comment period. EPA should also modify the rule to clarify that any technology that effectively meets the established emissions standards complies with the final rule and that EPA does not encourage a move away from those technologies which meet the standards. We appreciate the opportunity to provide input as the Agency identifies ways to improve its rulemaking process.

Feel free to contact me by phone (202-249-6707) or email (kimberly_white@americanchemistry.com) with any questions related to these comments.

Sincerely,

Kimberly Wise White, PhD
American Chemistry Council (ACC)
Senior Director, Chemical Products & Technology Division
On Behalf of the ACC Formaldehyde Panel

May 15, 2017

Submitted via www.regulations.gov
Samantha K. Dravis
Regulatory Reform Officer and Associate Administrator
Office of Policy
Environmental Protection Agency (EPA)
Mail Code 1804A
1200 Pennsylvania Ave., NW
Washington, DC 20460

Re: Evaluation of Existing Regulations, 82 Fed. Reg. 17793 (April 13, 2017);
Docket ID No. EPA-HQ-OA-2017-0190

Dear Ms. Dravis:

The American Chemistry Council's Hexavalent Chromium Panel (Panel)[1] appreciates the opportunity to submit these comments in response to the Environmental Protection Agency's (EPA) request for public input to inform its Regulatory Reform Task Force (Task Force) evaluating existing regulations. The Panel requests the Task Force support the development and completion of a risk assessment for hexavalent chromium (Cr(VI)). The completion of this risk assessment will alleviate unnecessary regulatory burdens.

EPA has suffered much public criticism for its lack of progress on evaluating and taking appropriate action on substances found in drinking water. The Panel understands and supports the need for EPA's deliberate assessment and review of the science prior to making a decision whether to establish a drinking water standard or health advisory, or to defer a chemical to state regulatory action. EPA should complete the process of determining whether Cr(VI) meets the criteria for EPA regulatory action under the Safe Drinking Water Act (SDWA).

[1] ACC represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing. The business of chemistry is a $797 billion enterprise and a key element of the nation's economy. It is the nation's largest exporter, accounting for fourteen percent of all U.S. exports.

The SDWA is clear in its requirements that EPA regulate only those substances that meet the Act's criteria:

- The contaminant may have an adverse effect on the health of persons.
- The contaminant is known to occur or there is a substantial likelihood that the contaminant will occur in public water systems with a frequency and at levels of public health concern.
- In the sole judgment of the Administrator, regulation of the contaminant presents a meaningful opportunity for health risk reductions for persons served by public water systems.[2]

This process has three steps: 1) the development of a risk assessment to evaluate whether the substance may have an adverse effect on human health; 2) an analysis of the occurrence of the substance in public water systems; and 3) a determination whether the presence in water systems occurs at levels posing a human health concern.

EPA has started the process for Cr(VI) and should complete it. We offer our perspective on these three steps:

1. Can Cr(VI) have an adverse effect on human health?

   In 1981, EPA set an enforceable drinking water standard, the maximum contaminant level (MCL), for total chromium at 100 parts per billion (ppb) to be health protective for all forms of chromium, including Cr(VI). The total chromium standard assumes that 100 percent of the chromium in drinking water is Cr(VI).[3]

   In 2008, a governmental 2-year rodent study conducted by the National Toxicology Program (NTP) reported that small intestine cancers were observed late in the study in a few of the mice, but not in rats, at the higher doses (doses greater than 30,000 ppb) used in this study.[4] This finding is important because it was the first observation of this type of effect. This finding triggered a series of other studies to investigate how these tumors were formed (mode of action (MOA) studies). Importantly, these studies investigated whether the effects in laboratory mice are relevant for humans at the far lower levels present in groundwater as reported by EPA.

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[2] 42 U.S.C. § 300g-1(b)(1)(A).
[3] See https://www.epa.gov/dwstandardsregulations/chromium-drinking-water.
[4] NTP. 2008a. Final technical report on the toxicology and carcinogenesis studies of sodium dichromate dihydrate in F344/N rats and B6C3F1 mice, available at http://ntp.niehs.nih.gov/files/546_web_FINAL.pdf; NTP. 2008b. NTP Toxicology and Carcinogenesis Studies of Sodium Dichromate Dihydrate (CAS No. 7789-12-0) in F344/N Rats and B6C3F1 Mice (Drinking Water Studies). Natl Toxicol Program Tech Rep Ser. 546: 1-192, available at https://www.ncbi.nlm.nih.gov/pubmed/18716633.

Using only NTP data, EPA issued a draft Integrated Risk Information System (IRIS) assessment of Cr(VI) in 2010, which was reviewed by an independent expert peer review panel in May 2011. The peer review panel urged EPA to consider the results of significant new MOA research on Cr(VI) before finalizing the assessment.[5] In 2012, EPA rescheduled the time frame for completion of its assessment to allow for consideration of the MOA research.

The MOA research has been completed. The research investigated the biochemistry, *in vivo* genotoxicity, histopathology, toxicogenomics, and *in vitro* genotoxicity of Cr(VI). In addition, toxicokinetics data measured the rates and capacity of Cr(VI) reduction to trivalent chromium in human and rodent stomach contents. The MOA data were used to develop a physiologically based pharmacokinetic (PBPK) model, which allows policy analysts to extrapolate high dose rodent data to low doses and to translate rodent data to humans, including sensitive individuals. A list of the peer-reviewed publications resulting from the MOA research is attached (Attachment A).

EPA should complete an assessment for Cr(VI) using all of the NTP and MOA data to answer the question of whether Cr(VI) can have an adverse effect on human health.

2. Does Cr(VI) occur in US groundwater used for drinking water?

EPA's Office of Drinking Water has completed its occurrence study for Cr(VI) as part of the third Unregulated Contaminant Monitoring Rule (UCMR-3).[6] The UCMR-3 monitoring data indicate low levels of Cr(VI) occur throughout the United States in groundwater sources used for drinking water. EPA collected over 62,000 samples from 4,500 large water systems (greater than 10,000 households) and 800 smaller systems (less than 10,000 households). EPA data indicate that the levels of Cr(VI) in 95% of the systems sampled reported levels less than 3.4 ppb. These levels are well below the MCL of 100 ppb for total chromium.

Natural Cr(VI) is found in groundwater, typically at low levels (generally 1 to 5 ppb), and in certain geologic formations containing chromium minerals, such as serpentine rocks. Scientists at the U.S. Geological Survey have reported that Cr(VI) found in groundwater and some drinking water sources in the Mojave Desert is naturally occurring from chromium-containing minerals from geologic formations, including serpentine rock in those

[5] See https://cfpub.epa.gov/ncea/iris_drafts/recordisplay.cfm?deid=221433.
[6] See https://www.epa.gov/dwucmr/third-unregulated-contaminant-monitoring-rule.

formations. Much of the rest of California has naturally-occurring levels of chromium in rocks, soil and stream sediments.[7,8]

Duke University researchers monitored groundwater in North Carolina and reported, "*the groundwater chemistry and strontium isotope variations are consistent with water-rock interactions as the major source for Cr(VI) in groundwater. Our results indicate that Cr(VI) is most likely naturally occurring and ubiquitous in groundwater from the Piedmont region in the eastern United States*…"[9]

3. Does the presence in water systems occur at levels posing a human health concern?

EPA concludes in its recent six-year review of existing drinking water standards that the national primary drinking water regulation (NPDWR) for Cr(VI) is "not appropriate for revision at this time" because "health effects assessment in process (as of December 2015) or contaminant nominated for health assessment,"[10] further noting "Chromium VI is being assessed by the EPA IRIS Program."[11] According to IRIS Program website, Cr(VI) is in step 1 of the process, which is draft development.[12] Thus, until EPA completes its health risk assessment, this question remains unanswered for EPA.

While the Panel agrees that the NPDWR should not be revised until the health effects assessment is completed, we urge EPA to accelerate completion of its risk assessment for Cr(VI).

If EPA chooses to not complete its own risk assessment, it can be informed by assessments completed by other regulatory agencies. Health Canada and the Texas Commission on Environmental Quality (TCEQ) have each reviewed the NTP and MOA data and published their analyses.

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[7] Izbicki JA, Ball JW, Bullen TD, and Sutley SJ. 2008. Chromium, chromium isotopes and selected trace elements, western Mojave Desert, USA. Appl Geochem, 23(5): 1325-1352, available at http://ca.water.usgs.gov/news/2008/Chromium-report.pdf.

[8] Bailey A, Kubran WJ, Merlone M, Michelotti E, Mosiak C, and Pedroja D. 2013. A Water Supply Optimization Strategy--Santa Ynez River Water Conservation District No. 1, available at http://www.bren.ucsb.edu/research/2013Group_Projects/documents/SYWater_Report_Final.pdf

[9] Vengosh A, Coyte R, Karr J, Harkness JS, Kondash AJ, Ruhl LS, Merola RB, and Dywer GS. 2016. Origin of Hexavalent Chromium in Drinking Water Wells from the Piedmont Aquifers of North Carolina Environ Sci Tech Let, 3: 409–414, available at http://pubs.acs.org/doi/abs/10.1021/acs.estlett.6b00342

[10] Table VI-1, National Primary Drinking Water Regulations; Announcement of the Results of EPA's Review of Existing Drinking Water Standards and Request for Public Comment and/or Information on Related Issues, 82 Fed. Reg. 3518, 3525 (Jan. 11, 2017).

[11] Table VI-2, 82 Fed. Reg. at 3527.

[12] https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=144

TCEQ completed a risk assessment of Cr(VI), considering the NTP and MOA data as well as the PBPK model. TCEQ set a reference dose that corresponds to 100 ppb for oral exposure to Cr(VI). TCEQ considers this value to protect against potential long-term and short-term adverse health effects (*i.e.*, to be protective of both non-carcinogenic and carcinogenic effects).[13]

Completion of an EPA determination is vitally important for the US public.

While EPA's total chromium MCL of 100 ppb covers all forms of chromium, including Cr(VI), this MCL was based upon a dermatitis endpoint. With the NTP study findings of small intestine cancer at high doses and no EPA determination related to this effect, states have little scientific basis upon which to make their regulatory decisions.

Media stories, using the aspirational California Public Health Goal (PHG) as their basis,[14] imply that the low levels of Cr(VI) reported in the UCMR-3 data are a public health risk, raising unwarranted public concern about the safety of drinking water.[15] This concern has resulted in increasing state legislative action to set enforceable standards for Cr(VI) in drinking water, often without full consideration of the scientific data.[16] Moreover, these media stories have generated fear among the public about drinking tap water with very low ppb levels of Cr(VI) and undermined public confidence in their tap water.

California provides an example of why EPA should complete its health risk assessment. In 2011, the California Office of Environmental Health Hazard Assessment (OEHHA) set a PHG

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[13] TCEQ. 2016. Development Support Document, Final, September 23, 2016, Hexavalent Chromium Oral Reference Dose, CAS Registry Number: 18540-29-9, available at https://www.tceq.texas.gov/assets/public/implementation/tox/dsd/final/chromium_ord.pdf. See also Haney J. 2015a. Use of dose-dependent absorption into target tissues to more accurately predict cancer risk at low oral doses of hexavalent chromium. Regul Toxicol Pharmacol, 71: 93-100, available at http://www.sciencedirect.com/science/article/pii/S0273230014002608; Haney J. 2015b. Implications of dose-dependent target tissue absorption for linear and nonlinear/threshold approaches in development of a cancer-based oral toxicity factor for hexavalent chromium. Regul Toxicol Pharmacol, 72: 194-201, available at http://www.sciencedirect.com/science/article/pii/S0273230015000926; Haney J. 2015c. Consideration of non-linear, non-threshold and threshold approaches for assessing the carcinogenicity of oral exposure to hexavalent chromium. Regul Toxicol Pharmacol, 73: 834-852, available at: http://www.sciencedirect.com/science/article/pii/S0273230015300957.

[14] California defines a Public Health Goal as "the level of a chemical contaminant in drinking water that does not pose a significant risk to health. PHGs are not regulatory standards." See https://oehha.ca.gov/water/public-health-goals-phgs.

[15] See, e.g., "New report finds 'Erin Brockovich' chemical in US drinking water," available at http://www.cnn.com/2016/09/20/health/chromium-6-in-drinking-water/; "What is chromium-6 and how did it infiltrate America's drinking water?," available at http://www.pbs.org/newshour/rundown/chromium-6-wash-many-drinking-supplies/.

[16] See, e.g., New York State Senate Bill S4381, available at http://legislation.nysenate.gov/pdf/bills/2017/S4381.

of 0.02 ppb for Cr(VI).[17] The PHG was based largely on data from the 2008 NTP study, and did not consider the MOA research or PBPK model. This contrasts with the TCEQ assessment that did consider all of the data (NTP, MOA, and PBPK) in its analysis to set a reference dose that corresponds to the EPA 100 ppb total chromium drinking water standard.

Using the 0.02 ppb PHG, the California Department of Public Health (DPH)[18] finalized an MCL for Cr(VI) of 10 ppb in 2014[19] with a compliance date of 2020. In its supporting materials, DPH reported that the aggregate cost of complying with the 10 ppb MCL would be $870 million, based on 130 water systems that could not easily meet the 10 ppb standard.[20] California reported that water bills for consumers in water systems that required treatment to meet the 10 ppb standard could increase by $5,600 per year or $469.17 per month.[21] DPH reported that "for the smaller water systems, no more than 0.3 [theoretical excess cancer] cases might be avoided for any of the seven evaluated MCLs."[22]

On May 5, 2017, the 10 ppb MCL was voided by the Superior Court of California, County of Sacramento. The Court ruled that the California DPH failed to conduct an economic feasibility analysis as required by law. The Court remanded the case to the DPH with orders to withdraw the current MCL and establish a new MCL that considers economic feasibility and pays particular attention to small water systems.

By completing the health risk assessment step required under the SDWA, EPA can provide clarity to the states when addressing levels of this natural substance in drinking water.

Given the broad occurrence of Cr(VI) across the US, largely from geologic formations and minerals, the Panel urges EPA to make the development of a risk assessment for Cr(VI) a high priority. Moreover, this assessment should be based on the full scientific database, including

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[17] See https://oehha.ca.gov/water/public-health-goal-fact-sheet/final-technical-support-document-public-health-goal-hexavalent.

[18] While the MCL was established by the California DPH, a restructuring has moved future drinking water actions to the State Water Control Board.

[19] See http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Chromium6.shtml.

[20] On January 9, 2017, Mark Bartson, head of the Technical Operations Section of the State Board's Division of Drinking Water, stated that there were a total of 7,588 public water systems in California. Of these, 4,430 were either community water systems or non-community, non-transient water systems that must comply with MCLs. Approximately 197 of these water systems operated one or more water sources that contained Cr(VI) at levels exceeding the 10 ppb MCL. Mr. Bartson stated that the Division of Drinking Water is "not tracking" 67 of these systems because they had an "easy out," a simple and straightforward way of achieving compliance, such as taking a well out of service. Mr. Bartson stated that the Division of Drinking Water was then "tracking" approximately 130 water systems with respect to compliance with the new MCL.

[21] Initial statement of reasons, Table 8; available at https://archive.cdph.ca.gov/services/DPOPP/regs/Documents/DPH-11-005HCMCLISOR.pdf

[22] Id. at 25.

the recent MOA research on Cr(VI) and the PBPK model.[23] We urge that EPA set an aggressive completion schedule, including public comment and scientific peer review.

Given the availability of new research and the disparate approaches to assessing the potential public health risk of Cr(VI) taken by California and Texas, state regulatory agencies and the public would greatly benefit from a federal risk assessment of Cr(VI) in drinking water.

We appreciate EPA's consideration of these comments. If you have any questions about these comments, please contact Ann M. Mason at ann_mason@americanchemistry.com or 202.249.6704 or Laura Brust at laura_brust@americanchemistry.com or 202.249.6139.

Sincerely,

Ann M. Mason
Senior Director, American Chemistry Council

Attachment A: List of Peer-Reviewed MOA Research Publications

[23] This research has resulted in more than 20 peer-reviewed publications. A complete list of publications is included as Attachment A. The research data, publications, and other details of this research are available at http://cr6study.info/.

Attachment A
List of Peer-Reviewed MOA Research Publications

Overview

The Cr(VI) Mode of Action (MOA) Research Study was designed to understand how hexavalent chromium [Cr(VI)] in drinking water is associated with carcinogenesis in rats and mice. The project involved investigators from multiple institutions and conducted two 90-day drinking water studies, using one in the same mouse (B6C3F1) and rat (Fisher 344) strains used in the NTP study. The in-life portions of the study (i.e. the exposure, macro- and microscopic examinations, and some biochemical analyses) were conducted at the same research facility that conducted the NTP study to further minimize inter-study variability. Histological lesions, biochemical analyses, toxicogenomic analyses, pharmacokinetic analyses, and mutational analyses were examined in the target tissues of interest, i.e. the small intestine and oral mucosa, of the mice and rats. In addition, in vitro cell culture studies were conducted to further inform the Cr(VI) MOA. The Cr(VI) MOA Research Study used the same concentrations of Cr(VI) in drinking water as the NTP study and also included lower Cr(VI) concentrations, which are more indicative of possible environmental exposures, such as U.S. drinking water.

See http://cr6study.info/ for more information on the MOA research.

Publications

Cullen JM, Ward JM, Thompson CM. 2016. Reevaluation and classification of duodenal lesions in B6C3F1 mice and F344 rats from 4 studies of hexavalent chromium in drinking water. Toxicol Path. 44(2): 279-289.

De Flora S, Camoirano A, Micale RT, La Maestra S, Savarino V, Zentilin P, Marabotto E, Suh M, Proctor DM. 2016. Reduction of hexavalent chromium by fasted and fed human gastric fluid. I. Chemical reduction and mitigation of mutagenicity. Toxicol Appl Pharmacol. 306: 113-119.

Kirman CR, Suh M, Proctor DM, Hays SM. 2017. Improved physiologically based pharmacokinetic model for oral exposures to chromium in mice, rats, and humans to address temporal variation and sensitive populations. Toxicol Appl Pharmacol. 325: 9-17.

Kirman CR, Suh M, Hays SM, Gürleyük H, Gerads R, De Flora S, Parker W, Lin S, Haws LC, Harris MA, Proctor DM. 2016. Reduction of hexavalent chromium by fasted and fed human gastric fluid. II. Ex vivo gastric reduction modeling. Toxicol Appl Pharmacol. 306: 120-133.

Kirman CR, Aylward LL, Suh M, Harris MA, Thompson CM, Haws LC, Proctor DM, Lin SS, Parker W, Hays SM. 2013. Physiologically based pharmacokinetic model for humans orally exposed to chromium. Chem-Biol Interact. 204(1): 13-27.

Kirman CR, Hays SM, Aylward LL, Suh M, Harris MA, Thompson CM, Haws LC, Proctor DM. 2012. Physiologically based pharmacokinetic model for rats and mice orally exposed to chromium. Chem-Biol Interact. 200(1): 45-64.

Kopec AK, Thompson CM, Kim S, Forgacs AL, Zacharewski TR. 2012. Comparative Toxicogenomic Analysis of Oral Cr(VI) Exposure Effects in Rat and Mouse Small Intestinal Epithelium. Toxicol Appl Pharmacol. 262(2): 124-138.

Kopec AK, Kim S, Forgacs AL, Zacharewski TR, Proctor DM, Harris MA, Haws LC, Thompson CM. 2012. Genome-wide gene expression effects in B6C3F1 mouse intestinal epithelia following 7 and 90 days of exposure to hexavalent chromium in drinking water. Toxicol Appl Pharmacol. 259(1): 13-26.

O'Brien T, Ding H, Suh M, Thompson C, Parsons BL, Harris MA, Winkelman WA, Wolf JC, Hixon JG, Schwartz AM, Myers MB, Haws LC, Proctor DM. 2013. Assessment of K-Ras mutant frequency and micronucleus incidence in the mouse duodenum following 90-days of exposure to Cr(VI) in drinking water. Mutat Res. 754(1-2): 15-21.

Proctor DM, Suh M, Aylward LL, Kirman CR, Harris MA, Thompson CM, Gürleyük H, Gerads R, Haws LC, Hays SM. 2012. Hexavalent chromium reduction kinetics in rodent stomach contents. Chemosphere. 89(5): 487-493.

Rager JE, Ring CL, Fry RC, Suh M, Proctor DM, Haws L, Harris MA, Thompson CM. 2017. High-Throughput Screening Data Interpretation in the Context of *In Vivo* Transcriptomic Responses to Oral Cr(VI) Exposure. Toxicol Sci.

Suh M, Thompson CM, Kirman CR, Carakostas M, Haws LC, Harris M, Proctor D. 2014. High concentrations of hexavalent chromium in drinking water alter iron homeostasis in F344 rats and B6C3F1 mice. Food Chem Toxicol. 65: 381-388.

Thompson CM, Bichteler A, Rager JE, Suh M, Proctor DM, Haws LC, Harris MA. 2016. Comparison of in vivo genotoxic and carcinogenic potency to augment mode of action analysis: case study with hexavalent chromium. Mutat Res-Gen Tox En. 800-801: 28-34.

Thompson CM, Rager JE, Suh M, Ring CL, Proctor DM, Haws LC, Fry RC, Harris MA. 2016. Transcriptomic Responses in the oral cavity of F344 rats and B6C3F1 mice following exposure to Cr(VI): implications for risk assessment. Env Mol Mut. 57: 706-716.

Thompson CM, Seiter J, Chappell MA, Tappero RV, Proctor DM, Suh M, Wolf JC, Haws LC, Vitale R, Mittal L, Kirman CR, Hays SM, Harris MA. 2015. Synchrotron-based imaging of chromium and γ-H2AX immunostaining in the duodenum following repeated exposure to Cr(VI) in drinking water. Toxicol Sci. 143(1): 16-25.

Thompson CM, Wolf JC, Elbekai RH, Paranjpe MG, Seiter JM, Chappell MA, Tappero RV, Suh M, Proctor DM, Bichteler A, Haws LC, Harris MA. 2015. Duodenal crypt health following exposure to Cr(VI): Micronucleus scoring γ-H2AX immunostaining, and synchrotron X-ray fluorescence microscopy. Mutat Res. 789-790: 61-66.

Thompson CM, Young RR, Suh M, Dinesdurage HR, Elbekai RH, Harris MA, Rohr AC, Proctor DM. 2015. Assessment of the Mutagenic Potential of Cr(VI) in the Oral Mucosa of Big Blue Transgenic F344 Rats. Environ Mol Mutagen. 56: 621-628.

Thompson CM, Kirman CR, Proctor DM, Haws LC, Suh M, Hays S, Hixon JG, Harris MA. 2014. A chronic oral reference dose for hexavalent chromium-induced intestinal cancer. J Appl Toxicol. 34: 525-536.

Thompson CM, Proctor DM, Suh M, Haws LC, Kirman CR, Harris MA. 2013. Assessment of the mode of action underlying development of rodent small intestinal tumors following oral exposure to hexavalent chromium and relevance to humans. Crit Rev Toxicol. 43(3): 244-274.

Thompson CM, Fedorov Y, Brown DD, Suh M, Proctor DM, Kuriakose L, Haws LC, Harris MA. 2012. Assessment of Cr(VI)-Induced Cytotoxicity and Genotoxicity Using High Content Analysis. PLoS ONE. 7(8): e42720.

Thompson CM, Hixon JG, Proctor DM, Haws LC, Suh M, Urban JD, Harris MA. 2012. Assessment of Genotoxic Potential of Cr(VI) in the Mouse Duodenum: An In Silico Comparison with Mutagenic and Nonmutagenic Carcinogens Across Tissues. Regul Toxicol Pharmacol. 64(1): 68-76.

Thompson CM, Proctor DM, Suh M, Haws LC, Hebert CD, Mann JF, Shertzer HG, Hixon JG, Harris MA. 2012. Comparison of the Effects of Hexavalent Chromium in the Alimentary Canal of F344 Rats and B6C3F1 Mice Following Exposure in Drinking Water: Implications for Carcinogenic Modes of Action. Toxicol Sci. 125(1): 79-90.

Thompson CM, Proctor DM, Harris MA. 2012. Duodenal GSH/GSSG Ratios in Mice Following Oral Exposure to Cr(VI). Toxicol Sci. 126(1): 287-288.

Thompson CM, Proctor DM, Haws LC, Hebert CD, Grimes SD, Shertzer HG, Kopec AK, Hixon JG, Zacharewski TR, Harris MA. 2011. Investigation of the Mode of Action Underlying the Tumorigenic Response Induced in B6C3F1 Mice Exposed Orally to Hexavalent Chromium. Toxicol Sci. 123(1): 58-70.

Thompson CM, Haws LC, Harris MA, Gatto NM, Proctor DM. 2011. Application of the U.S. EPA Mode of Action Framework for Purposes of Guiding Future Research: A Case Study Involving the Oral Carcinogenicity of Hexavalent Chromium. Toxicol Sci. 119(1): 20-40.

Young RR, Thompson CM, Dinesdurage HR, Elbekai RH, Suh M, Rohr AC, Proctor DM. 2015. A Robust Method for Assessing Chemically Induced Mutagenic Effects in the Oral Cavity of Transgenic Big Blue Rats. Environ Mol Mutagen. 56: 629-636.

May 15, 2017

Docket EPA-HQ-OA-2017-0190
Office of Regulatory Policy and Management
Office of Policy
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Mail Code 1803A
Washington, DC 20460

Re: Evaluation of Existing Regulations, Docket EPA-HQ-OA-2017-0190
(82 *Fed. Reg.* 17793, April 13, 2017)

Dear Sirs:

The Chemical Products and Technology Division of the American Chemistry Council (ACC/CPTD)[1] requests that the Agency review policy guidance issued in 2014 by the Office of Solid Waste and Emergency Response (OSWER)[2] as part of its evaluation of regulations that, among other things, eliminate jobs or inhibit job creation, impose costs in excess of benefits, or rely on information that has not been reproduced. This 2014 guidance – related to remediation of sites contaminated with trichloroethylene (TCE) – imposes significant costs on the public and private sector and impedes progress towards productive use of brownfield land with little or no public benefit. The potential impact is highlighted by the recent addition of a subsurface intrusion component to the Hazard Ranking System for placement of a site on the National Priorities List (NPL) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).[3]

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[1] ACC represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing. ACC's Chemical Products and Technology Division is composed of a wide range of more than 60 self-funded product and sector groups that are focused on specific chemistries and related technologies. Members participating in these groups include large and small manufacturers, formulators, downstream users, distributors, suppliers and other trade associations.

[2] US EPA. Memo from Robin H. Richardson (Acting Director, Office of Superfund Remediation and Technology Innovation. Compilation of Information Relating to Early/Interim Actions at Superfund Sites and the TCE IRIS Assessment (August 27, 2014). (Richardson memo) OSWER is now known as the Office of Land and Emergency Management (OLEM).

[3] 82 *Fed. Reg.* 2760 (January 9, 2017).

Despite the fact that the 2014 guidance has been interpreted by many as having the force of law or regulation regarding early mitigation at remediation sites and interpretation of data on developmental effects, it was not subject to public notice and comment. In response to repeated calls for review of the policy, EPA has argued that the guidance memo is "not a regulation nor a rule," while simultaneously noting that it "operationalized the [EPA Integrated Risk Information System (IRIS)] TCE Assessment."[4] Although not a formal regulation, such "operationalization" is clearly covered by Executive Order 13771 which indicates that --

> [f]or purposes of this order the term "regulation" or "rule" means an agency statement of general or particular applicability and future effect designed to implement, interpret, or prescribe law or policy or to describe the procedure or practice requirements of an agency.[5]

As such, we urge EPA to consider the 2014 guidance memo, and related memos issued by EPA regional offices, as part of its review of regulations that impose costs that exceed benefits or are based on irreproducible information.

EPA's Assessment of the Non-Cancer Effects of TCE Differs from Other Authoritative Groups

EPA's 2011 IRIS assessment for TCE reestablished cancer potency factors and lowered the chronic (lifetime) reference concentration (RfC - for inhalation) and reference dose (RfD – for water consumption) for non-cancer effects significantly.[6] The non-cancer reference values are based primarily on developmental effects (*i.e.*, fetal heart malformations, or FHM) reported in studies from a single laboratory. The results are inconsistent with GLP studies conducted by other researchers. Published reviews of the studies that observed these effects have described numerous limitations in the methodology, including the use of non-standard statistical methods, the failure to run concurrent control experiments, and the pooling of control groups.[7]

In reviewing the same data, the National Research Council dismissed the FHM findings because of the unusually flat dose-response curve and the inconsistency of the results with those from other, better conducted studies.[8] Similarly California's Office of Environmental

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4 Letter from Enrique Manzanilla, Director Superfund Division, EPA Region 9, to Mr. Mike Mielke, Silicon Valley Leadership Group (November 19, 2015).

5 Executive Order 13771. Presidential Executive Order on Reducing Regulation and Controlling Regulatory Costs (January 30, 2017).

6 US EPA. IRIS Toxicity Profile for Trichloroethylene (CASRN 79-0 1-6). Washington DC, USEPA (2011).

7 For example, Hardin PD *et al.* Trichloroethylene and dichloroethylene: a critical review of teratogenicity. *Birth Defects Research (Part A)* 73:931-955 (2005).

8 National Research Council (NRC). Assessing the Human Health Risks of Trichloroethylene: Key Scientific Issues. Washington, DC: National Academies Press. (2006).

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Health Hazard Assessment (OEHHA) rejected the FHM studies because they did not produce a meaningful or interpretable dose-response relationship.[9] OEHHA also noted that the results are not consistent with earlier developmental and reproductive toxicological studies done outside this lab in other animal species. More recently, in a 2014 update of the assessment of the fetal heart data, seven of 11 EPA scientists characterized the confidence in the dose-response evaluation of the cardiac data as "low," a conclusion that differs significantly from that of the 2011 IRIS assessment.[10] Despite the clear concern about the FHM studies expressed by scientists -- including many within the Agency -- EPA has made no attempt to update or correct its assessment.

EPA Guidance Memos Establish Short-Term Action Levels

Following the release of the IRIS assessment for TCE, EPA's Regions 9 and 10 issued policy guidance outlining investigation approaches and response measures to address exposures to TCE in indoor air from the subsurface (*i.e.*, vapor) intrusion pathway.[11,12] In both cases, the policy established action levels based on the RfC from the 2011 IRIS assessment and provided guidance on "accelerated and urgent response actions." As a result of confusion generated by the release of guidance from the two regional offices, OSWER subsequently issued its 2014 guidance memo which indicated that the Agency "expects to take early actions" based on the IRIS RfC. The 2014 memo further noted –

> [I]n most cases, it is assumed that a single exposure at any of several developmental stages may be sufficient to produce an adverse developmental effect, but the RfC for a single exposure hasn't been determined yet by EPA.[13]

Despite acknowledging that the RfC was developed to protect against chronic (i.e., lifetime) exposure to TCE, the memo has been interpreted to require action based on sampling results in excess of the RfC collected over 24 hours or less.

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[9] Office of Environmental Health Hazard Assessment (OEHHA). Public health goals for chemicals in drinking water – trichloroethylene. OEHHA. Sacramento, CA (2009).

[10] TCE developmental cardiac toxicity assessment update (undated). (Document ID EPA-HQ-OPPT-2012-0723-0045 available at http://www.regulations.gov)

[11] Memo from Enrique Manzanilla, Director Superfund Division, EPA Region 9. EPA Region 9 Response Action Levels and Recommendations to Address Near-Term Inhalation Exposures to TCE in Air from Subsurface Vapor Intrusion (July 9, 2014).

[12] Memo from Joyce C. Kelly, Office of Environmental Assessment, EPA Region 10. OEA Recommendations Regarding Trichloroethylene Toxicity in Human Health Risk Assessments (December 13, 2012).

[13] Richardson memo, at 2.

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The application of the low levels dictated by the RfC to acute (short-term) exposures to TCE outlined in the 2014 memo has dramatically expanded the number of buildings requiring investigation at remediation sites and the number of indoor air samples to be collected and analyzed in these buildings. Concerns among federal, state, and local authorities regarding the potential for future vapor intrusion exposures have resulted in calls for cleanup of groundwater contamination beyond that otherwise required by CERCLA or state requirements. Public outreach about potential TCE exposure by EPA and state authorities has generated unnecessary confusion and concern.

Operationalization of the Guidance Memos has had a Significant Economic Impact

Enforcement of the very low levels indicated by the RfC has resulted in unnecessary evacuations of residences, dramatic expansion of the number of buildings requiring investigation and the number of samples to be collected and analyzed, and calls for remediation of groundwater not used as drinking water. According to an April 2014 memo from EPA Region 9, the Agency's decision to expand the area to be monitored at four remediation sites in the South Bay region in California based on TCE vapor-intrusion concerns resulted in an almost four-fold increase in the number of residences (from 96 to 358) and commercial buildings (from 59 to 270) requiring investigation. [14] Earlier this month, EPA's Region 5 announced the need to conduct indoor air testing in at least 75 residences at the PMC Superfund site in Michigan as a result of TCE in soil gas samples. [15] Significantly, Region 5 had previously touted the PMC site as an example of successful redevelopment of contaminated land.[16]

The costs of the implementation of the accelerated action policy outlined in the memos from Region 9 and 10[17] and supported by the 2014 Richardson memo are difficult to estimate. In the rulemaking to add subsurface intrusion to the ranking system for NPL sites issued earlier this year, EPA estimates that the cost of an investigation would increase by between $35,000 and $69,000 with the addition of a vapor intrusion assessment.[18] Based on these estimates, the

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[14] Briefing Memo from Melanie Morash, Remedial Project Manager, to Enrique Manzanilla, Director, Superfund Division (April 29, 2014).

[15] EPA to test for toxic vapors in some homes. Petoskey News (May 9, 2017) Available at http://www.petoskeynews.com/featured-pnr/epa-to-test-for-toxic-vapors-in-some-homes/article_c66e31bf-8e55-5352-9686-a2d5531ce8ba.html.

[16] US EPA. Success Story – PMC Groundwater Superfund Site (October 2010). Available at https://semspub.epa.gov/work/05/928680.pdf.

[17] EPA Region 7 issued a similar memo relating to action levels for TCE in November 2016.

[18] US EPA. Addition of a subsurface intrusion (SsI) component to the Hazard Ranking System (HRS) – Regulatory Impact Analysis (December 2016). Available at https://www.regulations.gov/document?D=EPA-HQ-SFUND-2010-1086-0108.

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cost of the recently announced sampling at the PMC site in Michigan would total between $330,000 and $645,000. Extrapolating this estimate for a single site to the more than 1000 sites that EPA suggested could be impacted by this year's NPL rulemaking generates an estimated cost of $330 million or more.[19]

In light of the significant impact that EPA's policy guidance related to addressing TCE exposure from subsurface vapor intrusion has had, and will continue to have, we urge EPA to consider the OSWER and regional guidance memos as part of its review of the impact of Agency regulations. Please feel free to contact me at srisotto@americanchemistry.com, or at 202-249-6727, if you have questions about the above information.

Sincerely,

Steve Risotto

Stephen P. Risotto
Senior Director

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[19] The EPA estimate of 1073 sites is based on those locations the Agency considered eligible for federal NPL listing and does not include the large number of sites that are being addressed at the state and local level. While the NPL evaluation was not explicitly limited to TCE contamination, TCE and related substances currently are a primary factor in vapor intrusion investigations. ACC estimates that the potential number of sites affected by EPA's TCE policy far exceeds the estimate in the NPL rulemaking.

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May 15, 2017

Docket EPA-HQ-OA-2017-0190
Office of Regulatory Policy and Management
Office of Policy
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Mail Code 1803A
Washington, DC 20460

Re: Evaluation of Existing Regulations, Docket EPA-HQ-OA-2017-0190
(82 *Fed. Reg.* 17793, April 13, 2017)

Dear Sirs:

The Polychlorinated Biphenyls (PCB) Panel of the American Chemistry Council (ACC)[1] requests that the Agency review several aspects of its regulations and guidance regarding the handling, use, and disposal of PCBs. In particular, the PCB Panel requests that EPA --

- Eliminate the regulatory confusion surrounding the disposal options for PCB remediation wastes with as-found concentrations[2] of less than 50 parts per million (<50 ppm) PCB by clarifying that all such wastes can be managed in disposal facilities other than those regulated under the Toxic Substances Control Act (TSCA), including in municipal solid waste landfills,
- Expressly authorize the management of in-use/in-commerce PCBs based on actual concentrations, not on the original source of the PCBs or on the date on which PCBs were added to the material, and

[1] ACC represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing. The PCB Panel represents companies and trade associations with an interest in the assessment of risks presented by exposure to these compounds.

[2] The preamble to 40 C.F.R. § 761.61 states: "Any person cleaning up and disposing of PCBs managed under this section shall do so *based on the concentration at which the PCBs were found*." (Emphasis added.) The significance of the "as found" concentration is made clear by 40 CFR § 761.50(b)(3).

- Make the regulatory interpretations of the terms "use" and "disposal" consistent with their plain meanings.
- Modify the PCB analytical rules to authorize use of the automated soxhlet EPA-approved extraction method available for individual and composite samples (Method 3541).

Eliminate the Regulatory Confusion Surrounding Disposal of PCB Remediation Wastes Containing <50 ppm

The ACC PCB Panel supports and incorporates by reference the comments of the Utility Solid Waste Activities Group (USWAG) on this docket to the extent those comments relate to the disposal of as-found <50 ppm PCB remediation waste, and the corresponding need for regulatory clarity regarding the disposal of these wastes.

EPA has long recognized that remediation waste containing <50 ppm PCBs "has little inherent potential to pose an unreasonable risk to health or the environment" and consequently has historically not required that wastes containing <50 ppm PCBs be managed in disposal facilities regulated under TSCA.[3]

Consistent with the view that wastes containing < 50 ppm PCBs do not require disposal in a TSCA disposal unit, one of the major objectives of EPA's 1998 amendments to the PCB regulations was to establish a common-sense regulatory regime for the disposal of remediation wastes containing low-level PCBs. In a report prepared by EPA's Office of Pollution Prevention and Toxics used to support the proposed 1998 PCB amendments, EPA explained that:

> The proposed regulation makes a number of changes in disposal requirements for remediation wastes: wastes would be regulated on "as found" basis, instead of according to the original concentration of materials . . . wastes may be disposed in the minimum technique necessary to protect human health and the environment. Since much PCB remediation wastes are found in low concentrations (including large quantities of wastes found in concentrations of less than 50 ppm), substantial quantities will be disposed in municipal solid waste landfills.[4]

EPA highlighted this important change in the final rule as one of the most significant cost-saving elements of the entire package of 1998 amendments, explaining that "[s]ignificant

[3] 68 *Fed. Reg.* 4934, 4937 (January 31, 2003).

[4] US EPA. Final Report: Costs of Compliance with the Proposed Amendments to the PCB Regulation. at 4-104 (December 6, 1994).

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cost savings result from changes to the disposal requirements for PCB remediation waste. EPA will now allow wider latitude in selecting disposal methods for PCB remediation wastes, resulting in a lowering of disposal costs, and producing a cost savings estimated at approximately $80.5 million/year."[5]

The Agency reiterated this point when describing the new disposal option for wastes containing <50 ppm PCBs when it noted that "[t]oday's rule expands the options for off-site disposal; for example, PCB remediation waste containing <50 ppm PCBs may be sent off-site for disposal in State-approved land disposal facilities for the management of municipal solid waste landfills...."[6] In establishing this common-sense approach, EPA explained that "[i]n finalizing several variances from the anti-dilution rule, EPA is simply recognizing that where PCBs have already been released, the critical disposal issue is to mitigate the damage from the release."[7]

Notwithstanding the plain language of EPA's regulations and the supporting rulemaking record, considerable confusion has arisen over the years about whether the regulations allow all (versus only a subset of) as-found <50 ppm PCB remediation wastes to be disposed of in a municipal solid waste landfill. For example, while EPA's PCB Question and Answer Manual, originally issued in September 2001 and updated from time to time ("Q&A Manual"), states that all PCB remediation wastes may be managed based on the actual concentration of PCBs in the waste (*i.e.*, the "as-found" concentration),[8] other portions of the Q&A Manual suggest that this option is limited to only a certain subset of remediation wastes found with concentrations of <50 ppm PCBs.[9] The Q&A Manual has been interpreted as meaning that remediation wastes found at concentrations <50 ppm PCBs can be disposed of in non-TSCA units only when the wastes are generated under the so-called "self-implementing cleanup option" (under 40 C.F.R. § 761.61(a)), while *identical* wastes generated under the alternative performance-based cleanup option (under 40 C.F.R. § 761.61(b)) or the PCB Spill Cleanup Policy must be managed in TSCA landfills. Not only does this guidance contradict the plain language of the regulations, it also lacks support from an environmental risk perspective.

> Recommended Action: EPA should clarify its PCB disposal regulations to expressly provide that *all* PCB remediation wastes with as-found concentrations <50 ppm PCB may be managed in non-TSCA disposal facilities, including municipal solid waste landfills,

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5 63 *Fed. Reg.* 35384, 35433 (June 29, 1998).

6 *Id* at 35409

7 *Id.* at 35388.

8 *See, e.g.*, EPA, PCB Question & Answer Manual ("Q&A Manual"), 75 (June 2014) ("As-found concentration," Q. 1, Q. 6).

9 *See, e.g.*, *id* at 48 (June 2014) ("§ 761.50(b)(3)(ii) Post-'78 Waste" Q.1, suggesting PCB remediation waste managed under the PCB Spill Cleanup Policy must be disposed of based on the concentration of the source of the spill and not on the as-found concentration of the PCB remediation waste).

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regardless of whether those wastes are managed under any part of 40 C.F.R. §761.61 or under the PCB Spill Cleanup Policy. The requested clarification will provide regulatory certainty and eliminate unnecessary costs, therefore promoting efficient and environmentally protective cleanups.[10]

Regulate the Use and Distribution in Commerce of PCB-Containing Products Based on their Actual Concentrations

As discussed above, the federal PCB regulations provide that PCB remediation wastes be managed based on the concentration at which PCBs are found in the waste (as opposed to the concentration of the PCBs in the original source material). This approach reasonably reflects the fact that any risks that might be presented by PCBs depend upon the concentration of the PCBs at the time of exposure (thus, in the context of PCB remediation waste, disposal). EPA should expand this common sense, risk-based principle to regulation of the use and distribution in-commerce of PCB-containing materials.

Currently, the PCB regulations authorizing use and distribution in commerce of PCB-containing materials do not reflect such a risk-based approach, at least not in a consistent manner. Instead, these authorizations and corresponding regulatory requirements vary in some instances depending on the history of the product. For example, while the regulations deem certain materials (*i.e.*, those that contain <50 ppm PCB, provided they were "legally manufactured, distributed in commerce or used before October 1, 1984 …" and have not been contaminated with PCBs as a result of spills, leaks or other improper disposal) "excluded PCB products" which are not subject to the federal PCB use and disposal requirements, other materials with similar PCB concentrations (*i.e.*, <50 ppm PCB) must be managed as TSCA waste if they are contaminated by "PCB bulk product waste." As a practical matter, this could mean that two items with identical concentrations of PCBs, may be subject to different requirements simply because of the history of the equipment.[11]

Recommended Action: EPA should therefore revise the federal PCB regulations to make clear that the regulations impose no obligation to establish and/or document the history of PCBs in a given material and/or piece of equipment in order to determine whether they fall within the scope of a use or distribution in-commerce authorization. In

[10] *See, e.g.*, EPA, letter from John Melone, EPA National Program Chemicals Division, to M. Kelly McTigue (August 13, 1999).

[11] Note that while EPA's reinterpretation of the definition of "PCB bulk product waste" (October 24, 2012) provides some practical relief, it does not go far enough. For example, it applies only in the disposal context and not to in-use or in-commerce materials. Even in the disposal context, it may only be used where PCB bulk product waste and associated contaminated material are attached at the time of designation for disposal

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> addition, EPA should amend the definition of "Excluded PCB Products" to eliminate the requirement that the PCBs came from a source that was authorized in 1984.

Make the Regulatory Interpretations of "Use" and "Disposal" Consistent with Their Plain Meanings

TSCA explicitly prohibits most uses of PCBs except to the extent authorized by EPA. Pursuant to that authority, EPA has promulgated extensive PCB use authorizations in 40 CFR § 761.30. These use authorizations, for the most part, encompass what would normally be considered actual uses of PCBs (*e.g.*, transformers using PCB-containing dielectric fluid). However, EPA has previously attempted to equate the use of property contaminated by spills of PCBs with the use of PCBs by suggesting that the "[u]se of the contaminated property is prohibited unless it has been decontaminated pursuant to 40 CFR §761.30(u)." [12] Use of a building that is contaminated with PCBs is no more a use of PCBs than using a wet floor is use of the water.

Given the ubiquity of PCBs, the interpretation suggested by EPA in 2005 would unnecessarily transform thousands, if not millions, of property owners and their tenants into "unauthorized users" of PCBs. Certainly, EPA can conclude that exposure to PCBs above a certain level poses an unreasonable risk to human health or the environment that must be addressed under the appropriate program, but that is very different from asserting that the mere presence of PCBs in a structure constitutes the unauthorized use of PCBs by those who use the structure.

Similarly, the Agency's inconsistent interpretation of what constitutes "disposal" has created confusion in the regulated community and impeded redevelopment of brownfields properties. Section 6(e) of TSCA directs EPA to "promulgate rules to prescribe methods for disposal of polychlorinated biphenyls." "Disposal" is not defined in the statute, and under rules of statutory construction should be given its plain meaning (*i.e.*, "to get rid of something"). That meaning is reflected in the definition found at 40 CFR § 761.3:

> Disposal means intentionally or accidentally to discard, throw away, or otherwise complete or terminate the useful life of PCBs and PCB items. Disposal includes spills, leaks, and other uncontrolled discharges of PCBs as well as actions relating to containing, transporting, destroying, degrading, decontaminating, or confining PCBs.

Under this definition, only activities that "complete or terminate the useful life of PCBs" qualify as "disposal". Problems arise, however, when EPA classifies or describes other types of

[12] 70 *Fed. Reg.* 37837 (June 30, 2005).

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activities or events (*e.g.*, cleanup or remedial activities, or migration of PCBs through soil) as "disposal." For example, EPA regional offices have asserted that the post-1978 migration of PCBs that were spilled or otherwise released into the environment before 1978 constitutes "illegal disposal" within the meaning of the rules. The EPA regions have asserted that position even though the regulation explicitly states that sites containing such wastes are presumed not to present an unreasonable risk of injury,[13] and that the Regional Administrator can require the owner or operator to dispose of such waste only if he/she first finds that the contamination presents an unreasonable risk.[14]

The interpretation by the regional offices is inconsistent with the rule, the preamble, and the definition of disposal; subjects every owner of property that has pre-1978 PCB contamination to potential enforcement actions for "illegal disposal;" and, given the ubiquity of PCBs, impedes redevelopment of brownfields properties. Further, the interpretation is wholly unnecessary, given EPA's extensive risk-based cleanup authority under CERCLA and numerous state cleanup programs.

> Recommended Action: EPA should clarify that the use of a property contaminated with PCBs below a level that presents an unreasonable risk does not constitute unauthorized use of PCBs under 40 CFR § 761.30; EPA also should ensure consistency in the interpretation of the term "disposal" such that the natural migration of PCBs released into the environment before 1978 does not constitute "illegal disposal" within the meaning of the regulations.

Modify the Rules for Analysis of PCB Remediation Wastes

EPA's PCB disposal regulations specify particular analytical methods that must be employed when extracting samples of PCB wastes for purposes of determining appropriate disposal options and cleanup verification. In particular, the regulations specify the use of a traditional soxhlet extraction procedure (Method 3540) rather than the equally effective, significantly faster and much more cost-effective automated soxhlet extraction method (Method 3541). EPA's own labs acknowledge the advantages of Method 3541, and Method 3541 is routinely used by EPA in other contexts including Superfund cleanups. There is no scientific, environmental, or risk-based rationale for not allowing the regulated community to use the automated soxhlet extraction method to analyze PCB content under the federal PCB program.

> Recommended Action: EPA should modify the PCB analytical rules throughout 40 C.F.R. Part 761 (including 40 C.F.R. §§ 761.61(a)(5)(B)(iv), 761.253, 761.272, 761.292, 761.358

[13] 40 CFR § 761.50(b)(3)(i)(A).

[14] 63 *Fed. Reg.* 35384, 35401 (June 29, 1998).

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and 761.395) to expressly authorize the use of the most recent EPA-approved extraction method available for the chemical extraction of PCBs from individual and composite samples (currently Method 3541).

Please feel free to contact me at srisotto@americanchemistry.com, or at 202-249-6727, if you have questions about the above information.

Sincerely,

Steve Risotto

Stephen P. Risotto
Senior Director

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American Chemistry Council | Diisocyanates Panel

Submitted Via Email

May 15, 2017

Sarah Rees
Director
Office of Regulatory Policy and Management
Office of Policy
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460
www.regulations.gov, Laws-Regs@epa.gov

Re: Evaluation of Existing Regulations, Docket EPA-HQ-OA-2017-0190

Dear Ms. Rees,

The American Chemistry Council Diisocyanates Panel[1] appreciates the opportunity to provide comments to the U.S. Environmental Protection Agency (EPA) in response to the Agency's request for comments on regulations that may be appropriate for repeal, replacement, or modification in accordance with Executive Order 13777 "Enforcing the Regulatory Reform Agenda." The Panel would like to highlight the following issues for substances methylene diphenyl diisocyanate (MDI) and toluene diisocyanate (TDI) that impose unnecessary regulatory burdens on the diisocyanates industry and should be considered for review by the Agency.

1. EPA Should Remove TDI from the Drinking Water Candidate Contaminants List (CCL) and the Endocrine Disruptor Screening Program (EDSP) List

TDI was identified for inclusion on the Final EDSP List 2 solely because of its inclusion on the Third Candidate Contaminants List (CCL3), and with no regard for the physical/chemical and reactive properties which preclude occurrence of the substance in drinking water sources. As is the case for most isocyanate substances, TDI hydrolyzes rapidly upon contact with water making TDI's occurrence in water scientifically implausible. Moreover, TDI's high reactivity with water would render EDSP test results irrelevant. The inclusion of TDI on the Agency's EDSP List 2 creates the potential for costly, unnecessary and wasteful regulatory testing.

[1] The Diisocyanates Panel represents the U.S. companies that manufacture or import methylene diphenyl diisocyanate (MDI) and/or toluene diisocyanate (TDI). The Panel is comprised of BASF Corporation, Covestro LLC, Dow, Huntsman Corporation and Wanhua Chemical (America) Co., Ltd."

The Panel urges EPA to promptly remove TDI from EDSP List 2 and the CCL3. For additional information, *see* Attachment A: Panel Comments Submitted to EPA on Draft Drinking Water Contaminant Candidate List 4, April 6, 2015.

2. EPA Should Update its New Chemicals Guidance for Isocyanates-Based Substances

The diisocyanates industry has seen an increase in Significant New Use Rules (SNURs) being issued for new isocyanate-based substances applying for a Premanufacture Notice (PMN) under EPA's New Chemicals Program. EPA has issued a series of at least 35 proposed or final SNURs for PMN chemicals on isocyanate-based polymers and related chemicals with vaguely supported explanations. For example, with regard to one SNUR, EPA provided the following as its rationale: "Based on SAR [structure-activity relationship] analysis of test data on analogous diisocyanates, EPA identified concerns for respiratory sensitization." [2] It is difficult for any member of the public to submit informed and meaningful comment when so little information is provided in support of the SNURs. Indeed, even the PMN submitters, who have access to confidential business information (CBI) about their PMN substances, likely also lack a clear understanding of EPA's reasoning. EPA should be more transparent about why it is proposing such SNURs consistent with required protection of CBI.

ACC has previously commented [3] on the lack of scientific basis for SNURs on isocyanate-based chemistries. Clearly, this is an area of chemistry where innovation is vigorous but where EPA's lack of clarity could stifle this innovation. To guide companies as they continue to develop new chemical substances, EPA should provide a detailed explanation of the basis for its concerns about diisocyanates. EPA itself has acknowledged that its current (2010) explanation of those concerns (not revised since 1997) is outdated.[4] EPA should revise and update that explanation since it is continuing to rely on a 1997 summary. In addition, EPA should provide each PMN submitter with EPA's internal analysis (redacting any CBI) of any risk that may be presented by the former PMN chemical.

More recently, the Agency has indicated in a proposed rulemaking that for new isocyanate-based substances submitted as PMNs, the Agency expects to issue consent orders imposing

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[2] See e.g. 81 Fed. Reg. 74755 (October 27, 2016) (PMNs P-15-378, P-15-559); 81 Fed. Reg. 21830 (April 13, 2016) (PMNs P-15-27, P-15-247, P-15-221; 80 Fed. Reg.59593 (Oct. 2, 2015) (PMNs P-15-221, P-15-247, P-15-278); 80 Fed. Reg. 845 (Jan. 7, 2015) (PMNs P-13-365, P-13-392, P-13-393, P-13-471, P-13-563, P-13-617, P-13-618, P-13-619, P-14-60, P-14-478); 79 Fed. Reg. 63821 (Oct. 27, 2014) (PMN P-14-357); 78 Fed. Reg. 48051 (Aug. 7, 2013) (PMNs P-13-232, P-13-338); 78 Fed. Reg. 27048 (May 9, 2013) (PMN P-11-60); 78 Fed. Reg.12684 (Feb. 25, 2013) (PMNs P-11-115, P-12-73); 77 Fed. Reg. 61118 (Oct. 5, 2012) (PMNs P-08-611, P-11-485, P-11-486, P-11-488, P-11-489, P-11-548, P-11-635, P-11-636); 77 Fed. Reg. 58666 (Sept. 21, 2012) (PMN P-04- 834); 77 Fed. Reg. 20296 (Apr. 4, 2012) (PMN P-11-662).

[3] Comments of the American Chemistry Council and Its Diisocyanates and Aliphatic Diisocyanates Panels on Proposed Significant New Use Rules for Certain Isocyanate-Based Substances, Docket Nos. EPA-HQ-OPPT-2014-0760, EPA-HQ-OPPT-2014-0277, EPA-HQ-OPPT-2014-0166, April 23, 2015, PMNs P-13-365, P-13-392, P-13-393, P-13-471, P-13-563, P-13-617, P-13-618, P-13-619, and P-14-60; Docket No. EPA-OPPT-2015-0388, May 13, 2016, PMNs P-15-221, P-15-247, P-15-278.

[4] EPA, TSCA New Chemicals Program (NCP) Chemical Categories (Aug. 2010), https://www.epa.gov/sites/production/files/2014-10/documents/ncp_chemical_categories_august_2010_version_0.pdf

0.1% limits on total residual isocyanates if used in a process that generates a vapor or particulate.[5] The Panel has submitted comments asking EPA to provide their scientific rationale for the 0.1% limit as it is unclear why the Agency is taking this approach. If EPA is applying different criteria when reviewing isocyanate-based PMN substances, the diisocyanates category guidance document should be updated to reflect this shift in Agency policy with these chemistries. EPA should also provide adequate justification for any modifications. EPA needs to explain and be more transparent regarding the basis for its decision making and ensure its rationale is scientifically valid. Without this updated guidance, the regulated community lacks clear direction regarding the parameters EPA considers when issuing SNURs or consent orders on isocyanate-based PMN substances.

Each of the proposed PMN SNURs incorporates recordkeeping requirements as specified in certain provisions of 40 C.F.R. § 721.125.These requirements for other SNURs have proven to be quite burdensome to downstream chemical users, adversely impacting the marketplace, and of little utility to EPA. SNUR recordkeeping requirements can stifle technology and innovation of improved materials. Downstream processors (especially small businesses) frequently opt to use a substance that will not require all of the onerous requirements associated with using the chemical that has a SNUR, which could be a less hazardous material than the substance without a SNUR. Therefore, the recordkeeping requirements may discourage innovative technologies and "greener" chemicals from entering the marketplace. Consequently, EPA should ensure that recordkeeping requirements are commensurate with their benefits.

For additional information, *see* Attachment B: Comments of the American Chemistry Council Diisocyanates Panel on Proposed Significant New Use Rules for Certain Isocyanate-Based Substances, March 6, 2017.

3. EPA Should Approve the Panel Petition to Delist MDI from the List of Hazardous Air Pollutants (HAPs) Under the Clean Air Act

The Panel urges EPA to grant its petition to remove MDI from the list of hazardous air pollutants (HAPs) under Section 112(b) of the Clean Air Act (CAA). The petition was submitted on December 23, 2002. Over twelve years ago, EPA announced that the petition was complete - the first phase of review - as of March 7, 2005. See 70 FR 30407. EPA has not notified the Panel of any action on the second phase of review, the substantive technical review.

The Panel submitted the petition and supplemental materials that support EPA's delisting of MDI based upon its assessment of the human health impacts associated with people living in the vicinity of facilities emitting MDI, and the environmental impacts associated with emissions of MDI to the ambient air and deposited onto soil or water. As the original petition and the supplemental materials demonstrated, MDI has a very low vapor pressure, emissions to the air, therefore, are minimal. Because of its reactivity, it is rapidly hydrolyzed by water, and so has a very short lifetime in the environment.

Beyond the fence line of MDI facilities, potential exposures to MDI are expected to be extremely

[5] 81 Fed. Reg. 74757 (October 27, 2016); Significant New Use Rule on Certain Chemical Substances; Docket EPA–HQ–OPPT–2015–0810.

low. The data demonstrate that MDI "may not be reasonably anticipated to cause any adverse effects to human health or the environment," 42 U.S.C. Section 7612(b)(3)(C), and MDI therefore should be removed from the HAPs list.

EPA is required under Section 112(b)(3)(A) of the CAA to either grant or deny a petition to delist a specific HAP within 18 months of the receipt of a complete petition. In this matter, the statutory period passed in September 2007, almost 10 years ago. Therefore, the Panel seeks an approval of the petition expeditiously.

For additional information, *see* Attachment C: Petition of the American Chemistry Council Diisocyanates Panel to Remove 4,4'-Methylene Diphenyl Diisocyanate from the List of Hazardous Air Pollutants Under Section 112(B) of the Clean Air Act.

Also, please note the following EPA docket houses all the MDI petition submissions:
EPA Docket ID: EPA-HQ-OAR-20050085
http://www.regulations.gov/#!docketDetail;D=EPA-HQ-OAR-2005-0085

4. EPA Should Approve the Panel Petitions to Delist MDI and TDI From Regulation as Volatile Organic Compounds (VOCs) Under the Clean Air Act

The Panel urges EPA to grant its petitions to exempt MDI and TDI from regulation as volatile organic compounds (VOCs) under the CAA. On January 2, 1998, the Panel submitted a petition to exempt TDI from regulation as a VOC. The Panel submitted a similar petition to exempt MDI from the definition of VOC on August 19, 1998. The petitions provide data which demonstrate that both compounds are ozone inhibitors under most environmental conditions. EPA has taken no official action on either petition despite the fact that TDI and MDI clearly meet all criteria for VOC exemption. Exempting these compounds would further the purposes of the CAA by focusing regulatory attention on substances that actually contribute to ozone formation. The Panel therefore urges EPA to move forward expeditiously to exclude TDI and MDI from the regulatory definition of a VOC at 40 C.F.R. § 51.100(s).

EPA has recognized that there are important policy reasons to exempt ozone-inhibiting compounds from the definition of a VOC. In particular, doing so ensures that states are not wasting their efforts on reducing emissions that do not appreciably affect ambient ozone levels. *See* 57 Fed. Reg. 3941, 3945 (Feb. 3, 1992). Exempting such compounds helps ensure that public and private resources aimed at improving air quality are focused on pollutants that actually contribute to ozone formation. Instead, because EPA has not exempted TDI and MDI from regulation as VOCs, states continue to receive credit for reducing TDI and MDI emissions even though such reductions do not help states attain the national ambient air quality standards. This is contrary to the very purpose of the CAA.

For additional information, *see* Attachment D: Petition to Exempt Toluene Diisocyanate from Regulation as a Volatile Organic Compound, January 21, 1998; and Attachment E: Petition to Exempt Methylene Diphenyl Diisocyanate from Regulation as a Volatile Organic Compound, August 18, 1998.

The Panel welcomes this effort to identify and alleviate examples of regulatory burdens that have accumulated for industry over the years. We look forward to working with the Agency as the regulatory reform effort continues. If you have any questions or require additional information, please contact me at sahar_osman-sypher@americanchemistry.com or 202-249-6721.

Sincerely,

Sahar Osman-Sypher
Director, Diisocyanates Panel

Attachments

List of Attachments

Attachment A: Panel Comments Submitted to EPA on Draft Drinking Water Contaminant Candidate List 4, April 6, 2015

Attachment B: Comments of the American Chemistry Council and Its Diisocyanates and Aliphatic Diisocyanates Panels on Proposed Significant New Use Rules for Certain Isocyanate-Based Substances, March 6, 2017

Attachment C: Petition of the American Chemistry Council Diisocyanates Panel to Remove 4,4'-Methylene Diphenyl Diisocyanate from the List of Hazardous Air Pollutants Under Section 112(B) of the Clean Air Act

Attachment D: Petition to Exempt Toluene Diisocyanate from Regulation as a Volatile Organic Compound, January 21, 1998

Attachment E: Petition to Exempt Methylene Diphenyl Diisocyanate from Regulation as a Volatile Organic Compound, August 18, 1998

May 15, 2017

Submitted Via Email
www.regulations.gov

EPA Regulatory Reform Task Force
c/o Sarah Rees, Director
Office of Regulatory Policy and Management
Office of Policy
200 Pennsylvania Avenue NW
Mail Code 1803A,
Washington, DC 20460

RE: Enforcing the Regulatory Reform Agenda; Executive Order 13777; Evaluation of Existing Regulations; Docket EPA-HQ-OA-2017-0190

RE: Recommendation to Alleviate Unnecessary Regulatory Burdens as it Relates to the TRI Delisting Petition for Ethylene Glycol Monobutyl Ether (EGBE)

Dear Dr. Rees:

I am writing on behalf of the Glycol Ethers Panel of the American Chemistry Council (ACC).[1, 2] On February 24, 2017, President Trump signed Executive Order 13777, „„Enforcing the Regulatory Reform Agenda,"" which established a federal policy „„to alleviate unnecessary regulatory burdens"" on the American people. Section 3(a) of the EO directs federal agencies to establish a Regulatory Reform Task Force (Task Force). One of the duties of the Task Force is to evaluate existing regulations and „„make recommendations to the agency head regarding their repeal, replacement, or modification."" The Federal Register notice for this policy was published on April 13, 2017 (Federal Register, Vol. 82, No. 70, page 17793: https://www.gpo.gov/fdsys/pkg/FR-2017-04-13/pdf/2017-07500.pdf).

The ACC Glycol Ethers Panel respectively requests that the US Environmental Protection Agency (EPA) reevaluate the TRI delisting petition on ethylene glycol monobutyl ether (EGBE) the Panel submitted to EPA, and, pursuant to EO 13777, promptly delist EGBE from the Toxics Release Inventory.

The attached original petition, submitted to the EPA Office of Information Analysis and Access on January 23, 2015, requested that EPA remove ethylene glycol monobutyl ether (EGBE; CAS #111-76-2) from the category "Certain Glycol Ethers" under the list of chemicals requiring reporting under

[1] The American Chemistry Council (ACC) is the major trade association in the US representing leading companies engaged in the business of chemistry. ACC is committed to improved environmental, health and safety performance through Responsible Care®, health and environmental research, and product testing.
[2] Members of the ACC Glycol Ethers Panel are The Dow Chemical Company and Eastman Chemical Company.

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the Toxics Release Inventory (TRI) pursuant to Sections 313(d) & (e) of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA).

As the attached petition demonstrates, available scientific data indicate that EGBE poses low potential hazard to human health and the environment. The petition was denied by EPA on October 8, 2015 (Federal Register Vol. 80, No. 195 Page 60818 http://www.gpo.gov/fdsys/pkg/FR-2015-10-08/pdf/2015-25674.pdf).

There now is an even stronger basis for making essentially the same statutory findings under EPCRA and removing EGBE from the TRI reporting list. As demonstrated in this petition, EGBE releases and exposures are now lower than those that formed the basis for EPA"s Hazardous Air Pollutants (HAPs) determinations.[3]

Delisting under EPCRA would remove a significant disincentive to the use of EGBE, a solvent that has proven to be highly effective in a variety of important water-based coating formulations with demonstrable volatile organic compound (VOC)-reduction benefits. For the reasons set forth in full in this petition, the EPCRA delisting criteria are fully satisfied and EPA should remove EGBE from the TRI reporting list.

Because EGBE poses low potential harm to the environment or to humans from low TRI emissions, and because reporting of such substances is both a regulatory and cost burden with no benefit to public health, this substance should **not** be listed for regulatory reporting purposes under TRI. The Panel respectfully requests that EPA reverse its October 8, 2015 decision and accept the original petition request pursuant to EO 13777. The attached original cover letter and delisting petition provide additional information. A summary of the rationale for delisting EGBE can be found on pages 90-100 of the January 2015 delisting petition.

Thank you for the opportunity to comment. If you have any questions or require additional information regarding the attached comments, please contact me (Jon_busch@americanchemistry.com; 202 249-6725).

Sincerely,

Jonathon T. Busch

Jonathon T. Busch
Manager, Glycol Ethers Panel
Director, Chemical Products & Technology Division

[3] When EPA proposed to remove EGBE from the Clean Air Act"s list of Hazardous Air Pollutants (HAPs) in November 2003, it specifically determined, based on exposure assessments utilizing 1993 TRI data, that there is "reasonable assurance" that any potential adverse human health and environmental effects "will not occur" from EGBE facility releases (68 Fed. Reg. 65648, 65660 (Nov. 21, 2003). In the final rule, the Agency concluded "with confidence" that releases of EGBE "may not reasonably be anticipated to cause any adverse effects to human health" or "adverse environmental effects" (69 Fed. Reg. 69320, 69322 (Nov. 29, 2004).

January 23, 2015

Mr. Arnold E. Layne
Director
Office of Information Analysis and Access (Mail Code 2841T)
Office of Environmental Information
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

CC: Daniel R. Bushman, Ph.D.
TRI Petitions Coordinator
Office of Information Analysis and Access (Mail Code 2842T)
Office of Environmental Information
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Re: Transmittal of Petition to Delist EGBE from Certain Glycol Ethers Category on TRI

Dear Mr. Layne and Dr. Bushman:

On behalf of its Ethylene Glycol Ethers Panel, the American Chemistry Council (ACC) is pleased to submit the attached petition to the U.S. Environmental Protection Agency (EPA) to remove ethylene glycol monobutyl ether (EGBE) from the category Certain Glycol Ethers under the list of chemicals requiring reporting under the Toxics Release Inventory (TRI) pursuant to Sections 313(d) & (e) of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA).

As the attached petition demonstrates, available scientific data indicate that EGBE poses low potential hazards to human health and the environment, making an assessment of exposure appropriate under EPA's policy for making TRI listing decisions under EPCRA. When EPA proposed to remove EGBE from the Clean Air Act's list of Hazardous Air Pollutants (HAPs) in November 2003, it specifically determined, based on exposure assessments utilizing 1993 TRI data, that there is "reasonable assurance" that any potential adverse human health and environmental effects "will not occur" from EGBE facility releases (68 Fed. Reg. 65648, 65660 (Nov. 21, 2003). In the final rule, the Agency concluded "with confidence" that releases of EGBE "may not reasonably be anticipated to cause any adverse effects to human health" or "adverse environmental effects" (69 Fed. Reg. 69320, 69322 (Nov. 29, 2004).

There now is an even stronger basis for making essentially the same statutory findings under EPCRA and removing EGBE from the TRI reporting list. As shown in this petition, EGBE releases and exposures are now lower than those that formed the basis for EPA's HAPs determinations. Delisting under EPCRA would remove a significant disincentive to the use of EGBE, a solvent that has proven to be highly effective in a variety of important water-based coating formulations with demonstrable volatile organic compound (VOC)-reduction benefits. For the reasons set forth in full in this petition, the EPCRA delisting criteria are satisfied and EPA should remove EGBE from the TRI reporting list.

As you know, EPCRA § 313(e)(1) provides that EPA will respond to a petition to add or delete a chemical from the TRI list within 180 days of receipt. In the meantime, ACC would welcome the opportunity to meet with you and the staff who will be responsible for evaluating the petition, in order to discuss methods and findings and to answer any questions. To arrange such a meeting, please contact me at your convenience at (202 249-6725; jon_busch@americanchemistry.com.

Sincerely,

Jonathon T. Busch

Jonathon T. Busch
Manager, Ethylene Glycol Ethers Panel
Director, Chemical Products & Technology Division

Before the
U.S. Environmental Protection Agency

PETITION OF THE AMERICAN CHEMISTRY COUNCIL'S ETHYLENE GLYCOL ETHERS PANEL TO REMOVE ETHYLENE GLYCOL MONOBUTYL ETHER FROM THE TOXICS RELEASE INVENTORY UNDER SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986

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Petition

Pursuant to Section 313(d) & (e) of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), the Ethylene Glycol Ethers Panel of the American Chemistry Council hereby petitions the United States Environmental Protection Agency (EPA) to remove ethylene glycol monobutyl ether (EGBE) from the list of chemicals subject to the Toxics Release Inventory (TRI) reporting requirements of the EPCRA Section 313.

As demonstrated below, available scientific data indicate that EGBE poses low potential hazards to human health and the environment, making an assessment of exposure appropriate under EPA's policy for making TRI listing decisions under EPCRA. Conservative estimates of exposures resulting from plant emissions of EGBE are well below Integrated Risk Information System reference values for human inhalation and ingestion health risks and are also far below conservative benchmarks for acute human health effects and ecotoxicity. When the Administrator removed EGBE from the Clean Air Act's list of Hazardous Air Pollutants in November 2004, he specifically determined, based on exposure assessments utilizing 1993 TRI data, that there is "reasonable assurance" that any potential adverse human health and environmental effects "will not occur" from EGBE facility releases (68 FR 65660). He concluded "with confidence" that releases of EGBE "may not reasonably be anticipated to cause any adverse effects to human health" or "adverse environmental effects" (69 FR 69322).

As demonstrated in this petition, there is an even stronger basis for making essentially the same statutory findings under EPCRA and removing EGBE from the TRI reporting list. Based on the most recent TRI data available, EGBE releases and exposures are significantly lower than those that formed the basis for EPA's Hazardous Air Pollutants (HAPs) determinations. Delisting under EPCRA would remove a significant disincentive to the use of EGBE, a solvent that has proven to be highly effective in a variety of important water-based coating formulations with demonstrable volatile organic compound (VOC)-reduction benefits. Delisting would also eliminate the potential for confusion and misdirected community priorities that currently exists because EGBE-using facilities are unfairly singled-out as significant sources of "toxics" despite the Administrator's findings that EGBE releases may not reasonably be anticipated to cause adverse human health or environmental effects. Accordingly, for the reasons set forth in full in this petition, the EPCRA delisting criteria are satisfied and the Panel therefore respectfully requests that EPA remove EGBE from the TRI reporting list.

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ACRONYMS

%	percent
ACGHI	American Conference of Governmental Industrial Hygienists
ADI	average daily intake
AEGL	Acute Exposure Guideline Level
A_o	oral absorption factor
AT	averaging time
ATSDR	Agency for Toxic Substances and Disease Registry
BAA	2-butoxyacetic acid
BAL	2-butoxyacetaldehyde
BCF	bioconcentration factor
BHA	butylated hydroxyanisole
BMC	benchmark concentration
BOD	biological oxygen demand
BW	body weight
CAA	Clean Air Act
CAS	Chemical Abstracts Service
C_i	concentration of EGBE in diet item *i*
CICAD	Concise International Chemical Assessment Document
cm^2	square centimeters
cm^3	cubic centimeters
CMA	Chemical Manufacturers Association
CMI	Can Manufacturers Institute
C_w	concentration of EGBE in water
DA_{event}	absorbed dose per event
DGBE	diethylene glycol butyl ether
DNA	deoxyribonucleic acid
ECETOC	European Centre for Ecotoxicology and Toxicology of Chemicals
EC_{50}	median effect concentration
ED	exposure duration
EF	exposure frequency
EGBE	ethylene glycol monobutyl ether
EGBEA	2-butoxyethyl acetate
EGEE	ethylene glycol monoethyl ether
EGME	ethylene glycol monomethyl ether
EGPE	ethylene glycol monopropyl ether
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ERA	ecological risk assessment
EU	European Union
EV	event frequency

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ACRONYMS

gps	grams per second
HAP	hazardous air pollutant
Hb	hemoglobin
HQ	hazard quotient
HSDB	Hazardous Substance Data Bank
IARC	International Agency for Research on Cancer
IR	ingestion rate
IR_a	inhalation rate
IR_{diet}	food ingestion rate
IRIS	Integrated Risk Information System
IR_w	water ingestion rate
kg	kilograms
kg/hr	kilograms per hour
kg/kg BW-day	kilograms per kilogram body weight per day
km	kilometers
km^2	square kilometers
K_{ow}	octanol-water partition coefficient
L/day	liter per day
LC_{50}	lethal concentration for 50% of test organisms
LD_{50}	lethal dose for 50% of test organisms
LOAEL	lowest observed adverse effect level
m	meter
m^3/kg BW-day	cubic meters per kilogram body weight per day
MCV	mean corpuscular volume
MEK	methyl ethyl ketone
mg/cm^2	milligrams per square centimeter
mg/kg	milligrams per kilogram
mg/kg BW-day	milligrams per kilogram body weight per day
mg/L	milligrams per liter
mg/m^3	milligrams per cubic meter
MIBK	methyl isobutyl ketone
mM	millimolars
MOE	Margin of Exposure
$\mu g/m^3$	micrograms per cubic meter
NED	National Elevation Dataset
NEI	National Emissions Inventory
NIOSH	National Institute of Occupational Safety and Health
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration

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ACRONYMS

NTP	National Toxicology Program
OEM	original equipment manufacturing
PBPK	physiologically based pharmacokinetic
P_i	proportion of organism's diet made up by diet item *i*
POTW	publicly owned treatment works
ppm	parts per million
RfC	reference concentration
RfD	reference dose
RME	reasonable maximum exposure
ROS	reactive oxygen species
SA	skin surface area exposed
SARA	Superfund Amendment and Reauthorization Act of 1986
TDI	total daily intake
TGME	triethylene glycol methyl ether
TLV	threshold limit value
TNF∞	tumor necrosis factor alpha
tpy	tons per year
TRI	Toxics Release Inventory
TRV	toxicity reference value
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator
VOC	volatile organic compound
WHO	World Health Organization

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EXECUTIVE SUMMARY

Ethylene glycol monobutyl ether (EGBE) (Chemical Abstract Service [CAS] number 111-76-2) is used primarily as a solvent in the manufacture of paints, coatings, metal cleaners, and household cleaners and as a chemical intermediate in the production of other chemicals. It has been used for more than 60 years because of its valuable and unique properties, especially its ability to make water-based, environmentally sound products work effectively. EGBE is regulated under Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) because it is a member of the "Certain Glycol Ethers" category of compounds as currently defined on the Toxics Release Inventory (TRI).

Section 313(d) of EPCRA calls for the removal of a chemical from the TRI where "there is not sufficient evidence to establish" that the chemical "is known to cause or can reasonably be anticipated to cause" any of three types of effects:

(A) significant adverse acute human health effects;

(B) (i) cancer or teratogenic effects, or (ii) serious or irreversible reproductive dysfunctions, neurological disorders, heritable genetic mutations, or other chronic health effects; or

(C) a significant adverse effect on the environment of sufficient seriousness, in the judgment of the Administrator, to warrant reporting of facility releases.

As detailed in the human health and ecological hazard assessment presented in Section 3 of this petition and summarized in Table ES-1, the available evidence indicates that EGBE presents low potential hazards to human health and the environment. The scientific data support the conclusions in the current Integrated Risk Information System (IRIS) assessment (EPA 2010)[a] that EGBE is not immunotoxic, genotoxic, or teratogenic, and does not cause adverse reproductive effects. The toxic effects of EGBE are secondary to its irritant and hemolytic effects, and United States Environmental Protection Agency (EPA) has determined that prevention of hemolytic effects in humans will also protect against all other potential toxic effects (EPA 2010, 68 FR 65656, 69 FR 69322). The data show, moreover, that humans are relatively insensitive to the hemolytic effects of EGBE. Even minor prehemolytic effects are expected to occur in humans, if they occur at all, only at exposure concentrations/doses far in excess of levels that might occur near EGBE-using facilities. The human-equivalent lowest observed adverse effect level (LOAEL) is significantly above 500 milligrams per kilogram body weight per day (mg/kg BW-day), and prehemolytic effects are not predicted in humans even in EGBE-saturated atmospheres (EPA 2010, Udden 2000, 2002).

[a] Although the 1999 IRIS assessment is currently under review, the review is limited to updating the carcinogenicity evaluation to incorporate EPA's recent cancer hazard evaluation for EGBE (EPA 2005a). See 71 Federal Register [FR] 77018 (EPA 2006).

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For similar reasons, the potential carcinogenicity of EGBE in humans is appropriately characterized under EPA's TRI listing criteria as low to nonexistent based on a hazard evaluation. The IRIS assessment finds "limited" animal evidence of carcinogenicity and concludes that the human carcinogenic potential of EGBE "cannot be determined" (EPA 2010). Subsequent mechanistic studies led EPA to determine that that nonlinear, nongenotoxic modes of action are likely responsible for the increased incidence of tumors observed in rodent studies (EPA 2005a). Consequently, even if the limited rodent findings are relevant to humans, the relatively low sensitivity of humans (including subpopulations such as children) to the hemolytic effects of EGBE means that, as EPA has stated, "we would not expect to find these tumors in humans following environmental exposures" (69 FR 69322).

EGBE likewise poses a very low potential ecological hazard judged by the criteria EPA has developed for making listing decisions under EPCRA. As summarized in Table ES-1, it has a relatively short residence time in the atmosphere, high water solubility, low octanol-water partition coefficient (K_{ow}), low vapor pressure, and low bioconcentration factor. Thus, EGBE has very low potential for persistence or bioaccumulation.

Consistent with the findings of a series of comprehensive ecotoxicity assessments—including the recently updated Concise International Chemical Assessment Document (CICAD) (WHO 2010), the European Union (EU) Risk Assessment (INERIS 2005); and Environment Canada (2002)—EPA determined in the Hazardous Air Pollutant (HAPs) proceeding that that EGBE causes only "very minor" effects that "are unlikely to be ecologically significant" (68 Fed. Reg. 65657). The updated ecological hazard evaluation in Section 3 of this petition supports that conclusion. Acute toxicity to most aquatic organisms has been found at concentrations in the vicinity of 1,000 milligrams per liter (mg/L) while chronic toxicity to most aquatic organisms has been found at concentrations above 100 mg/L. For the most sensitive species, acute and chronic aquatic toxicity likewise has been reported only at levels that are properly evaluated as high under EPA's TRI listing criteria (Table ES-1). No data have been found indicating that EGBE is toxic to terrestrial mammals or birds. The data indicate, in short, that EGBE is "practically non-toxic" to fish and invertebrates under established EPA criteria and, therefore, presents "a low risk to the environment" (Staples 1998).

For these reasons, the human health and ecological hazard evaluation presented here supports a determination that EGBE has "low toxicity and unrealistic exposures would be necessary for it to pose a risk to communities" (59 FR 61442). Under these circumstances, EPA's interpretation of EPCRA Section 313(d)(2) calls for the consideration of exposure levels in determining whether to delete EGBE from the TRI reporting list.

Significantly, this is an issue the Agency has addressed in a statutory setting that is virtually identical to Section 313(d) of EPCRA. On November 29, 2004, EPA Administrator Michael O. Leavitt granted the Panel's petition to remove EGBE from the list of HAPs under Section 112 of the Clean Air Act (CAA) (EPA 2004a). Section 112 authorizes the removal of a listed HAP based on a determination that "the substance may not reasonably be anticipated to cause any adverse effects to the human health or any adverse environmental effects." In assessing exposures to EGBE, EPA determined that the 1993 TRI data (on which our HAPs

petition was largely based) provided an “adequate” and “reasonable representation” of the sources and levels of EGBE emissions. Application of conservative exposure models led the Administrator to find that maximum estimated exposures from EGBE-emitting facilities are well below the IRIS reference concentration (RfC) and reference dose (RfD). He therefore concluded, “with confidence,” that releases of EGBE “may not reasonably be anticipated to cause any adverse effects to human health” (69 FR 69322). Relying on similar conservative modeling based on the 1993 TRI data, the Administrator likewise found that there are adequate data on environmental effects of EGBE to determine that ambient concentrations, bioaccumulation, or deposition of EGBE are not reasonably anticipated to cause any adverse environmental effects (68 FR 65657).

This petition updates the hazard, exposure, and ecological assessments that EPA reviewed and prepared in the HAPs delisting proceeding, consistent with the assumptions and methodologies that EPA found to be “appropriate,” “acceptable,” and “conservative.”

Section 4 reviews the bases for and substantial conservatism built into the IRIS RfC and RfD, which are used to evaluate the results of the exposure assessments prepared for this petition, as they were in the HAPs decision.

Nationwide exposure potential is assessed in Section 5 by developing an inventory of Certain Glycol Ether releases using 2009, 2010, and 2011 TRI data. Because EGBE comprises 52 percent (%) of the United States annual consumption of glycol ethers (SRI 2010), the inventory’s assumption that all releases of Certain Glycol Ether are EGBE (in the absence of facility-specific data to the contrary) generally overstates EGBE releases by a factor of two.

As described in Section 6, every facility listed in the TRI database is subjected to a screening process very similar to that used in the HAPs proceeding to determine which facilities have the potential to have maximum annual average concentrations of EGBE at or beyond the fenceline greater than the IRIS RfC of 1.6 milligrams per cubic meter (mg/m^3). In addition, an analysis of clusters of multiple facilities within the same zip code is used to evaluate the maximum potential combined exposures from closely located sources of EGBE. A comparison of annual emissions reported to TRI from 2000 through 2011 is used to demonstrate that interannual variability in reported emissions among high emitting facilities is relatively low and that the tiered modeling approach in this petition provides a sufficient margin of safety that encompasses reasonable interannual variability in facility EGBE emissions. Section 6 also includes a reasonable worst-case assessment of the potential for acute irritation effects from EGBE facility releases using the Margin of Exposure (MOE) methodology EPA has employed in prior TRI listing decisions.

Section 7 evaluates the potential health effects of EGBE posed by human surface water ingestion and dermal exposures against the IRIS RfD of 0.1 mg/kg BW-day, based on essentially the same conservative assumptions and models that EPA characterized in the HAPs evaluation, with updates to reflect the estimated surface water concentration based on 2009, 2010, and 2011 TRI data, the current RfD, and changes in EPA (2004b) guidance for dermal risk assessment.

Section 8 updates the three ecological risk assessments (ERAs) conducted in the HAPs proceeding by applying 2009, 2010, and 2011 TRI data to the Mackay Level III fugacity model, to yield updated estimates of the maximum surface water concentration. In addition, Section 7 applies an updated toxicity reference value (TRV) for aquatic organisms that was identified in a supplemental review of the ecotoxicity literature for EGBE.

The results, summarized in Table ES-2, reveal that EGBE exposures are well below the IRIS RfC and RfD for inhalation and dermal/ingestion exposures as well as appropriate ecotoxicity reference values. Consequently, the hazard quotients (HQs)—the ratio of maximum exposures to applicable health and environmental reference values—are also well below 1 indicating, in accordance with the National Contingency Plan (EPA 1990a) and EPA (1989) risk assessment guidance, that adverse health and environmental effects are unlikely. Similarly, the acute MOE for the estimated maximum hourly concentration of EGBE is above 5, which indicates no significant concern for potential acute effects because, among other things, the no observed adverse effect level (NOAEL) is based on human data.

As discussed in Section 9.2 and as summarized in Table ES-3, the exposure and risk estimates developed in this petition are likely overstated by wide margins, perhaps by as much as five orders of magnitude. EPA (2003) has acknowledged that substantial conservatism is incorporated into every primary element of the evaluation, including the IRIS and ecotoxicity reference values, the emissions inventory, and the models and assumptions used to estimate maximum exposures. The scientific evidence therefore supports a finding that "there is not sufficient evidence to establish" that EGBE satisfies any of the three listing criteria of EPCRA Section 313(d).

Delisting EGBE is also consistent with the policies and goals of the TRI program as articulated by EPA. As developed in Section 9.3, the Agency has emphasized the need to ensure that TRI listing decisions are consistent with "other EPA decisions on the same chemical, to the extent that such decisions relate to the same basic criteria for human health and the environment" (52 FR 5481). That consideration is especially important here because, as summarized in Table ES-2, human and environmental exposures are consistent with or less than those that formed the basis of the Agency's November 2004 HAPs findings that releases of EGBE "may not reasonably be anticipated to cause any adverse effects to the human health" or "adverse environmental effects" (EPA 2004a, 69 FR 69322). By their terms, these findings encompass the health and ecotoxicity listing criteria of EPCRA Section 313(d) and, therefore, should be accorded considerable weight here.

Delisting EGBE also would promote the goals of the TRI program by focusing community risk management and pollution prevention efforts on other chemicals that EPA has determined present significant human health and environmental risks (see Section 9.4). Of special importance in this regard is the fact that delisting would remove the current disincentive to the use of EGBE in waterborne coating formulations that have demonstrable environmental benefits in the form of substantial reductions in volatile organic compound (VOC) emissions. Deleting EGBE from the TRI reporting list also would maintain the credibility of the program by eliminating the confusion that currently results because facilities are inappropriately singled out

as major sources of “toxics” on the basis of EGBE releases that, as EPA has found, may not reasonably be anticipated to cause adverse human health or environmental effects.

The case for deleting EGBE from the TRI reporting list, in sum, is straightforward and compelling. Because the delisting criteria of EPCRA Section 313(d) as interpreted by EPA are met, and because the local risk management and pollution prevention purposes of the statute would be well served by delisting, the Panel respectfully asks EPA to grant this petition.

1.0 INTRODUCTION

This petition, submitted by the American Chemistry Council's Ethylene Glycol Ethers Panel (the Panel) under Section 313(d) & (e) of the Emergency Planning and Community Right-to-Know Act (EPCRA), seeks the removal of ethylene glycol monobutyl ether (EGBE) from the list of chemicals subject to the reporting requirements of the Emergency Planning and Community Right-to-Know Act (EPCRA) Toxics Release Inventory (TRI) program. The Chemical Abstracts Service (CAS) number for EGBE is 111-76-2, and its chemical structure is illustrated in Figure 1-1 below.

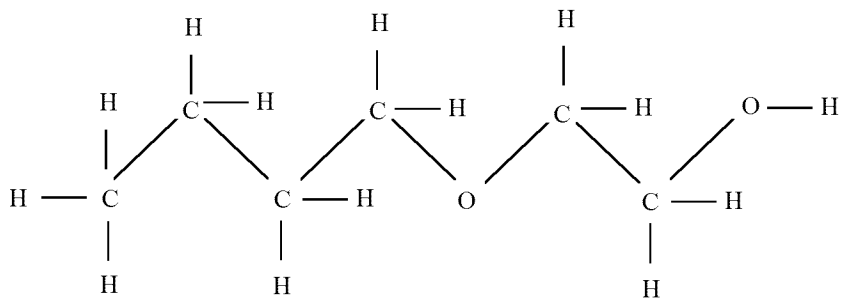

Figure 1-1. Structure of Ethylene Glycol Monobutyl Ether (EGBE)

The American Chemistry Council is a trade organization for chemical manufacturers. The American Chemistry Council's contact is Mr. Jonathon Busch, Director of the Ethylene Glycol Ethers Panel. He can be reached at the mailing address listed on the cover of this petition, by phone at 202-249-6725, or by e-mail at jon_busch@americanchemistry.com.[b]

Members of the Ethylene Glycol Ethers Panel are The Dow Chemical Company, Eastman Chemical, and LyondellBasell. Panel members Dow, Eastman, along with LyondellBasell account for all domestic manufacture of EGBE (SRI 2010).

Section 313(d) of EPCRA (42 U.S.C. §11023(d)(2)(A)-(C) & (d)(3)) calls for the delisting of a chemical where "there is not sufficient evidence to establish" that—

(A) The chemical is known to cause or can reasonably be anticipated to cause significant adverse acute human health effects at concentrations expected to exist beyond facility site boundaries as result of continuous or frequently recurring releases;

(B) The chemical is known to cause or can reasonably be anticipated to cause in humans—

(i) cancer or teratogenic effects, or

[b] There is an underscore symbol between Mr. Busch's first and last names within his email address.

(ii) serious or irreversible—
(I) reproductive dysfunctions,
(II) neurological disorders,
(III) heritable genetic mutations, or
(IV) other chronic health effects.

(C) The chemical is known to cause or can reasonably be anticipated to cause, because of—
(i) its toxicity,
(ii) its toxicity and persistence in the environment, or
(iii) its toxicity and tendency to bioaccumulate in the environment,
a significant adverse effect on the environment of sufficient seriousness, in the judgment of the Administrator, to warrant reporting under this section.

This petition evaluates EGBE based on these criteria. In accordance with United States Environmental Protection Agency's (EPA's) interpretation of the EPCRA listing criteria (59 Fed. Reg. 61432 [EPA 1994a]), the petition presents in Section 3 a qualitative assessment of the potential hazards EGBE poses to human health and the environment. Because the hazard assessment supports the conclusion that EGBE presents a low potential for adverse human health and ecological effects, we also present in Sections 4 through 8 conservative assessments of potential human and environmental exposures resulting from facility releases of EGBE and how such exposures compare to highly protective criteria for preventing adverse human health and ecological effects. Specifically, the petition is organized as follows:

Section 2 presents background information on the chemical identity of EGBE, regulatory history, current standards and guidelines, production, and use.

Section 3 presents a qualitative evaluation of the potential human health and ecological hazards posed by EGBE:

The physical and chemical properties of EGBE are reviewed, focusing on properties relevant to potential health and environmental effects including persistence and bioaccumulation.

The human health hazard evaluation reviews and updates the current Integrated Risk Information System (IRIS) toxicological assessment of EGBE (EPA 2010) and the reviews appearing in the 2004 Hazardous Air Pollutants (HAPs) delisting decision (68 Fed. Reg. 65648 [EPA 2003], 69 FR 69320 [EPA 2004a]) and in EPA's (2005a) report, *An Evaluation of the Human Carcinogenic Potential of Ethylene Glycol Butyl Ether*. Acute and chronic health effects are addressed separately in order to directly evaluate EGBE against the first two listing criteria set forth in EPCRA Section 313(d)(2)(A) & (B).

The ecological hazard evaluation likewise builds on the ecotoxicity assessments developed or approved by EPA in the HAPs rulemaking as well as a series of recent comprehensive reviews by the World Health Organization (WHO), the European Union (EU), and Environment Canada, all of which have reached similar conclusions about the low potential ecotoxicity of EGBE.

Section 3 closes with a review and application of EPA's criteria for considering exposure in making TRI listing decisions under EPCRA (59 Fed. Reg. 61432 [EPA 1994a). The next five sections of the petition evaluate potential human and environmental exposures resulting from EGBE facility releases based on conservative modeling and highly protective criteria for preventing potential health and ecological effects.

Section 4 describes the criteria used in this petition for evaluating chronic human exposures to EGBE, *viz.* the IRIS reference concentration (RfC) and reference dose (RfD).

Section 5 follows the general approach used in the HAPs delisting decision by constructing an inventory of EGBE releases based on the 2009, 2010, and 2011 TRI reports for Certain Glycol Ethers, which provide the most up-to-date data available (the HAPs assessment was based largely on 1993 TRI data).

Section 6 presents the screening approach used to evaluate both chronic and acute exposures.

Chronic exposures are assessed by applying EPA modeling guidance to develop conservative estimates of maximum annual average concentrations of EGBE at or beyond facility fencelines and comparing those estimates against the IRIS RfC. Because estimated maximum annual average concentrations for all facilities in the 2009, 2010 and 2011 inventories are below the RfC based on unrealistically conservative screening assumptions, application of more sophisticated tiered modeling is unnecessary in this case under EPA (1992a) modeling guidelines. Nevertheless, tiered modeling is used for a sample of the highest EGBE-emitting facilities in order to estimate the degree of conservatism incorporated into the screening results. It should be noted, an examination of trends in maximum TRI-reported Certain Glycol Ether emissions from for reporting years from 2000 to 2011 (see Figure 5-1) indicated there has been remarkably little variability in the Certain Glycol Ether emissions from the highest emitting facilities over the past decade.

Similar to the HAPs assessment, cumulative exposures from closely located sources of EGBE (i.e., within the same zip code) are evaluated.

Acute exposures are assessed by developing conservative estimates of maximum hourly average concentrations of EGBE at or beyond facility fencelines for the highest emitting facilities (i.e. those facilities that did not screen out in two highly conservative prescreening steps). The resulting estimates of the maximum hourly EGBE concentration in ambient air for the facilities are evaluated using the Margin of Exposure (MOE) methodology EPA has used in previous TRI listing decisions, using the no observed adverse effect level (NOAEL) derived from human data in Section 3 of the petition.

Section 7 evaluates human health exposure and risks associated with EGBE in surface water against the IRIS RfD. Again, the same models and assumptions used in the HAPs assessment are employed here, updated to reflect the surface water concentration modeled from 2010 TRI release data, the most recent version of the Mackay fugacity model (EQC v2.02; CEMC 2003), and current EPA (2004b) guidance for dermal risk assessment. Potential exposures were evaluated based on 2009, 2010, and 2011 TRI release data but the human health exposure assessment was conducted with the 2010 TRI data because they represented

the worst-case scenario from the recent TRI data. The estimated exposures based on these data are well below the RfD.

Section 8 presents an ecological risk assessment (ERA) for EGBE, based on the models and assumptions used in the HAPs assessment, EGBE releases to air, land, and water as reported in the 2009, 2010, and 2011 TRI, and a supplemental literature review to identify appropriate target species and toxicity reference values (TRVs).

Section 9 presents a summary of the hazard, exposure, and risk assessments developed in the preceding sections, identifies the elements of conservatism built into these assessments, and evaluates the results under the listing/delisting criteria of EPCRA Section 313(d)(2). In addition, EPA policies for the interpretation and administration of the TRI program are reviewed, and other considerations relevant to the question of whether to delist EGBE are discussed.

References are listed in **Section 10**, and five appendices provide detailed data and analysis that form the basis for the hazard, release inventory and exposure assessments described in Sections 3 through 8. **Appendix A** tabulates laboratory bioassay studies of EGBE, including the compilation published in the 1998 Agency for Toxic Substances and Disease Registry (ATSDR) toxicological profile of EGBE, and a table of subsequent studies. **Appendix B** is the emissions inventory. **Appendix C** presents the chronic screening results for airborne emissions. **Appendix D** provides results of a quantitative uncertainty analysis, which demonstrates the health protectiveness of the overall approach to evaluating inhalation exposures. **Appendix E** presents the acute screening results for airborne emissions. Finally, **Appendix F**, provided as electronic files on CDROM, are the model output files from both the Tier 2 and Tier 3 modeling.

2.0 BACKGROUND

This section provides background information on EGBE (CAS 111-76-2), including a list of synonyms, history of EGBE regulation, regulatory standards and guidelines, chemical and physical properties, and production and use.

2.1 Synonyms

EGBE has many synonyms (NICNAS 1996, HSDB 1997, ECETOC 1994), including:

- 2-butoxyethanol
- 2-butoxy-1-ethanol
- 2-BE
- 2-n-butoxyethanol
- 3-oxa-1-heptanol
- beta-butoxyethanol
- butoxyethanol
- butyl glycol
- butyl glycol ether
- ethanol 2-butoxy
- ethylene glycol butyl ether
- ethylene glycol monobutyl ether
- ethylene glycol mono-n-butyl ether
- ethylene glycol n-butyl ether
- glycol butyl ether
- glycol monobutyl ether
- monobutyl ethylene glycol ether
- monobutyl glycol ether
- n-butoxyethanol
- o-butyl ethylene glycol

EGBE is marketed in the United States under various trade names, including:

- Eastman® EB Solvent
- Butyl CELLOSOLVE® Solvent
- Butyl OXITOL®
- DOWANOL® EB
- Ektasolve EB
- Glycol Ether EB
- Poly-Solv EB

2.2 History of EGBE Regulation under EPCRA

EGBE is regulated under EPCRA because it is a member of the “Certain Glycol Ethers” category of chemicals as currently defined in the TRI. Regulation of glycol ethers is an outgrowth of developmental studies conducted or sponsored by industry in the late 1970s and early 1980s. Subsequently, the National Institute of Occupational Safety and Health (NIOSH) concluded that two glycol ethers—ethylene glycol monomethyl ether (EGME) and ethylene glycol monoethyl ether (EGEE)—had the potential to cause adverse reproductive, embryotoxic, and teratogenic effects in laboratory animals (NIOSH 1983). Several state regulatory agencies assumed that the effects observed in EGME and EGEE were applicable to all glycol ethers. Thus, as a result of the 1983 NIOSH findings, the Maryland Department of Environmental Protection included glycol ethers in a list of chemicals for which it planned to collect use information (Maryland 1985). Maryland’s list of chemicals was subsequently incorporated into

the Section 313 list of Title III of the Superfund Amendment and Reauthorization Act of 1986 (SARA), or EPCRA. Glycol ethers were initially defined as chemicals with the formula,

$$R\text{-}(OCH_2CH_2)_n\text{-}OR' \qquad \text{Eqn. 1}$$

where:

R = alkyl or aryl groups

R´ = R, H, or groups which, when removed, yield glycol ethers with the structure: $R\text{-}(OCH_2CH_2)_n\text{-}OH$

n = 1, 2, or 3.

In 1994, EPA redefined the glycol ether category to exclude compounds having alkyl chains of more than seven carbon members in length (59 FR 34386 [EPA 1994b]). The redefinition eliminated the need for nonionic surfactant manufacturers and users to report emissions of those chemicals to the TRI. As a result, the category, which is now called "Certain Glycol Ethers," is defined as follows (http://www.epa.gov/ttn/atw/glycol2000.pdf):

$$R\text{-}(OCH_2CH_2)_n\text{-}OR' \qquad \text{Eqn. 2}$$

where:

n = 1, 2, or 3

R = alkyl C7 or less; or

R = phenyl or alkyl substituted phenyl;

R´ = H, or alkyl C7 or less; or

OR´ consisting of carboxylic acid ester, sulfate, phosphate, nitrate, or sulfonate.

2.3 Removal of EGBE from the Clean Air Act HAPs List

In the 1990 Amendments to Clean Air Act (CAA), Congress expanded the list of HAPs, based on the EPCRA Section 313 list and other compilations of chemicals, to include the glycol ether category. EGBE remained on the CAA HAPs list, as part of the glycol ethers category, until it was delisted on November 29, 2004 (69 FR 69320 [EPA 2004a]). The Administrator's HAPs delisting decision granted our 1997 petition (CMA 1997),[c] which used 1993 TRI data (and other sources of information on potential sources) and exposure modeling adapted from EPA (1992a) modeling guidance to demonstrate that maximum EGBE exposures fall below IRIS reference values. Additionally, we prepared an ERA, also in accordance with EPA guidelines, showing that EGBE releases are not reasonably anticipated to pose adverse effects on the environment.

The delisting provision of Section 112(b)(3)(C) of CAA [42 U.S.C. §7412(b)(3)(C)] is substantively at least as broad and stringent as that in EPCRA. The CAA provides that a chemical may be removed from the HAPs list if EPA finds that:

[c]At that time, the American Chemistry Council was known as the Chemical Manufacturers Association (CMA).

> there is adequate data on the health and environmental effects of the substance to determine that emissions, ambient concentrations, bioaccumulation of deposition of the substance may not reasonably be anticipated to cause any adverse effects to the human health or adverse environmental effects.

In reviewing and granting our HAPs delisting petition, EPA reevaluated the adequacy of the existing IRIS reference values by examining scientific data published after the 1999 IRIS assessment (EPA 1999a), including new toxicological studies addressing the relevance of limited rodent carcinogenicity data to humans, and conducted supplemental exposure modeling on some of the issues raised by the petition (discussed in greater detail below). The Agency's review of the scientific record included a series of findings that should weigh heavily in the evaluation of this petition to remove EGBE from EPCRA's TRI reporting list.

First, with respect to the potential human health effects of EGBE exposure, EPA reaffirmed the adequacy of the previous IRIS RfC (13 milligrams per cubic meter [mg/m^3]) and RfD (0.5 milligrams per kilogram body weight per day [mg/kg BW-day]) as protective against all known or potential human health effects of EGBE, including any potential sensitive subpopulations (68 FR 65654, 65656 [EPA 2003]). This review included a reevaluation of the 1999 IRIS carcinogenicity assessment, which had concluded, under the then-current EPA (1986a) Guidelines for Carcinogen Risk Assessment, that EGBE is a "possible human carcinogen based on limited laboratory animal evidence and a lack of human studies" (EPA 1999a). Based on post-IRIS toxicological studies testing the relevance of the limited animal findings to humans, EPA concluded that the previous IRIS "RfC and RfD values for EGBE have been set at levels that prevent … the precursor events that would lead to tumors" in rodents. The Agency found, accordingly, that even if the rodent tumor findings are relevant to humans at all, "we would not expect to find these tumors in humans following environmental exposures" (69 FR 69322).

Second, EPA found "the petition's overall approach to exposure assessment to be acceptable" (68 FR 65653), and made the following specific determinations.

The use of the 1993 TRI database to construct a complete list of emitting sources and emission levels "provides an adequate basis for dispersion modeling and the exposure assessment and is acceptable for that purpose" (68 FR 65652).

The five-tier modeling approach used in our HAPs petition to evaluate maximum inhalation exposures "followed appropriate modeling guidance" and "would tend to overestimate rather than underestimate maximum annual ambient average concentrations" (68 FR 65652).

EPA also observed that the modeling and assumptions used to assess ingestion and dermal exposures arising from surface water levels of EGBE, including supplemental analyses conducted by the Agency, were "conservative," and the exposure estimates found to be below the IRIS RfD represented a "worst-case exposure scenario" (68 FR 65653-54).

Third, EPA's evaluation of potential environmental risks included the development of its own ERA, which was based in part on the same "worst-case exposure scenario" for predicted maximum surface water concentrations used in the evaluation of human ingestion and dermal

exposures. In addition, the Agency noted that the TRVs for small mammals and aquatic species used in the ERA "were derived from very minor effects which were unlikely to be ecologically significant at the population level of ecological organization" (68 FR 65657).

Based on these and other findings, EPA concluded that maximum exposures to EGBE fall well below the IRIS RfC and RfD, as well as the TRVs developed to assess ecological risks. The Administrator (69 FR 69322) summarized the basis for the HAPs delisting of EGBE as follows:

> We can therefore conclude with confidence that emissions, ambient concentrations, bioaccumulation, or deposition of EGBE may not reasonably be anticipated to cause any adverse effects to the human health.

Likewise, EPA found, based on the ERA, that "there are adequate data on environmental effects of EGBE to determine that ambient concentrations, bioaccumulation, or deposition of EGBE are not reasonably anticipated to cause adverse environmental effects" (68 FR 65657).

2.4 Regulatory Standards and Guidelines

Federal and state regulatory standards and guidelines for EGBE are listed in Table 2-1.

2.5 Production and Use

As described by ATSDR (1998), ethylene glycol monoalkyl ethers are not manufactured as pure compounds but must be separated from the diethers and higher glycols (NTP 1993, as cited in ATSDR 1998; NIOSH 1990, as cited in ATSDR 1998). There are two common methods of producing EGBE: (1) reaction of ethylene oxide with anhydrous butyl alcohol in the presence of a catalyst, and (2) direct alkylation of ethylene chlorohydrin or ethylene glycol using sodium hydroxide and an alkylating agent such as dibutyl sulfate (HSDB 1997, as cited in ATSDR 1998; NIOSH 1990, as cited in ATSDR 1998; Rowe and Wolf 1982, as cited in ATSDR 1998). By far, the dominant method of EGBE production is treatment of butyl alcohol with ethylene oxide.

Three facilities—[redacted]—produce all domestic EGBE (SRI 2010). Between 1970 and 2009, production of EGBE in the United States increased by nearly five-fold from 53,500 tons per year (tpy) to approximately 250,000 tpy (Figure 2-1, SRI 2010). Between 1999 and 2007, however, production of EGBE has fluctuated between 254,500 and 292,000 tpy, without showing a clear increase in production from year to year (SRI 2010). There was a 14% decrease in production of EGBE between 2007 and 2009 (SRI 2010). The overall average annual growth rate in EGBE production is expected to be 2.8% between 2009 and 2014 (SRI 2010).

Because of its favorable physical, chemical, and technical characteristics, EGBE has become the largest volume glycol ether consumed in the United States (SRI 2010). In 2009, United States consumption of EGBE was 135,000 tpy, which represents approximately 52% of all ethylene glycol ethers consumed (SRI 2010). This rate of consumption of EGBE represents a

1% increase since 1990, when consumption was 132,000 tpy (SRI 2010). During the economic recession in 2008–2009, the United States EGBE consumption dropped 19% from 166,500 tpy to 133,500 tpy between 2007 and 2009. The overall average annual growth rate of domestic EGBE consumption was expected to be 3.1% between 2009 and 2014 (SRI 2010). Because this growth in consumption is predicted to outpace growth in production, a concurrent decrease in exports was expected (SRI 2010).

Despite growth in consumption since 1990, overall nationwide emissions of Certain Glycol Ethers to all media have decreased from 26,782 tpy in 1990 to 7,229 tpy in 2011, a reduction of 70% (www.epa.gov/triexplorer). The reduction in emissions is likely attributable principally to increased regulation under the CAA and state air pollution laws; corporate product stewardship programs (some no doubt in response to "right-to-know" initiatives like EPCRA itself); and the 1994 redefinition of the Certain Glycol Ethers category, which removed nonionic surfactant glycol ethers from the chemicals covered by the listing.

Of the 135,000 tpy of EGBE consumed in the United States in 2009, 68,500 tons (51%) were used as solvents in paints, coatings, and inks (SRI 2010). In addition, 20,500 tons (15%) were used as solvents in metal cleaners and liquid household cleaners and 29,000 tons (21%) were used as solvents in other products (SRI 2010). Consumption of EGBE as a chemical intermediate in the production of 2-butoxyethyl acetate (EGBEA) accounted for 9,000 tons (7%) of EGBE consumption (SRI 2010). Consumption for production of other chemicals [including tris(2-butoxyethyl)phosphate, di(2-butoxyethyl)adipate and di(2-butoxyethyl)phthalate] accounted for another 7,500 tons (6%) of EGBE consumption (SRI 2010).

Approximately 80% of EGBE consumed in surface coatings is used for industrial and specialty coatings; the remainder is used in architectural coatings (SRI 2010). Industrial coatings are defined as coatings that are factory-applied to manufactured goods as part of the production process (SRI 2004). They are also known as original equipment manufacturing (OEM) coatings. OEM coatings that contain EGBE include automotive paints, lacquers, quick drying varnishes, and enamels. Other industrial paints and coatings that employ EGBE include (1) coatings for metal cans and coils, ships, trucks, buses, and farm machinery and (2) paints and finishes for wood products, metal furniture, and fixtures (NPCA 1997, as cited in SRI 2004). Specialty coatings are those that are used primarily where durability is a key objective. Specialty coatings include high performance maintenance coatings, automotive refinishing paints, and aerosol paints (NPCA 1997, as cited in SRI 2004). Architectural coatings are paints and coatings that are applied onsite to new and existing residential, commercial, institutional, and industrial buildings. These products are generally distributed through retail and wholesale outlets and are bought by consumers, painters, contractors, builders, and government agencies (NPCA 1997, as cited in SRI 2004).

The following are source categories that use EGBE and thus are potentially affected by this petition:

- Auto and light duty truck (surface coating)
- Leather tanning and finishing operations

- ☐ Manufacture of paints, coatings, and adhesives
- ☐ Metal can (surface coating)
- ☐ Metal coil (surface coating)
- ☐ Metal furniture (surface coating)
- ☐ Printing, coating, and dyeing of fabrics
- ☐ Printing/publishing (surface coating)
- ☐ Wood furniture (surface coating)
- ☐ Synthetic organic chemical manufacturing
- ☐ Ship building and repair (surface coating)
- ☐ Semiconductor manufacturing

3.0 HAZARD ASSESSMENT

Given EGBE's (CAS 111-76-2) widespread use (as detailed in Section 2.5), it has undergone extensive toxicological testing in laboratory animals. Animal bioassay data are supplemented by information from case reports of intentional human ingestion episodes and controlled human exposure experiments, as well as ecotoxicological testing on microbes, plants, and aquatic organisms. EGBE has been tested for acute, subchronic, and chronic toxicity, reproductive and developmental toxicity, immunotoxicity, genotoxicity, and carcinogenicity. Although no toxicity data are available for terrestrial wildlife or birds, acute and chronic toxicity tests have been performed on a variety of aquatic organisms.

The extensive database on the potential adverse human health effects of EGBE is reviewed in the EGBE IRIS assessment (EPA 2010) and the ATSDR toxicological profile of EGBE (ATSDR 1998). EGBE's potential ecological hazards have been extensively reviewed in a series of assessments by WHO the Concise International Chemical Assessment Document or CICAD (WHO 1998, 2010), EU (INERIS 2006), and Environment Canada (2002). These assessments provide the starting point and primary basis for the qualitative hazard assessment presented in this section of the petition, supplemented as appropriate by descriptions of subsequently published studies.

3.1 Chemical and Physical Properties

EGBE's chemical and physical properties, excerpted from the ATSDR toxicological profile for EGBE (ATSDR 1998), are summarized in Table 3-1. Additional information and implications of these properties are discussed in this subsection.

EGBE is considered "readily" biodegradable (Price et al. 1974, as cited in ATSDR 1998) and has a relatively short residence time in the environment. Its half-life in both surface water and soil ranges from 7 days to 4 weeks, while its half-life in groundwater is 14 days to 8 weeks, and its half-life in the atmosphere is approximately 3.3 hours to 33 hours (Howard et al. 1991, as cited in ATSDR 1998).

EGBE is highly mobile in soil and unlikely to partition from the water column to organic matter contained in sediments or suspended solids (Swann et al. 1983). The volatilization of EGBE from surface water and moist soil is slow (Lyman et al. 1982, as cited in ATSDR 1998). In the atmosphere, EGBE is expected to exist almost entirely in the vapor phase, although EGBE may be physically removed from air by precipitation (Eisenreich et al. 1981, as cited in ATSDR 1998). The Hazardous Substance Data Bank (HSDB; http://toxnet.nlm.nih.gov) reports that an estimated bioconcentration factor (BCF) of 3 was calculated for EGBE, concluding that the potential for bioconcentration in aquatic organisms is low.

The most important mechanism of removal of EGBE from aerobic soil and water is microbiotic degradation (ATSDR 1998). Concentrations of EGBE of less than 500 milligrams per liter (mg/L) were readily degraded by microorganisms in bench scale degradation tests using domestic activated sludge, with reported biodegradation rates of greater than 63% after three days and 100% after five days (Assessment Technologies, Inc. 1996). A 20-day biological

oxygen demand (BOD) test and an aerobic degradability 28-day closed bottle test resulted in EGBE degradation rates of 75% and 88% respectively (NICNAS 1996).

Because EGBE does not undergo hydrolysis or direct photolysis in aquatic environments (Howard 1993, as cited in ATSDR 1998), abiotic degradation processes are assumed to play a negligible role in determining the ultimate fate of EGBE in surface water, groundwater, and soil. However, Atkinson (1987) calculated an atmospheric half-life of 17 hours for EGBE based on a second order photooxidation rate of 2.3×10^{-11} cubic centimeters (cm^3)/molecules-second. Therefore, abiotic degradation can significantly affect the fate of EGBE in air.

Limited data are available regarding degradation products of EGBE. The intermediate products of aerobic biodegradation were not identified in any of the screening tests considered by ATSDR (1998). However, as observed in human and animal studies (Johanson et al. 1989, as cited in ATSDR 1998), 2-butoxy-ethanol acetate (BAA) may enzymatically hydrolyze to EGBE and acetic acid as a result of biodegradation. By analogy to animal metabolism (Ghanayem et al. 1987, as cited in ATSDR 1998), it is possible that any EGBE formed through enzymatic hydrolysis may undergo further enzymatic oxidation (e.g., via dehydrogenase) to the butoxyacetaldehyde and finally to 2-butoxyacetic acid before being degraded to carbon dioxide and water. The reported products of photodegradation of EGBE in the atmosphere are propionaldehyde (CAS 123-38-6), butyraldehyde (CAS 123-72-8), butyl formate (CAS 592-84-7), 2-hydroxyethyl formate (CAS 628-35-3), 3-hydroxybutyl formate, 2-hydroxybutyl formate, and an organic nitrate (Tuazon et al. 1998, as cited in INERIS 2005). No data are available on the anaerobic degradation products of EGBE.

Given its relatively short residence time in the atmosphere, high water solubility, low octanol-water partition coefficient (K_{ow}), and low vapor pressure (Table 3-1), EGBE released to the atmosphere partitions to surface water and soil. The Mackay fugacity model predicts that, although approximately 99% of EGBE released to the environment is released to the air, approximately 98% of the EGBE released partitions into soil and surface water at equilibrium (Section 8.2.2, below; Cadmus 2000a).

3.2 Potential Human Health Hazards

In this section, we briefly describe the pertinent information available on the potential health effects of human exposure to EGBE, both noncancer effects from brief (acute) and repeated (subchronic and chronic) exposures, and information on the potential carcinogenicity of EGBE.

3.2.1 Noncancer Toxicity

EGBE is well absorbed via the inhalation, dermal, and oral routes of exposure and is widely distributed throughout the body and metabolized primarily via alcohol dehydrogenase to BAA, which is rapidly excreted in urine. Studies in humans and rats indicate that the metabolic pathways are similar for both species. However, in humans, unlike rats, some BAA is conjugated with glycine or glutamine prior to excretion, while rats also have a minor oxidation pathway involving O-dealkylation by a cytochrome P450 dealkylase (CYP 2E1) that is not

involved in human metabolism of EGBE (EPA 2010). The following subsections describe the acute and chronic health effects of EGBE. More detailed information on these effects is available in the ATSDR (1998) and EPA (2010) toxicology profiles.

3.2.1.1 Acute Toxicity

EGBE's acute toxicity has been evaluated in a number of studies in experimental animals, with the oral lethal dose to 50% of the test population (LD_{50}) ranging from 320 to 3,000 milligrams per kilogram (mg/kg) (ACGIH 2003). The oral LD_{50} values vary depending on the species, sex, and age of the test animals. The order of sensitivity from the most to the least sensitive is: rabbits (320 mg/kg) > adult rat (560 mg/kg) > mouse (1,230 mg/kg) > rat weanling (3,000 mg/kg). By inhalation, the lethal concentration for 50% of test organisms (LC_{50}) has been reported as 700 parts per million (ppm) in mice exposed for seven hours, and 486 ppm in rats exposed for four hours (ACGIH 2003). Severe hemolysis and hemoglobinuria are primary signs in rodents near these lethal levels, but humans are much less sensitive to the hemolytic effects of EGBE than rodents. In a series of three studies reported by Carpenter et al. (1956), small groups of humans and rats were exposed concurrently for four hours to 113 ppm (547 mg/m^3) EGBE; for two 4-hour periods separated by a 30-minute break to 195 ppm (944 mg/m^3); or for eight hours to 100 ppm (484 mg/m^3). While the rats showed increased red blood cell fragility, no increase in red blood cell fragility was seen in the humans, although they did experience nasal and ocular irritation. Increased red blood cell fragility has been reported in rats at airborne concentrations as low as 62 ppm (300 mg/m^3) (Carpenter et al. 1956). Similarly, acute ingestion of EGBE at doses as low as 32 mg/kg produced red blood cell hemolysis in adult rats (Ghanayem et al. 1987, NTP 2000, Long et al. 2000, Nyska et al. 1999, while no hemolytic effects were seen in a case of attempted suicide by ingestion of EGBE solution providing a dose of EGBE of 1,100 to 1,500 mg/kg (Gualtieri et al. 1995).

In vitro studies confirm that rat red blood cells are extremely sensitive to the hemolytic effects of EGBE's primary metabolite, BAA, particularly compared to human red blood cells. In studies with blood from rats, dogs, rabbits, and humans, hemolysis occurred in rat red blood cells at BAA concentrations of 0.05% (500 mg/L) or more in normal saline, while red blood cells from dogs, rabbits, and humans did not undergo hemolysis at BAA concentrations up to 2% or 20,000 mg/L (ICI 1985, as cited in CIR 1996). Similarly, Bartnik et al. (1987) reported complete hemolysis of rat red blood cells within one hour at 7.5 millimolar (mM) BAA or about 875 mg/L, and 20% hemolysis at 2.5 mM (about 300 mg/L). In contrast, human red blood cells showed no hemolysis at the highest concentration tested, 15 mM (1,750 mg/L), even after two hours of exposure, while rat red blood cells had 2% hemolysis at a concentration as low as 1.25 mM (about 150 mg/L). The same authors also found a more modest difference in sensitivity to the parent EGBE. Exposure of rat red blood cells to 200 mM (about 23,000 mg/L) EGBE produced 100% hemolysis within 30 minutes, but the same concentration produced no hemolysis of human red blood cells in 30 minutes, although it did cause 100% hemolysis after 2 hours of exposure, as did 30 minutes exposure of human erythrocytes to a higher concentration (250 mM or 30,000 mg/L) of EGBE (Bartnik et al. 1987). Similarly, Ghanayem and Sullivan (1993)

observed no effect on mean corpuscular volume (MCV) or hematocrit *in vitro* in human red blood cells exposed to concentrations of BAA causing 50% to 60% increases in these parameters in rat red blood cells.

Udden (2002) reported similar patterns of changes in red cell rigidity and MCV in rat and human red blood cells exposed to 100-fold different concentrations of BAA; rat red blood cells were 100-fold more sensitive than human red blood cells to these effects. Physiologically based pharmacokinetic (PBPK) modeling (Corley et al. 1994) predicts that the acute exposures necessary for such concentrations of BAA are unlikely even in consumer product or occupational settings (Udden 2002, ACGIH 2003), much less in the ambient air near EGBE-emitting facilities, where limited empirical data as well as estimates based on air quality modeling indicate that concentrations well below 1 mg/m^3 are likely (WHO 2010, INERIS 2006; EPA 2003).

Because of what the American Conference of Governmental Industrial Hygienists (ACGIH) has called the "minimal potential for 2-butoxyethanol exposures to produce red blood cell hemolysis in humans as compared to rats," assessments of acute health hazards have defined mucous membrane irritation of the nose and eye as the critical effect of short-term exposures in humans, not hemolytic effects (CalEPA 1999, ACGIH 2003). As already mentioned, Carpenter et al. (1956) found that four adult male volunteers exposed to 113 ppm (550 mg/m^3) EGBE for four hours, and two men and two women exposed to 100 ppm (485 mg/m^3) for eight hours reported eye, nose, and throat irritation. Erythrocyte osmotic fragility and urinalysis were normal in the subjects during and after exposure, and no other evidence of systemic toxicity was found. In another study (Johanson et al. 1986), seven healthy male adults were exposed to 20 ppm (97 mg/m^3) EGBE in a chamber experiment designed to assess pulmonary uptake and metabolism of EGBE during light exercise. The authors reported that none of the subjects complained or showed any adverse effects from two hours of exposure. As described in detail in Section 6, the short-term Tier 3 modeling results indicate that ambient concentrations near EGBE-emitting facilities are at least a factor of 5 below the NOAEL in this study. Hence, no acute toxic effects due to EGBE are likely adjacent to EGBE-emitting facilities.

3.2.1.2 Subchronic and Chronic Toxicity

The 2010 IRIS assessment directly addresses the subject of the subchronic and chronic toxicity of EGBE, concluding that it is not immunotoxic, genotoxic, or teratogenic, and does not cause adverse reproductive effects of the sort that have been attributed to EGME and EGEE (EPA 2010). There was no reduction in the immune response to injected antigens in two studies in rats exposed to EGBE at up to 500 mg/kg BW-day, for up to 21 days (EPA 2010). EGBE had negative results in tests for genotoxicity in multiple studies: *Salmonella typhimurium* bacteria, Chinese hamster ovary cells (gene mutation, sister chromatid exchange, and chromosome aberration assays), and *in vivo* mouse micronucleus assay. Weakly positive, but not reproducible, responses were seen in a few *in vitro* studies, but EPA has determined in the IRIS assessment (EPA 2010) and the HAPs delisting decision (68 Fed. Reg. 65655 [EPA 2003]), that the overall weight of evidence indicates that EGBE is neither mutagenic nor clastogenic.

As summarized in the IRIS assessment (EPA 2010), EGBE has been extensively tested for reproductive and developmental effects by oral and inhalation exposure in rats, mice, and rabbits. While some generalized toxicity was seen at high exposure levels associated with EGBE's hematologic effects, there was no indication of the specific reproductive effects attributed to EGME and EGEE, and no adverse effects on reproduction or development at doses below those associated with hematologic effects (EPA 2010). These studies support the conclusion that hemolysis is the most sensitive toxicity endpoint for rodents from a variety of exposure routes (EPA 2010).

The extensive EGBE animal toxicology database lacks any indication of neurotoxicity. Human experience indicates that intentional ingestion of large amounts of EGBE (i.e., suicide attempts) can result in coma, possibly secondary to metabolic acidosis, but exposure from normal use has not resulted in any reports of potential neurotoxicity. Specific neurotoxicology studies have been performed in animals by standard testing guidelines for three other ethylene glycol ethers (diethylene glycol butyl ether [DGBE], triethylene glycol methyl ether [TGME], and ethylene glycol monopropyl ether [EGPE]) and none of these studies have indicated a concern for neurotoxicity. Any neurotoxicity testing of EGBE would be constrained by the well-known hemolytic effects in rodents that would limit the highest dose that could be tested.

As described in the IRIS assessment, intravascular red blood cell hemolysis is the primary response in sensitive species following inhalation, oral, or dermal exposure to EGBE (EPA 2010). This primary hemolytic effect may also result in secondary toxic effects in spleen, liver, kidney, bone marrow, and thymus. However, hemolysis is the effect seen at the lowest exposure levels—i.e., it is the most sensitive endpoint (EPA 2010). The IRIS assessment concludes, therefore, that prevention of hemolysis will also be protective for all other toxic effects. Review of the recent research on the hemolytic effects of EGBE has led EPA (2010) to draw the following conclusions, apart from contact-site irritant effects.

- Other effects resulting from EGBE are secondary to hemolysis.
- The primary metabolite of EGBE, BAA, is the proximate toxicant.
- Several species including humans are less sensitive than rats to the hemolytic effects of BAA.
- Groups who might be thought to be more sensitive than average (including children, the elderly, or those with congenital hemolytic diseases) do not show an increased hemolytic response to BAA.

3.2.1.3 Relative Insensitivity of Humans to EGBE's Hemolytic Effects

It is important to note that EGBE is an exception to the general default assumption that humans are as sensitive as or more sensitive than the most sensitive animal species. In the case of EGBE, substantial rigorous data exist that demonstrate that humans are much less sensitive to the critical hemolytic effects of EGBE and its metabolite, BAA. The IRIS assessment describes six published PBPK models for EGBE. Employing the Corley et al. (1994, 1997) model, which allows both EGBE and BAA to be modeled in both humans and rats, EPA (2010) calculated tissue dose (BAA in blood) as a function of EGBE dose, route, and species. The

model demonstrated that prehemolytic changes in rat red blood cells occur at less than 1% of the level at which such changes are observed in human red blood cells. In the study used as the basis for the RfC and RfD, for example, the EGBE lowest observed adverse effect level (LOAEL) for prehemolytic changes in rat red blood cells, 31 ppm, 6 hours/day, 5 days/week was predicted to produce a peak blood concentration of BAA of 0.167 mM (EPA 2010). As noted earlier, Bartnik et al. (1987) reported no hemolysis of human red blood cells exposed to BAA levels almost 100 times higher (i.e., 15 mM) for three hours *in vitro*.

Udden's (2002) comprehensive study supports a susceptibility factor for rats as compared to humans of at least 100 (i.e., humans are at least 100times less sensitive than rats). Udden (2002) used a series of more specific and sensitive indicators of subhemolytic effects to quantify the difference in susceptibility to BAA of rat and human erythrocytes. Rat red blood cells were exposed to BAA at concentrations of 0, 0.025, 0.050, 0.075 and 0.1 mM, about an order of a magnitude lower than those used in previous work by Ghanayem (1989). Heparinized blood samples obtained from healthy adult volunteers were exposed to BAA at concentrations of 0, 2.5, 5.0, 7.5 and 10 mM, concentrations 100 times greater than those used for rat erythrocytes. The indices used to evaluate subhemolytic changes caused by BAA included microhematocrit, hemoglobin, red blood cell count, percent hemolysis determined by a colorimetric procedure, MCV calculated from microhematocrit and red blood cell count, distribution of red blood cell size, red cell deformability, erythrocyte osmotic fragility, erythrocyte density and red blood cell morphology.

For each of these measures of prehemolytic effects, Udden (2002) found that human blood was at least 100 times less sensitive than rat blood. Specifically, a significant change in human erythrocyte deformability was observed at 7.5 and 10 mM while in rat a significant change was first seen at 0.05 mM. There was a comparable increase in human and rat red blood cell size at concentrations of 10 mM and 0.1 mM BAA, respectively. BAA did not significantly affect the osmotic fragility of human erythrocytes until reaching concentrations greater than 7.5 mM, while significant effects were noted in rat erythrocytes at BAA concentrations as low as 0.05 mM. Cell density was also markedly decreased in rat erythrocytes treated with 0.1 mM BAA while only slight effects were noted in human erythrocytes treated with 10 mM BAA. Finally, no changes were noted in the morphology of the human erythrocytes treated with 10 mM BAA while rat erythrocytes treated with 0.1 mM showed increased numbers of spherocytes compared to controls. Udden (2000) previously demonstrated that "[S]tomatocytes, cup-shaped cells, and spherocytes are the principal morphological features of erythrocytes from rats exposed [*in vivo*] to [EGBE], or *in vitro* exposure to BAA."

Udden (2002) also conducted investigations on the blood from 11 more healthy subjects as well as hospitalized children and adults treated with 10 mM BAA. There was a slight increase in hemolysis in the samples from hospitalized adults, but the degree was not considered physiologically significant and was no greater than the hemolysis seen in the controls of the healthy adults. No difference was seen in the degree of hemolysis of the BAA treated erythrocytes of children. These findings are consistent with previous work by Udden (1994) showing that erythrocytes from potentially sensitive populations of humans, including young and

elderly subjects as well as those suffering from sickle cell disease and hereditary spherocytosis, were resistant to the hemolytic effect of BAA.

The findings of Udden (2002) are supported by Gualtieri (1995), who reported actual data from suicide attempts by an individual whose blood concentration reached at least 4.9 mM BAA with no evidence of hemolysis. The Corley et al. (2005) PBPK model also predicts that the level of BAA in humans exposed continuously by inhalation to an EGBE-saturated atmosphere (greater than 1,000 ppm)[d] would result in maximum blood concentrations of BAA of just 2 mM, well below the level needed to produce hemolysis in human red blood cells (Udden 2002, EPA 2010).

These observation and modeling predictions imply that it would be physically impossible to achieve a blood concentration of BAA in humans high enough to cause the critical toxic effect of EGBE in rodents, hemolysis, via inhalation of EGBE vapor, further confirming its low toxicity potential in humans.

The low hemolytic potential of EGBE in humans is further supported by the limited data on the effects of ingestion of EGBE by humans. EPA (2010) summarizes several cases of suicide attempts involving ingestion of large quantities of mixtures containing EGBE. These cases rarely resulted in hemolysis, despite ingestion of doses of EGBE as high as 1,500 mg/kg in some cases. Hematuria was noted in a couple of cases, but it is unclear whether this was due to hemolysis caused by EGBE and its metabolite BAA, or if it was secondary to the metabolic acidosis that developed at these high doses.

3.2.2 Potential Carcinogenicity

The National Toxicology Program (NTP) (2000) evaluated the carcinogenicity of EGBE in rats and mice exposed by inhalation. NTP (2000) reported that its study results indicate no evidence of carcinogenic activity in male F344/N rats and equivocal evidence of carcinogenic activity in female F344/N rats, based on increased combined incidence of benign and malignant pheochromocytomas (mostly benign). NTP (2000) also reported some evidence of carcinogenic activity in male B6C3F1 mice based on increased incidence of hemangiosarcomas of the liver, and some evidence of carcinogenic activity in female B6C3F1 mice based on increased incidence of forestomach squamous cell papillomas or carcinomas.

EPA concluded in the HAPs delisting decision in 2003 (68 FR 65656) “that the available data establish a plausible nonlinear, nongenotoxic mode of action for the moderate increase observed by NTP (2000) in the incidence of forestomach tumors in female mice.” The Agency summarized the impact of this finding on its assessment of human health risk due to EGBE emissions as follows:

> … the exposure concentrations necessary to cause hyperplastic effects in humans would be much higher than the existing RfD and

[d]The theoretical EGBE maximum airborne concentration is greater than 1,100 ppm, but in recent acute studies, the highest attainable concentrations were 600 to 700 ppm.

> RfC for EGBE. Given that humans, including potentially sensitive subpopulations such as children, have no known organ for the retention of a comparable target dose of EGBE or its metabolites, we feel it is reasonable to conclude that the RfC and RfD developed for EGBE are sufficient for the prevention of hyperplasia and associate tumors in humans.

Similarly, EPA (68 FR 65656) found that the available data "establish a plausible nonlinear, nongenotoxic mode of action for the moderate increase observed by NTP (2000) in the incidence of liver tumors in male mice." Thus, given "the relatively low sensitivity of humans, including subpopulations such as children, to the hemolytic effects of EGBE, we feel it is reasonable to conclude that the [1999] EGBE RfC and RfD (EPA 1999a) are sufficient for the prevention of hemolysis and associate tumors in humans." Accordingly, the Administrator (69 FR 69322) determined that the IRIS reference values will protect against both cancer and noncancer effects:

> … it is reasonable to expect that a lack of hemolytic effects in humans would preclude the formation of liver tumors in humans and that a lack of hyperplastic effects in the region of the gastroesophogeal junction in humans would preclude the formation of gastrointestinal tumors in humans. That is, the data support the finding that we would not expect to find these tumors in humans following environmental exposures. The RfC and RfD values for EGBE have been set at levels that prevent both the precursor events that would lead to tumors and other noncancer effects …

The HAPs delisting findings are reaffirmed in the IRIS toxicological review of EGBE (EPA 2010), which concluded that the data establish a plausible nonlinear mode of action for both the forestomach and liver tumors in mice. Regarding the pheochromocytomas in female rats, EPA (2010) noted that, "given the marginal dose response, lack of tumor evidence in any other organ system of the rats, and reported difficulties in distinguishing pheochromocytomas from nonneoplastic adrenal medullary hyperplasia, this tumor type was not given significant weight in the qualitative or quantitative assessment of EGBE cancer potential."

The forestomach tumors were found to develop through sustained cytotoxicity and cell regeneration brought about by irritation and breakdown of the forestomach's gastric mucosal barrier. This mechanism has been proposed for several other chemicals that cause rodent forestomach tumors, such as butylated hydroxyanisole (BHA), propionic acid, and ethyl acrylate (Kroes and Wester 1986, Harrison 1992, Clayson et al. 1990, 1991). A recent International Agency for Research on Cancer (IARC) assessment of the mechanism of rodent forestomach tumors and their potential relevance to humans specifically finds that the same irritation-based epigenetic mode of action accepted in EPA's carcinogenicity assessment is supported for EGBE (IARC 2006).

The EPA (2010) evaluation identifies a multistep mode of action for EGBE-induced mouse forestomach tumors:

1. Deposition of EGBE/BAA in the stomach and forestomach via consumption or reingestion of EGBE laden mucus, salivary excretions, and fur material
2. Retention of EGBE/BAA in food particles of the forestomach long after being cleared from other organs
3. Metabolism of EGBE to 2-butoxyacetaldehyde (BAL), which is rapidly metabolized to BAA systemically and in the forestomach
4. Irritation of target cells by BAA leading to hyperplasia and ulceration
5. Continued injury by BAA and degeneration leading to high cell proliferation and turnover
6. High levels of cell proliferation and turnover leading to clonal growth of spontaneously initiated forestomach cells

While such a process might theoretically occur in humans exposed to a sufficiently high dose of EGBE, that dose would be substantially higher than the RfC or RfD, given that humans do not possess an anatomical equivalent to the mouse forestomach where EGBE and metabolites might be retained. Also, humans would not be expected to produce sufficiently high concentrations of BAA in other potentially sensitive tissues chronically to permit tumors to develop via this mode of action.

Similarly, EPA (2010) concluded that the mouse liver tumors arose secondary to iron-induced oxidative stress resulting from the EGBE-induced hemolysis. It presented the following nine-step summary mode of action:

1. EGBE is metabolized to BAL, which is subsequently oxidized to BAA
2. BAA causes red blood cell swelling, triggering sequestration in the spleen by resident macrophages. When the capacity of these macrophages becomes overwhelmed, the damaged red blood cells make their way into the liver
3. Excess hemoglobin (Hb) from damaged red blood cells is taken up by phagocytic (Kupffer) cells of the liver and stored as hemosiderin
4. Oxidative damage and increased synthesis of endothelial and hepatocyte deoxyribonucleic acid (DNA) are initiated by one or more of the following events:
    - Generation of reactive oxygen species (ROS) from Hb-derived iron within Kupffer cells and perhaps from within hepatocytes and sinusoidal endothelial cells
    - Activation of Kupffer cells to produce cytokines/growth factors that suppress apoptosis and promote cell proliferation
5. ROS results in oxidative DNA damage to hepatocytes and endothelial cells
6. ROS modulates hepatocyte and endothelial cell gene expression
7. ROS stimulates hepatocyte and endothelial cell proliferation
8. ROS promotes initiation of hepatocyte and endothelial cells
9. ROS promotes neoplasm formation

Support for the importance of several of these steps in the mode of action, particularly Steps 4, 5, 6, and 7, has accrued from studies performed since the initial publication of the NTP draft report in 1998. The validity of this pathway has been endorsed by independent scientific peer review of EPA's analysis (EPA 2010).

Corthals et al. (2006) addresses one previous area of uncertainty regarding EPA's mode of action and the potential involvement of the short-lived intermediate metabolite of EGBE, BAL. Because BAL has exhibited some genotoxic activity in some assay systems, EPA scientists reviewing the HAPs delisting petition noted that the possibility of a genotoxic mode of action involving BAL had not been ruled out (68 Fed. Reg. 65660). Thus, although the Agency found PBPK modeling sufficient to find "that genotoxicity is not a factor in tumor development" when it deleted EGBE as a HAP; it nevertheless called for additional research (69 Fed. Reg. 69322). The study by Corthals et al. (2006), conducted in Dr. James Klaunig's laboratory at the Indiana University School of Medicine, was specifically designed to further explore the possible BAL-genotoxicity mode of action.

Corthals et al. (2006) demonstrate that BAL does not express any genotoxic activity, as measured by the Comet assay, in mouse endothelial cells, the cell type from which hemangiosarcomas develop. EGBE and BAA also showed no genotoxic activity in this assay. DNA damage was produced in these cells, however, when treated with hemolyzed red blood cells, ferrous sulfate, or hydrogen peroxide, supporting the proposed role of reactive oxygen species generated from red blood cell hemolysis in the mode of action for mouse liver hemangiosarcomas. Hemolyzed red blood cells were also shown to activate macrophages, as evidenced by increased levels of tumor necrosis factor alpha (TNFα), and activated macrophages produced DNA damage in endothelial cells and stimulated endothelial cell proliferation (Corthals et al. 2006), providing further support for the mode of action accepted by EPA.

Subsequently, EPA (2010) concluded:

> Under the *Guidelines for Carcinogen Risk Assessment* (U.S. EPA, 2005, 086237), EGBE is deemed "not likely to be carcinogenic to humans" at environmental concentrations below or equivalent to the RfD and RfC, based on laboratory animal evidence, mode-of-action information, and limited human study information. The available data indicate that carcinogenic effects from EGBE are not likely to occur in humans in the absence of the critical noncancer effects, including hepatic hemosiderin staining and irritant effects at the portal of entry, and are not likely to be carcinogenic to humans exposed to levels at or below the RfC and RfD values derived in this assessment.

Similar considerations led IARC to conclude that EGBE is not classifiable as to its carcinogenicity to humans (Group 3) on the basis of limited evidence in experimental animals and inadequate evidence in humans (IARC 2006, Cogliano 2004).

Based on these considerations, it is reasonable to conclude that EGBE presents no cancer risk to individual living near EGBE-emitting facilities.

3.3 Ecotoxicity

The ecotoxicity of EGBE has been evaluated in five reviews, all of which conclude that EGBE poses a low potential for adverse ecological effects (WHO 1998, Staples 1998, Devillers et al. 2002, Environment Canada and Health Canada 2002, INERIS 2006). No information on the toxicity of EGBE to terrestrial organisms, including reptiles, birds, or wild mammalian species, was identified from the primary scientific literature or reviews. Acute aquatic ecotoxicity data are available for nine fish species and seven aquatic invertebrate species, while chronic ecotoxicity data are available for one amphibian species, two fish species, four aquatic invertebrate species, and eight species of algae, bacteria, and protozoans. Species tested include freshwater and marine vertebrates and invertebrates. All aquatic toxicity values listed in the five recent reviews cited above and identified in a supplemental search of the primary literature are compiled and sorted by organism, endpoint, and exposure duration in Table 3-2.

Based on acute ecotoxicity testing, the most sensitive aquatic species to EGBE are mummichog (*Fundulus heteroclitus*) and grass shrimp (*Palaeomonetes pugio*), which have 96-hour LC_{50} values of 6.7 mg/L and 5.4 mg/L, respectively (Biospherics 1981, as cited in Environment Canada and Health Canada 2002). However, both concentrations are more than an order of magnitude less than any other reported acute concentrations for EGBE. The ecotoxicity evaluation in the CICAD declined to rely on these findings because they represent "such an extreme outlier compared with the range of other data that it is difficult to justify [their] use as the basis for" selecting a toxicity criterion (WHO 2005). The primary study (Biospherics 1981, as cited in Environment Canada and Health Canada 2002) was not available. However, the EU concluded that the study was not valid in the derivation of its predicted no effect concentration because of the methods employed in the original study (INERIS 2005). Therefore, the reliability of the grass shrimp and mummichog LC_{50} values is open to question. The next most sensitive species to acute exposures is an oyster (*Crassostrea virginica*), which has an LC_{50} of 89 mg/L (EPA 1984, as cited in WHO 1998; 2010). Several other fish and invertebrate species have LC_{50} values between 100 and 200 mg/L, but most fish species tested have LC_{50} values greater than 1,000 mg/L (Table 3-2).

Relatively few aquatic chronic toxicity data are available for EGBE. The lowest reported chronic value for EGBE is from a reproduction study on a rotifer (*Brachionus calyciflorus*). Ten percent of the test population was affected at 7.2 mg/L and the median effect concentration (EC_{50}) was 164 mg/L (Devillers et al. 2002). A blue-green algae species (*Microcystis aeruginosa*) and a protozoan (*Entosiphon sulcatum*) experienced growth effects with EGBE concentrations of 35 and 91 mg/L, respectively (Bringmann and Kuhn 1980, as cited in Staples et al. 1998). Two copepods (*Daphnia magna* and *Ceriodaphnia dubia*) experienced reproduction effects at EGBE concentrations near 130 mg/L (Devillers et al. 2002, 2003). Overall, most available aquatic chronic toxicity values for EGBE are below 1,000 mg/L (Table 3-2).

3.4 Evaluation of Potential Hazards of EGBE and Implications for TRI Listing

EPA has interpreted the listing criteria of Section 313(d)(2) of EPCRA to call for a weight-of-evidence hazard assessment of the potential for a chemical to cause the three types of adverse effects specified in the statutory text: acute, chronic, and ecotoxic effects. Because "virtually any chemical substance can elicit a toxicological response at some dose level," EPA's interpretation recognizes that "the mere presence of the toxic response is not used in isolation in listing decisions under EPCRA Section 313" (59 FR 61445 [EPA 1994b]). Accordingly, EPA's interpretation of the listing criteria calls for the consideration of exposure in certain circumstances, depending on the type of hazard in question.

- In the case of adverse acute human health effects, Section 313(d)(2)(A) explicitly calls for an exposure evaluation of whether such effects occur "at concentration levels that are reasonably likely to exist beyond facility site boundaries as a result of continuous, or frequently recurring, releases" (42 U.S.C. §11023(d)(2)(A)). Thus, EPA's interpretation provides for the consideration of exposure in determining whether to list or delist based on acute health effects.
- For chronic human health hazards addressed in EPCRA Section 313(d)(2)(B), the Agency has adopted the view that exposure considerations are not appropriate in making listing determinations "for chemicals that exhibit moderately high to high human toxicity … based on a hazard assessment." Consideration of exposure is called for, however, in the case of "chemicals that exhibit low to moderately low toxicity based on a hazard assessment" (59 FR 61441). Thus, "in instances where the hazard assessment indicates that … a chemical is of low toxicity and unrealistic exposures would be necessary for it to pose a risk to communities …, EPA may use exposure considerations in its listing decisions" (59 FR 61442).
- For the adverse environmental effects subject to EPCRA Section 313(d)(2)(c), EPA reads EPCRA to call for listing solely on the basis of a hazard assessment "for chemicals that are highly ecotoxic or induce well-established adverse environmental effects" that "do not affect solely one or two species but rather cause changes across a whole ecosystem," such as chemicals that threaten the "sustainability of a fragile ecosystem such as an estuary." Exposure is an appropriate factor, however, in listing and delisting decisions on "chemicals that are low or moderately ecotoxic but do not induce well-documented serious adverse effects" on entire ecosystems (59 FR 61433, 61441).

The hazard assessment presented above indicates that EGBE poses low potential hazards to human health and the environment. Because exposure is always a relevant factor for acute human health effects, the following discussion focuses on chronic human health and ecological hazards with respect to the appropriateness of considering exposure.

3.4.1 Low Potential for Adverse Chronic Human Health Effects

The extensive data on the mode of action of EGBE as a toxicant, its limited spectrum of toxic effects, and the documentation in vitro and in vivo that humans are relatively insensitive to

its toxic effects, all show that EGBE is appropriately considered a low-toxicity chemical. The scientific evidence supports the conclusion that EGBE is not immunotoxic, genotoxic, or teratogenic, and it does not cause adverse reproductive effects. All of the toxic effects of EGBE seen in rodents are secondary to the irritant and hemolytic effects of EGBE and its primary metabolite, BAA, and EPA has determined that prevention of hemolytic effects in humans will also protect against other toxic effects (EPA 2010). The current IRIS assessment concludes that EGBE is "not likely to be carcinogenic to humans at environmental concentrations below or equivalent to the RfD and RfC" and that tumors observed in rodent studies are secondary to EGBE's noncarcinogenic toxic effects (EPA 2010).

The available data also demonstrate that the primary toxic effect of EGBE exposure—hemolysis produced by EGBE's primary metabolite BAA—can reasonably be expected to occur in humans only at doses that are unrealistically high, thus making EGBE a low-toxicity chemical for which exposure is a relevant consideration in the delisting determination. Because human red blood cells are relatively resistant to the hemolytic effects of EGBE, particularly compared to laboratory rats, based on the PBPK model used by EPA (2010) in its assessment, the daily oral dose necessary to achieve a blood BAA concentration high enough to cause even minor prehemolytic effects (≥10 mM, based on Udden [2002]) would be at least 700 mg/kg BW-day. Evaluated under EPA's TRI listing criteria (EPA 1994a, 1992c) and previous listing decisions, EGBE is clearly a low-toxicity chemical (like e.g., ethylene glycol, 62 FR 24919 [EPA 1997a]). Such ingestion exposures to EGBE, moreover, are unrealistically high in relation to expected community exposures in the vicinity of EGBE-emitting facilities. Assuming water consumption of 2 liters per day (L/day) by a 70-kilogram (kg) human, the water concentration that theoretically would be needed to achieve a hemolytic concentration of BAA in blood would be more than 4,000 times greater than the highest surface water concentration of EGBE that has been reported at a contaminated site (ATSDR 1998, Environment Canada 2002), and over 140 times previous estimates of surface water concentrations resulting from EGBE facility emissions (WHO 2010, INERIS 2006).

For the primary anticipated route of exposure to EGBE for TRI-related exposures—inhalation—the available data indicate that hemolysis is not expected to occur in humans, even if exposed continuously by inhalation to an EGBE-saturated atmosphere (greater than 1,000 ppm) (see Section 3.2.1.2 above).[e] Such concentrations are, of course, physically impossible, and in any case they are 100 to 1,000 times higher than typical occupational exposure levels, and 50 times higher than the occupational threshold limit value (TLV) (ATSDR 1998, ACGIH 2003), even farther above available (albeit limited) data on ambient air concentrations of EGBE (IPCS 1997, ECETOC 2005, WHO 2005), and much higher still—by a factor of approximately 100,000—than previous estimates of ambient air concentrations based on air dispersion modeling of emissions from EGBE-using facilities (WHO 2010, INERIS 2006).

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[e]The theoretical EGBE maximum airborne concentration is greater than 1,100 ppm, but in recent acute studies, the highest attainable concentrations were 600 to 700 ppm.

The limited laboratory animal carcinogenicity data do not justify an elevated hazard evaluation for EGBE under EPA's TRI listing criteria and listing precedents. As noted in Section 3.2.2, the current IRIS assessment classifies EGBE as "not likely to be carcinogenic to humans at environmental concentrations below or equivalent to the RfD and RfC" (EPA 2010). EPA has twice determined that even the higher carcinogenicity classification (based on the former cancer classification criteria) of "possible" human carcinogen does not support listing under EPCRA §313(d)(2)(B) (titanium dioxide, 53 FR 23108 [EPA 1988]; butyl benzyl phthalate, 60 FR 9299 [EPA 1995a]). Based on these precedents, it would be inappropriate to list a chemical that is classified as "not likely to be carcinogenic to humans."

3.4.2 Low Potential for Significant Adverse Ecological Effects

EGBE's potential to cause adverse ecological effects should likewise be characterized as low under EPA's TRI listing criteria. The Agency found recently that EGBE causes only "very minor effects which were unlikely to be ecologically significant at the population level of ecological organization" (68 Fed. Reg. 65657 [EPA 2003]). EGBE therefore cannot be considered a high toxicity ecological hazard under the EPA's TRI listing criteria on the basis of "well-established adverse environmental effects" "across a whole ecosystem" (59 FR 61441 [EPA 1994b]).

Furthermore, the "very minor" ecological effects of EGBE do not occur at concentrations that are considered to be low or moderate-to-low under EPA's TRI listing guidelines. To the contrary, EGBE has low potential for persistence and bioaccumulation. LOAELs for acute toxicity to aquatic organisms are in most cases 1,000 mg/L or higher, and most chronic toxicity values are between 100 and 1,000 mg/L. The lowest LC_{50} for acute toxicity to an aquatic organism is 89 mg/L, and the lowest concentration reported to cause chronic aquatic toxicity is 7 mg/L. Under EPA's TRI listing criteria (EPA 1994a, 1992c) and previous listing decisions, EGBE meets the criteria for a low-toxicity chemical based on ecological effects. See, for example, Butyl Benzyl Phthalate (60 FR 9299 [EPA 1995a]); Diethyl Phthalate (61 FR 39356 [EPA 1996b]); Di-(2-Ethylhexyl) Adipate (61 FR 39891 [EPA 1996c]); Ethylene Glycol (62 FR 24919 [EPA 1997a]); Methyl Ethyl Ketone (63 FR 15195 [EPA 1998a]); Methyl Isobutyl Ketone (64 FR 8769 [EPA 1999c]).

It is also readily apparent that the concentrations found to cause aquatic toxicity are far above the surface water concentrations likely to be present in communities near EGBE-emitting facilities. The lowest reported aquatic toxicity level (7 mg/L for chronic effects) is greater than the highest surface water concentration of EGBE that has been reported at a contaminated site (5.7 mg/L; ATSDR 1998, Environment Canada 2002), and about a thousand times higher than available empirical and modeled estimates of surface water concentrations resulting from EGBE facility emissions (Environment Canada 2002, WHO 2010, INERIS 2006).

3.4.3 Conclusion

EPA's interpretation of the TRI listing criteria of EPCRA Section 313(d)(2) calls for the consideration of exposure levels for potential adverse chronic human health and significant

environmental effects if “a chemical is of low toxicity and unrealistic exposures would be necessary for it to pose a risk to communities” (59 FR 61442).

As discussed above, even relatively minor prehemolytic effects are not expected in humans even at exposures: (1) that are considered high under EPA’s TRI listing criteria and precedents and (2) that are far above exposures likely to occur in communities near EGBE-emitting facilities. EPA’s findings in the HAPs delisting decision and in its carcinogenicity evaluation (EPA 2010) confirm that prevention of hemolysis protects against any other potential adverse health effect of EGBE exposure. Similarly, the available ecotoxicity data continue to support EPA’s determination in the HAPs proceeding that EGBE emissions present the potential for only “very minor effects” that are “unlikely to be ecologically significant,” and indicate that such minor effects are expected to occur only at concentrations (1) that are clearly high under EPA’s TRI listing criteria and precedents and (2) that are far above exposures likely to occur in communities near EGBE-emitting facilities.

Accordingly, EGBE presents a low potential for adverse effects on human health or the environment, and an exposure assessment is warranted.

4.0 CRITERIA FOR EVALUATING ACUTE AND CHRONIC HUMAN EXPOSURES

As noted earlier, under Section 313 of EPCRA, a chemical may be added to TRI on the basis of acute toxicity in humans, chronic toxicity in humans, or significant adverse effects on the environment. The criteria for evaluating acute and chronic human exposures are addressed below as they relate to EGBE.

4.1 Acute Toxicity

As specified in Section 313(d)(2) of the statute, a chemical may be added to the list of chemicals requiring reporting under Section 313 if:

> the chemical is known to cause or can reasonably be anticipated to cause significant adverse acute human health effects at concentration levels that are reasonably likely to exist beyond facility site boundaries as a result of continuous or frequently recurring releases;

As discussed by EPA (2010) and ATSDR (1998), and noted in Section 3.2.1.1 of this petition, EGBE is of low acute toxicity, with the most sensitive endpoint in humans being eye and upper respiratory tract irritation at airborne concentrations above the occupational TLV of 20 ppm (97 mg/m^3). Such a concentration is far higher than anything that has been monitored or modeled near an EGBE-emitting facility (IPCS 1997, ECETOC 2005, WHO 2010, INERIS 2006), and would not, therefore be "reasonably likely to exist beyond facility site boundaries as a result of continuous, or frequently recurring, releases."

4.2 Chronic Toxicity

The EPA HAPs delisting decision used the IRIS RfC and RfD to evaluate potential chronic human health effects from facility releases of EGBE. EPA's policies and precedents under EPCRA's TRI listing provisions strongly support the use of IRIS criteria where available (59 FR 61444-45 [EPA 1994b]). Accordingly, the evaluation of chronic human exposures and risks in this petition is based on the IRIS reference levels. EPA derived the RfC and RfD[f] after a careful review of the available dose-response database for EGBE, emphasizing mechanistic information. EPA used dose-response information for EGBE-induced hematological effects as the basis for the IRIS RfC and RfD values. EPA derived both the RfC and the RfD from data on hemosiderin staining in the liver in rats in the 2-year NTP (2000) inhalation study. Using benchmark concentration (BMC) and PBPK modeling, EPA estimated that the 95% lower

[f] The RfD is defined by EPA as "an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime." Similarly, the RfC is defined as "an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.

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confidence limit on the concentration predicted to produce a 10% increase in hemosiderin staining was 16 mg/m^3. To derive the RfC, EPA applied an intraspecies uncertainty factor of 10, to account for variation in sensitivity within the human population. Because the PBPK model was used, and because the adverse effect endpoint was a minimally adverse effect in a species more sensitive than humans, EPA used an uncertainty factor of 1 for LOAEL-to-NOAEL extrapolation, resulting in the final RfC of 1.6 mg/m^3.

EPA derived the oral RfD based on the same data as the RfC by using the Corley et al. 1994, 1997) PBPK model to perform route-to-route extrapolation to derive the 95% lower confidence limit on the daily oral dose of EGBE predicted to produce a 10% increase in hemosiderin staining of 1.4 mg/kg BW-day. To derive the RfD, EPA applied an intraspecies uncertainty factor of 10, to account for variation in sensitivity within the human population. Because the PBPK model was used, and because the adverse effect endpoint was a minimally adverse effect in a species more sensitive than humans, EPA used an uncertainty factor of 1 for LOAEL-to-NOAEL extrapolation, resulting in the final RfD of 0.1 mg/kg BW-day (rounded).

Both the RfD and RfC are based on the occurrence of hemolytic effects in rats. As noted previously, there is extensive evidence, both in vivo and in vitro that humans are much less sensitive than rats to the hemolytic effects of EGBE. Studies by Udden (2000, 2002) show that prehemolytic effects occur in rat red blood cells at concentrations of BAA, the proximate hemolytic agent, at least 100 times lower than concentrations that might affect human red blood cells. EPA accounts for this difference in susceptibility only partially in its derivation of the RfD and RfC by not using the standard 10-fold uncertainty factor for interspecies extrapolation, but rather assumes an interspecies correction factor of 1, implying that humans are equally sensitive rather than less sensitive than rats. However, the available relative toxicity data indicate that the actual interspecies factor from rats to humans is much less than 1. The hemolytic anemia comparative data from Udden et al. (2000, 2002) indicates that this interspecies factor should be no greater than 0.01, rather than 1, as used by EPA in deriving the RfD and RfC. This clearly demonstrates the very conservative nature of hemolytic effects in rats as a point of departure for establishing the EPA IRIS RfD and RfC.

Clearly, the interspecies uncertainty factor and point of departure are very conservative. Indeed, there is also little reason to believe that the IRIS intraspecies uncertainty factor of 10 is scientifically justified. As discussed in the IRIS assessment, investigation of population groups that might be expected to show increased sensitivity to hemolytic effects of EGBE (e.g., the young, the old, and individuals with sickle cell anemia or hereditary spherocytosis), did not reveal increased susceptibility. Thus, the IRIS intraspecies uncertainty factor of 10 is also likely to contribute undue conservatism to the RfC and RfD.

Another significant element of conservatism in the RfC and RfD relates to the fact that they were designed to be protective for continuous daily exposure for a full lifetime to EGBE. The emissions of interest in this petition are likely to fluctuate over time. As EPA recognized in the HAPs delisting decision (see Section 6.2.3, below), the lifetime average exposure level (which is the relevant metric for comparison to the RfD and RfC) will be substantially lower than

the peak concentration at the point of maximum impact (as assumed in the exposure assessment of this petition), thus providing an additional margin of safety.

5.0 EMISSIONS INVENTORY

As previously discussed, EPA determined in the HAPs delisting proceeding (68 FR 65651-52 [EPA 2003]) that the EPCRA TRI database "provide[s] a reasonable representation of … EGBE emissions" and "an adequate basis for dispersion modeling and … exposure assessment." Accordingly, this petition has conservatively developed an emission inventory of potential EGBE sources that includes all facilities that submitted TRI reports for Certain Glycol Ethers for the 2009, 2010, and 2011 calendar years, and which reported a non-zero release of Certain Glycol Ethers to air, either from onsite point or fugitive sources. In addition, because this petition also includes an assessment of potential human health and ecological risks based on exposures to other environmental media, facilities reporting non-zero releases of Certain Glycol Ethers to soil and surface water were added to the facilities included in emissions inventory (www.epa.gov/triexplorer). For the risk evaluation presented in Sections 6 through 8, it was conservatively assumed that all Certain Glycol Ethers released are EGBE for facilities without site-specific data on the proportion of Certain Glycol Ethers released that is EGBE.[g] Because EGBE represents 52% of ethylene glycol ethers consumed in the United States (SRI 2010), the application of this assumption in Sections 6 through 8 of this petition may overestimate exposures by two-fold.

Table 5-1 presents summary information on the distributions and magnitude of releases to air, water, and land, as well as changes in releases since 1993 and the mid-2000s. The 1993 data are used as a point of comparison because they formed the basis for the HAPs delisting decision and the 2003 through 2006 data were provided because they were compiled for ACC's previous petition prior to EPA's revision to the RfC and RfD. Because the Administrator determined in the HAPs delisting decision that releases of EGBE "may not reasonably be anticipated to cause any adverse effects" to human health or the environment (69 FR 69322), it is reasonable to expect that the same findings are justified in light of the substantial broad-based decrease in emissions since 1993, as shown in Table 5-1. In addition, Figure 5-1 shows the maximum reported emissions for Certain Glycol Ethers to the air by individual facilities for each year from 2000 through 2011. Note that the maximum facility air emissions have slowly declined over this time period.

Those facilities that reported non-zero TRI emissions of Certain Glycol Ethers during 2009, 2010, and/or 2011 are the basis for the emission inventory used for evaluating potential inhalation exposures and risks (Section 6). This emission inventory includes 1,109 facilities that reported non-zero emissions of Certain Glycol Ethers during 2009, 1,149 facilities that reported non-zero emissions during 2010, and 1,099 facilities reporting non-zero emissions during 2011.

[g] Facility-specific information on the percentage of Certain Glycol Ethers that is EGBE was requested for facilities evaluated in Steps B through Tier 3

6.0 INHALATION EXPOSURE ASSESSMENT AND RISK CHARACTERIZATION

For the purposes of this petition, the exposure assessment and risk characterization related to EGBE has two specific objectives: (a) to determine whether emissions of EGBE to ambient air could result in air concentrations that may pose a risk for acute and/or chronic human health effects; and (b) to determine whether emissions of EGBE from clusters of facilities within a limited geographic area could result in air concentrations of EGBE that pose a risk for acute and/or chronic health effects, at or beyond facility boundaries. This introduction provides an overview of the approach and findings of these analyses, while subsequent subsections detail all aspects of the inhalation exposure assessment and risk characterization.

The chronic (longer-term) and acute (short-term) exposure assessments were conducted for all facilities in the emissions inventory database developed as described in Section 5, in combination with a modified version of EPA's tiered modeling approach for assessing risks from stationary emission sources, which is described in *A Tiered Modeling Approach for Assessing the Risks Due to Sources of Hazardous Air Pollutants* (EPA 1992a). The tiered screening approach used in this petition follows the same general methodology used for the 2004 EGBE HAPs delisting decision; a methodology EPA reviewed, approved, and deemed as appropriate and conservative (in the sense that it overstates exposures). In brief, the tiered modeling approach involves performing analytical simulations (modeling) of air pollutant dispersion of emissions from stationary emission sources, given that measurement of long-term and short-term ambient concentrations of a pollutant in the vicinity of each source would be a prohibitively expensive task. The first modeling tier in this approach is designed to address the question of whether or not an emission source has the potential to result in EGBE air concentrations above the air concentrations of concern, and is performed using a table of lookup values that provides an estimate of the worst-case impact of the emission source being modeled. For this petition, the first tier (i.e., Tier 1) is preceded by two additional precursor screening steps (Steps A and B) designed to reduce the number of facilities for which additional site-specific data collection is required, through the use of conservative assumptions for parameters such as the proportion of certain glycol ether reported emissions that are EGBE, emission release height, and distance to nearest receptor. Facilities retained following these conservative, precursor screening steps are then subjected to the additional three tiers of the tiered modeling approach. In the tiered modeling approach, if predicted screening impacts at a given tier are less than the appropriate level(s) of concern, then no further modeling is needed in order to rule out the potential for adverse effects. Thus, facilities "screen out" of this tiered analysis only if their estimated maximum airborne concentrations of EGBE are determined not to pose a potential risk to human health. In the application of the tiered modeling approach in this petition, the exposure assessments performed for all facilities consistently employed conservative assumptions for emission-related parameters.

The screening approach for evaluating chronic EGBE exposures estimated the worst-case annual average airborne EGBE concentrations associated with EGBE emissions from

individual facilities or clusters of facilities at or beyond the facility property boundaries, for comparison to the EGBE RfC of 1.6 mg/m^3, in order to determine whether EGBE-emitting facilities pose a significant risk of adverse chronic human health effects. The analysis evaluated chronic exposures for all facilities that reported non-zero emissions of Certain Glycol Ethers to TRI in 2009, 2010, and/or 2011. The results of the tiered screening for chronic EGBE exposures demonstrated that maximum annual average EGBE concentrations at or beyond facility property boundaries, both for individual facilities and clusters of facilities emitting EGBE, are below the EGBE RfC, thus supporting a conclusion that emissions of EGBE do not result in a significant risk of chronic health effects.

The primary outcomes of the chronic exposure emissions modeling, as described in detail in this section, is a demonstration that (a) no ambient air concentrations of EGBE in the United States are predicted to exceed the EGBE RfC of 1.6 mg/m^3 and (b) the vast majority of EGBE air concentrations throughout the United States are well below that value. The first outcome is demonstrated through modeling performed for facilities that reported non-zero emissions of Certain Glycol Ethers in their TRI reports during 2009 through 2011: 1,109 facilities reporting Certain Glycol Ethers emissions for 2009; 1,149 facilities reporting Certain Glycol Ethers emissions for 2010; and 1,099 facilities reporting Certain Glycol Ethers emissions for 2011. The modeling demonstrated that long-term ambient air concentrations of EGBE at or beyond the fencelines of all these facilities are below 1.6 mg/m^3.

The conservatism of this conclusion is demonstrated in several ways. First, the modeled air concentration estimates in the initial modeling tiers (e.g. Tier 1) are based on a screening dispersion model. Screening dispersion models are intentionally designed to overestimate ambient air concentrations. Thus a facility that screens out in the earlier tiers does so based on a substantial overestimate of its EGBE ambient air concentrations. Second, when facilities that do not screen out at earlier tiers (e.g., Tier 1) are modeled in successive Tiers using increasingly realistic yet still conservative estimates, the results show substantial reductions in the predicted maximum EGBE concentrations compared to earlier modeling tiers, thus further demonstrating the conservatism of the conclusion that emissions of EGBE from even the highest emitting facilities and clusters of closely located facilities do not result in long-term ambient air concentrations of EGBE above the RfC. For example, up to an average 92% reduction in maximum predicted concentrations was realized in moving from Tier 1 modeling to Tier 2 modeling to Tier 3 modeling, and an average 99.3% reduction was realized in moving from Step A to Tier 3 modeling. Facilities predicted under Tier 1 modeling to have maximum annual average concentrations greater than 1.6 mg/m^3 were predicted under Tiers 2 and 3 to have maximum annual average concentrations as low as 0.043 mg/m^3.

Because an EPA RfC for short-term exposures is not available, the tiered screening approach for evaluating potential acute EGBE exposures uses the estimated worst-case 1-hour average airborne EGBE concentrations combined with a MOE methodology frequently used by EPA in TRI delisting decisions, in cases where an EPA reference concentration for short-term exposures is not available. The results of the analysis indicated that maximum 1-hour average concentrations at or beyond facility property boundaries equate to a MOE in excess of 5 below

the NOAEL for all facilities evaluated, supporting a conclusion that acute effects from EGBE emissions are highly unlikely. For the acute exposure assessment for clusters of facilities (located within a small geographic area), the maximum 1-hour average concentrations at or beyond facility property boundaries for the clustered facilities equate to a MOE in excess of 4. As a further note on the conservatism in this analysis, the acute NOAEL on which the MOE is based is derived from 2-hour human exposure data that was not adjusted to the 1-hour concentration. If the MOE was adjusted to the 1-hour concentration, the MOE would increase by about 40%.

6.1 Overview of the Tiered Modeling Method for Assessing Risks from Air Exposures

As described in Section 5, an emissions inventory of potential EGBE-emitting facilities was developed based on all facilities that reported non-zero emissions of Certain Glycol Ethers in their TRI reports for the 2009, 2010, and/or 2011 reporting years. For each facility reporting non-zero Certain Glycol Ethers emissions to EPA during these years, the potential for each facility's emissions to result in ambient air concentrations of EGBE above acute or chronic exposure concentrations of concern was evaluated using a conservative risk-based screening approach consistent with EPA's (1992a) guidance document, *A Tiered Modeling Approach for Assessing the Risks Due to Sources of Hazardous Air Pollutants* ("EPA's Tiered Modeling Guidance"). This guidance outlines EPA-approved procedures for assessing risks due to the atmospheric dispersion of emissions of pollutants from stationary sources. In brief, EPA's Tiered Modeling Guidance describes an approach that involves performing analytical simulations of air pollutant dispersion from stationary sources, given that measurement of long-term and short-term ambient concentrations of a pollutant in the vicinity of each source would be a prohibitively expensive task.

EPA's Tiered Modeling Guidance describes a three-tiered modeling approach, consisting of the following:

- Tier 1 – Lookup table
- Tier 2 – Screening air dispersion modeling
- Tier 3 – Detailed air dispersion modeling

EPA's Tiered Modeling Guidance states that if predicted screening impacts at a given tier are less than the appropriate level(s) of concern, then no further (refined) modeling is indicated. However, if the predicted screening impacts are above any levels of concern, the guidance states that further (refined) analysis of these impacts at a higher tier would be performed (i.e. successive refined modeling tiers) to obtain more accurate (realistic) results.

In EPA's Tiered Modeling Guidance, Tier 1 is designed to address the question of whether or not an emission source has the potential to cause a significant impact. Tier 1

screening uses lookup tables based on EPA's 1992[h] guidance, which are straightforward to use and require fairly limited input data. The values provided by the lookup table are the estimated worst-case air concentration associated with each emission source being modeled. Although EPA's (1992a) Tier 1 modeling step involves use of a lookup table that is straightforward to use and requires fairly limited input data, it requires more information than is available solely from TRI reports. As such, a more conservative and simpler two-step precursor screening procedure was developed for use prior to the Tier 1 screening step. The precursor procedure is designed to reduce the number of facilities for which additional data collection was required to perform the more refined Tier 1 screening. Thus, Step A of the two-step precursor screening procedure relies solely on data available from TRI submissions (i.e. total annual emissions of Certain Glycol Ethers), while Step B requires the total annual emissions data from TRI plus a small number of additional facility-specific parameters (though less than are required for Tier 1 screening). In instances where facility specific inputs were not available for Step B, conservative default assumptions for those parameters were used.

Step A uses an "inverted" Tier 1 table (see Table 6-1) that was generated using the same methodology that was used to generate the inverted Tier 1 table used for the same purpose in the HAPs delisting petition (CMA 1997). The inverted Tier 1 table (Table 6-1) provides a threshold emission rate below which a facility is not predicted to exceed a specific ambient air concentration, based on an assumed release height and distance to fenceline. Highly conservative assumptions were used to generate the "inverted" Tier 1 table used in Step A, such as an assumption that all emissions (combined point and fugitive emissions) of Certain Glycol Ethers are assumed to be EGBE[i], and that all emissions are assumed to be released from a single point source with a release height of zero meters. In the HAPs delisting decision, EPA specifically approved this adaptation of EPA's modeling guidelines as "reasonable" because it is based on "sound analytic principles" "and would tend to overestimate rather than underestimate maximum annual ambient average concentrations" (68 FR 65652, 65660 [EPA 2003]).

The Step B precursor screening step uses a modified version of EPA's Tier 1 lookup table (the same lookup table used for the Tier 1 screening step), along with a small number of facility-specific parameters required to model the maximum impact from each facility. However, as described in Section 6.2.3, Step B is more conservative than the Tier 1 screening. For Step B highly conservative assumptions were applied for facilities for which existing facility-specific

[h] Note that EPA's 2004 Community Air Screening How-To Manual (EPA 2004c) guidance also includes an analogous screening lookup table. However, an analysis of the 2004 lookup table using a subset of the highest emitting facilities evaluated as part of this petition, indicates that the 2004 screening lookup table is less conservative (predicts lower modeled concentrations) than the lookup table based on EPA's 1992 Tiered Modeling Guidance. As such, to maximize the conservatism of the tiered modeling approach used in this petition, a screening lookup table based on EPA's 1992 guidance lookup table is used, which is the same screening lookup table used for the same purpose in the HAPs delisting petition (CMA 1997).

[i] This assumption is considered conservative because EGBE comprises 52 percent (%) of the United States annual consumption of glycol ethers (SRI 2010).

information had been obtained for the 2007 EGBE TRI delisting petition, or was obtained from Step B survey responses received as part of this petition. For each of these facilities, very conservative assumptions were used with the lookup table, such as assuming that the combined point-source emissions for a facility were emitted from a single hypothetical stack, with a release height equal to the minimum stack height among all facility stacks, and the minimum distance to fenceline among all facility stacks. For all facilities without site-specific information for the required parameters, conservative default Step B input parameters were assumed, as described further below.

The conservative nature of the Step A and Step B prescreening steps is designed to ensure that maximum EGBE concentrations in ambient air at/beyond the fenceline of facilities that screen out using this methodology will not exceed the applicable levels of concern for EGBE for both chronic and acute inhalation exposures. For those facilities that did not screen out from Step A and Step B, more refined screening for both acute and chronic exposures was performed using slightly modified versions of EPA's Tier 1 lookup table (identical to the Tier 1 table used for the EGBE HAPs delisting petition). The Tier 1 lookup tables (acute and chronic) require additional site-specific data not required for the Step B screening step. Thus, the maximum concentrations predicted by the Tier 1 lookup tables, more precisely estimate the short-term and long-term ambient concentrations of EGBE, compared to Step A and Step B.

Those facilities for which the maximum Tier 1 predicted concentrations are below the applicable levels of concern for EGBE for acute or chronic inhalation exposures do not require further refined analysis. For the remaining facilities with predicted Tier 1 EGBE air concentrations above the acute or chronic concentrations of concern, more refined screening modeling was performed in the Tier 2 screening step using EPA's AERSCREEN v.11126. AERSCREEN is a screening-level air dispersion model designed to produce estimates of worst-case 1-hour concentrations for a single source, without the need for hourly meteorological data, and also includes conversion factors to estimate "worst-case" annual concentrations. If any facility with maximum predicted Tier 2 modeled EGBE concentrations in ambient air had exceeded the applicable levels of concern for EGBE for acute or chronic inhalation exposures, then the most refined and realistic analysis (Tier 3) using EPA's refined dispersion model AERMOD v.12060, would have been used. However, although all facilities screened out at Tier 2, in order to further test the conservatism of the screening procedure and to estimate the margin of safety[j] provided by the screening procedure, a subset of facilities screening out at Tier 2 were nonetheless subjected to Tier 3 analysis as part of the sensitivity and uncertainty analysis discussed in Section 6.6.

As discussed further in the remainder of this section, the exposure assessments performed for all facilities using EPA's tiered modeling approach consistently employed

[j] For purposes of this petition, margin of safety is defined as the factor by which concentrations could increase while remaining below the short-term reference concentration (e.g., predicted concentration divided by the no adverse effects level). It is recognized that in other applications, margin of safety does not incorporate the uncertainty factors that are built into the IRIS RFC.

conservative estimates of emission-related parameters whenever data were incomplete. Details of the tiered methodology used to support this delisting petition and the resulting risks for estimated long-term and short-term exposures to potential EGBE-emitting facilities are described in further detail in Sections 6.2 through 6.5.

6.2 Step A and B Prescreening

6.2.1 Step A Prescreening Methodology

Step A uses an "inverted" Tier 1 table, developed using the same methods used to develop the inverted Tier 1 table in the 1997 HAPs delisting petition (CMA 1997).[k] This inverted screening table provides annual EGBE emission thresholds (expressed as tpy) above which the annual average EGBE concentration would be predicted to exceed the RfC of 1.6 mg/m^3. The Step A inverted Tier 1 table is shown in Table 6-1.

The annual threshold emission levels listed in this table are computed by dividing the RfC by the normalized ambient concentrations in EPA's (1992a) Tier 1 table:

$$Q_{threshold} = RfC \div [\chi/Q]\ \text{Tier 1} \qquad \text{Eqn. 3}$$

where:

$Q_{threshold}$ = threshold emissions (tpy)

RfC = Reference Concentration (expressed in micrograms per cubic meter or µg/m^3), and

$[\chi/Q]_{Tier\ 1}$ = normalized ambient concentration in Tier 1 table (µg•m^{-3}/tpy)

The annual emission thresholds for the screening table are tabulated by source type, release height, and downwind distance.[l]

For Step A, each facility's annual TRI combined stack and fugitive Certain Glycol Ethers emissions are conservatively used to represent each facility's total annual EGBE emissions. Consistent with the HAPs petition's (CMA 1997) inverted Tier 1 table screening, Step A assumed that all stack and fugitive emissions from a given facility exhaust from a single point source with an emission height of zero meters and a minimum distance to fenceline of 50 meters. Based on the EGBE RfC of 1.6 mg/m^3, the corresponding threshold EGBE annual threshold emission rate for Step A screening is 4.9 tpy (Table 6-1). Based on these conservative assumptions regarding point-source releases, distances to fenceline, and percent of Certain Glycol Ethers that are EGBE, any facility emitting less than 4.9 tpy of Certain Glycol Ethers is predicted to have fenceline concentrations below the RfC.

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[k] The difference between the inverted Tier 1 table developed for the 1997 HAP delisting petition and the inverted Tier 1 table developed for this petition is that the former was derived based on the prior EGBE reference concentration of 13 mg/m^3, while the Step A screening table for this petition is derived from the current RfC of 1.6 mg/m^3 based on the 2010 IRIS assessment.

[l] The emission source types in the screening table are identical to those listed in the Tier 1 lookup table.

6.2.2 Step A Results

All facilities reporting non-zero Certain Glycol Ethers emissions during the 2009, 2010, and/or 2011 TRI reporting years were evaluated using Step A. Step A screens out facilities that emit Certain Glycol Ethers (combined point and fugitive emissions) less than the lowest emission threshold for a 50 meter fenceline distance (i.e., 4.9 tpy). The results of the Step A screening are summarized below and in Table 6-2:

- Of the 1,109 facilities that reported non-zero emissions of Certain Glycol Ethers to air in 2009, 824 (76%) screened out from further analysis based on Step A, leaving 260 facilities warranting further evaluation in Step B.
- Of the 1,149 facilities that reported non-zero emissions of Certain Glycol Ethers to air in 2010, 850 (76%) were screened out from further analysis based on Step A, leaving 273 facilities warranting further evaluation in Step B.
- Of the 1,099 facilities that reported non-zero emissions of Certain Glycol Ethers to air in 2011, 823 (75%) were screened out from further analysis based on Step A, leaving 276 facilities warranting further evaluation in Step B.

A detailed listing of each facility included in the Step A analysis is provided in Tables C-1, C-2, and C-3 of Appendix C. For those facilities that reported total Certain Glycol Ethers emissions of more than the 4.9 tpy during 2009, 2010, and/or 2011, a more refined Step B screening evaluation was performed, as described below.

6.2.3 Step B Prescreening Methodology

Step B uses the same lookup table used for the Tier 1 analysis, which is a modified version of EPA's Tier 1 lookup table (similar to the Tier 1 table used for the EGBE HAPs delisting petition), along with a small number of facility-specific parameters required to model the maximum impact from each facility[m] – i.e. projected EGBE ambient air concentrations at or beyond the property boundary. Step B screening conservatively models all point-source emissions from a facility as if released from a single stack, and models fugitive releases as a single volume source, consistent with the EPA's Tier 1 screening process (EPA 1992a).

The parameters required for Step B for each facility are

1. point and fugitive release heights for EGBE emissions sources at each facility;
2. distance from each EGBE emission source to fenceline; and
3. proportion of Certain Glycol Ethers emissions reported to TRI that is EGBE.

The values assumed for each of these parameters were based on site-specific data or conservative default assumptions, as described in detail below. In addition, Step B was performed as a two-part process in order to reduce the number of facilities for which a survey was performed to collect additional site-specific information for this petition.

[m] Facilities that closed after emissions were reported to the TRI were excluded from subsequent modeling tiers, given the inability to obtain site-specific data and the lack of current emissions from the facility.

In the first part of Step B, existing available facility-specific information was used to perform a Step B screening, when such information had been previously obtained for facilities as part of ACC's work on a previous version of the EGBE delisting petition that was prepared in 2007, prior to EPA's revision to the RfC and RfD[n]. For each facility, the combined point-source emissions were conservatively assumed to be released from a single stack with a release height equivalent to lowest release height among all of that facility's stacks, thereby maximizing calculated off-site concentrations of EGBE in ambient air. The combined maximum annual average concentration of EGBE in ambient air associated with each facility's point and fugitive emissions was calculated as follows:

- The greatest emission height in the table that is less than or equal to the minimum stack height for the facility's EGBE point sources (stacks) was selected from the modified Tier 1 Table (see Appendix D Table D-1).
- The greatest distance in the table that is less than or equal to the minimum distance between any facility stack and the property line was selected (regardless of whether it corresponded to the facility stack with the minimum height).
- If available, the site-specific percent of Certain Glycol Ethers emissions that are EGBE was applied to the point and fugitive source emission rates obtained from TRI. If not available, all TRI-reported Certain Glycol Ethers releases were assumed to be EGBE.
- The appropriate normalized maximum annual concentration for the stack (based on the selected release height and distance to property line) was identified and multiplied by the annual combined point-source EGBE emission rate (in tpy) to obtain the maximum annual average ambient air concentration estimate (in $\mu g/m^3$) associated with EGBE point-source emission from the facility.
- The appropriate normalized maximum annual concentration for the fugitive emissions (using the default volume source parameters described below in combination with the minimum reported site-specific property line distance) was identified in the modified lookup table (Table D-1) and multiplied by the annual combined point-source EGBE emission rate (in tpy). This calculation provides the annual average ambient air concentration estimate (in $\mu g/m^3$) associated with EGBE fugitive emissions from the facility.
- The cumulative annual average ambient air concentration estimate associated with each facility (in $\mu g/m^3$) is conservatively calculated by adding the maximum predicted ambient air concentrations associated with the point-source emissions with the maximum predicted concentration associated with the fugitive emissions.

For all facilities lacking site-specific data from the 2007 EGBE TRI delisting petition (numbers of facilities provided in Table 6-3), the following conservative default assumptions were used in the first part of the Step B screening:

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[n] Site-specific data had previously been compiled for certain facilities as part of the American Chemistry Council's petition submitted in 2007, prior to EPA's revision to the RfC and RfD for EGBE.

1. All TRI-reported Certain Glycol Ethers releases to air were assumed to be EGBE.
2. Point emissions were modeled as a 10 meter stack.
3. Fugitive emissions were modeled as a volume source with a lateral dimension of 10 meters and a release height of 3 meters.
4. The distance from each emission source (point or volume) to the nearest fenceline was assumed to be 50 meters.

These Step B default parameter assumptions for stack and fugitive emissions are identical to those used in EPA's exposure assessment for ethylene glycol (EPA 1995b) and the EGBE HAP delisting petition (CMA 1997).

The total maximum impact (maximum predicted ambient air concentration at or beyond the fenceline) for each facility lacking site-specific parameters was calculated based on these default assumptions, as the sum of stack and fugitive impacts derived from the modified EPA Tier 1 lookup table (see Appendix D Table D-1).

At the conclusion of the first part of the Step B analysis, each facility's total maximum impact (maximum predicted ambient air concentration at or beyond the fenceline) was compared to the RfC for EGBE of 1.6 mg/m^3. A survey was conducted for all facilities modeled using only default parameter assumptions for which the maximum predicted annual average concentration was above the RfC. The survey was intended to collect the site-specific information for use in the Step B screening. To increase responsiveness to the survey, the Can Manufacturers Institute (CMI) was enlisted to provide assistance with survey implementation for the CMI member facilities subject to this Step B screening. CMI identified contact names and addresses, distributed the Step B surveys to its member facilities, and provided survey follow up. Two facilities that were contacted as part of the Step B survey effort did not respond to the survey ([redacted] and [redacted]). For these two, facility-specific information was obtained from publically available sources to the extent that such information was publically available. In particular, EPA's National Emissions Inventory[o] (NEI) database was used to obtain information on facility stack heights. EPA prepares the NEI every three years, largely relying on EPA emission estimates and emission model inputs provided by state, local, and tribal air agencies for sources in their jurisdictions. As the NEI is a comprehensive and detailed estimate of air emissions of criteria pollutants (including volatile organic compounds or VOCs) from all air emissions sources, NEI's stack information is a reasonable estimate of facility stack parameters for purposes of subjecting these facilities to Step B modeling. Because the NEI database does not contain information on distances between each stack and a facility's property boundary, this distance was estimated for each stack by measuring distances between facility structures in aerial imagery and property boundaries obtained from municipal tax assessors' databases.

[o] http://www.epa.gov/ttn/chief/eiinformation.html. Data from both the 2005 and 2008 NEI datasets were queried for this petition.

Table C-4 in Appendix C summarizes all site-specific minimum stack height and distance to property line data obtained and used in the Step B screening analysis. Using these values, the maximum annual average concentration of EGBE in ambient air associated with each facility's point-source emissions was calculated described above. As described previously, for all other facilities lacking site-specific data for the required input parameters, the Step B default assumptions were used for stack and fugitive emissions. The total maximum impact for each facility was calculated as the sum of the facility's stack and fugitive impacts from the lookup table based on these assumptions, and then compared to the RfC for EGBE of 1.6 mg/m^3.

6.2.4 Step B Results

Based on the above assumptions, the modified Tier 1 lookup table was used to obtain maximum impacts associated with EGBE point and fugitive emissions. The total maximum impact for each facility was then calculated by summing stack and fugitive impacts, and the total impact was compared to EGBE's RfC of 1.6 mg/m^3. The final results of the Step B screening are summarized below and in Table 6-3 and Appendix C (Table C-4):

- Of the 260 facilities that reported non-zero emissions Certain Glycol Ethers to air during 2009 and that did not screen out based on Step A, 245 (94%) screened out from further analysis at Step B, leaving 15 facilities warranting further evaluation in Tier 1.
- Of the 273 facilities that reported non-zero emissions Certain Glycol Ethers to air during 2010 and that did not screen out based on Step A, 258 (95%) screened out from further analysis based on Step B, leaving 15 facilities warranting further evaluation in Tier 1.
- Of the 276 facilities that reported non-zero emissions Certain Glycol Ethers to air in 2011 and did not screen out based on Step A, 262 (95%) screened out from further analysis based on Step B, leaving 14 facilities warranting further evaluation in Tier 1.

For the 2009 TRI reporting year, one facility did not screen out at Step B, but was excluded from further analysis because it has since closed. Thus, it was not possible to obtain the site-specific data needed for more refined modeling. In any event, a facility that is not operating also would not emit Certain Glycol Ethers. This facility was the [redacted]. However, as discussed further in the uncertainty analysis (Section 6.6), if this facility was operating, it would be expected to screen out at the higher tiers based on the reported emissions of Certain Glycol Ethers when it was operating, as well as the demonstrated margin of safety provided by the analysis.

6.3 Chronic Inhalation Exposure Assessment for Individual Facilities

6.3.1 Tier 1 Screening for Individual Facilities

6.3.1.1 Tier 1 Methodology

Tier 1 screening was performed based on the Tier 1 of EPA's Tiered Modeling Guidance (1992a) guidance using a slightly modified version of EPA's Tier 1 lookup table (Appendix D, Table D-1). This approach is also consistent with that used for the EGBE HAPs delisting petition

(and the same used for Step B in this petition). As with Step B, the Tier 1 analysis for chronic exposures accounts for both fugitive emissions and individual point-source (stack) EGBE emissions. However, Tier 1 screening methodology differs from the Step B screening analysis in that Tier 1 screening individually evaluates each EGBE-emitting stack at a facility and each stack's respective minimum distance to the fenceline (assuming all point-source emissions are emitted by the given stack); whereas, Step B conservatively evaluates a single hypothetical stack (assuming all point-source emissions are emitted by the given stack) using the minimum emission height and minimum distance to fenceline among all stacks at a given facility. In other words, the principle difference between Step B and Tier 1 is that Step B uses the minimum fenceline distance and stack height among all stacks at a facility, regardless of whether those values relate to the same stack. The other difference is that Tier 1 uses more site-specific information for the estimation of impacts from fugitive emissions (e.g, it uses the actual fenceline distance from fugitive sources rather than the minimum stack distance to represent fenceline distances from fugitive sources).

The following site-specific information was required for Tier 1 modeling of each facility's EGBE emissions:

- The proportion of Certain Glycol Ethers emissions reported to TRI that is EGBE
- Annual emissions of EGBE (point and fugitive emissions) from each facility in tpy
- Height of the release point above ground in meters, for each point source
- Nearest distance to the property line in meters for point sources and fugitive sources

Point-source emissions release heights and receptor distances were derived from facility-specific data obtained from facility survey responses. Those responses were collected as part of Step B. As with Step B, for facilities that did not provide facility-specific data, information was obtained from publically available sources to the extent relevant information was available (i.e. EPA's NEI, aerial imagery, and municipal tax assessors' information). Because nearly all facilities requiring Tier 1 modeling responded to the Step B survey, information from publically available sources was only needed for one facility in the Tier 1 screening for all three years of TRI data (2009–2011)–the [redacted] facility in [redacted] Virginia.

The Tier 1 point-source contribution to each facility's maximum annual ambient air concentration of EGBE was determined for each stack at each facility using the following procedure:

- The facility's combined point-source EGBE emissions were assumed to be emitted from each stack evaluated at the facility.
- The greatest emission height in the table that is less than or equal to the stack height for the EGBE-emitting stack was selected from the modified Tier 1 Table (see Appendix D Table D-1).
- The greatest distance in the table that is less than or equal to the distance between this stack and the property line was selected.

- The appropriate normalized maximum annual concentration for this stack (based on its release height and distance to fenceline) was selected and multiplied by the annual combined point-source EGBE emission rate (in tpy) to obtain the maximum annual average ambient air concentration estimate (in μg/m^3) associated with EGBE point-source emission from the facility.

For Tier 1 screening, this procedure described above was performed for each EGBE-emitting stack at a facility. Then, the maximum annual Tier 1 concentration among these individual stack analyses was conservatively selected to represent the maximum impact for facility point-source emissions of EGBE. Each facility's fugitive EGBE emissions were assumed to be represented by a single volume source with a lateral dimension of 10 meters and a release height of 3 meters, as was the case for Step B. These assumptions are identical to those used in EPA's exposure assessment for ethylene glycol (EPA 1995b) and the EGBE HAP delisting petition (CMA 1997). The distances to the nearest receptors for fugitive emissions were based on site-specific data from the survey responses or from measurements of the minimum distance from the fugitive source (facility building) to the property boundary based on aerial imagery. For each facility, the maximum Tier 1 modeled annual average concentration of EGBE in ambient air was conservatively assumed to be the sum of fugitive impact and worst-case stack impact for the facility.

6.3.1.2 Tier 1 Results for Individual Facilities

For each facility, the maximum chronic EGBE exposure (impact) in ambient air at or beyond the property boundary was determined as described above, and the result was compared to the RfC of 1.6 mg/m^3 by calculating the chronic Hazard Quotient (HQ)[p]. Those facilities, for which the Tier 1 modeling result was less than the RfC, screened out and did not undergo further analysis. As summarized below and further detailed in Table 6-4 and Appendix D, two of the facilities subjected to Tier 1 screened out at this step:

- For the 14 facilities reporting non-zero emissions Certain Glycol Ethers in 2009 that did not screen out in Step B, 2 screened out in the Tier 1 screening step, leaving 12 facilities for additional refined evaluation in Tier 2.
- For the 15 facilities reporting non-zero emissions Certain Glycol Ethers in 2010 that did not screen out in Step B, 2 screened out in the Tier 1 screening step, leaving 13 facilities for additional refined evaluation in Tier 2.
- For the 14 facilities reporting non-zero emissions Certain Glycol Ethers in 2011 that did not screen out in Step B, 3 screened out in the Tier 1 screening step, leaving 11 facilities for additional refined evaluation in Tier 2.

For facilities subject to Tier 1 screening, the Tier 1 results were approximately 24% lower, on average, than Step B modeled impacts, with individual facility reductions (Step B to

[p] The HQ is calculated as the ratio of the maximum estimated exposure concentration to the RfC.

Tier 1) in the maximum estimated EGBE exposure concentrations that ranged from 0% to approximately 70% (see Table 6-10). Few additional facilities screened out in the Tier 1 screening. This result is not unexpected given general similarities between the Step B and Tier 1 approaches (i.e. use of the same lookup table). As discussed above, the principle difference between Step B and Tier 1 for point source emissions is that Step B uses the minimum fenceline distances and stack heights, regardless of whether those values relate to the same emission source. Thus, small reductions from Step B to Tier 1 indicate that the worst-case hypothetical stack assumed for Step B had only slightly worse dispersion characteristics than the worst case individual stack selected from among each facility's actual EGBE emitting stacks. Large reductions in the modeled exposure concentration from Step B to Tier 1 indicated that the Step B hypothetical stack height and minimum distance to fenceline assumptions had worse dispersion characteristics than any actual stack at the facility, further demonstrating the conservativeness of the Step B approach, with respect to Tier 1. Those facilities that did not screen out with the Tier 1 analysis were subjected to more refined Tier 2 modeling using EPA's AERSCREEN air dispersion model, as discussed in the next subsection.

6.3.2 Tier 2 Screening for Individual Facilities

Chronic exposure Tier 2 modeling was performed for each facility that did not screen out using the Tier 1 screening analysis. Tier 2 modeling was performed using EPA's recommended screening air dispersion model, AERSCREEN (EPA 2011a)[q]. AERSCREEN is designed to provide conservative estimates of ambient air concentrations. AERSCREEN requires additional facility-specific information beyond that which was required for the Tier 1 modeling. Specifically, the following facility-specific data is required for the Tier 2 modeling with AERSCREEN: (1) inside stack diameters; (2) exhaust velocities; (3) exit gas temperatures for all stack (point) releases; (4) extent of the facility property boundary; (5) building dimensions (used to parameterize fugitive EGBE emissions and evaluate the building downwash impacts for point sources); and (6) classification of the surrounding area as urban or rural. AERSCREEN also requires additional information related to land surface characteristics around each facility, as well as information on general meteorological characteristics for each site, which are used to generate the screening meteorological data applied with AERSCREEN.

AERSCREEN models the worst-case 1-hour average ambient air concentration based on a closely spaced receptor grid around each facility, which extends outward a distance of 5,000 meters (16,404 feet) and assumes the AERSCREEN default receptor spacing (within this grid) of 25 meters (82 feet). To estimate the maximum (chronic) annual average EGBE ambient air concentrations, AERSCREEN applies a scaling factor of 0.1 to the model-generated maximum 1-hour average concentration output, in accordance with EPA's AERSCREEN

[q] AERSCREEN is a screening-level air quality model based on AERMOD. AERSCREEN was implemented as the screening option in AERMOD, using a nonsequential meteorological data file representing a matrix of conditions, specifically worst-case meteorological conditions generated by the MAKEMET program.

guidance (EPA 2011). For each facility modeled using this approach, the Tier 2 AERSCREEN result represents the combined impact of point and fugitive EGBE emissions. Because AERSCREEN is limited to modeling a single emission source in each model run, point and fugitive sources for a facility were modeled separately in Tier 2. The maximum impact for the facility's total EGBE emissions (point and fugitive) was conservatively calculated as the sum of the maximum predicted AERSCREEN result for the point-source EGBE emissions combined with the maximum predicted AERSCREEN result for the facility's fugitive EGBE emissions.

A detailed discussion of inputs required by AERSCREEN and the methodology used to perform the modeling is provided in the remainder of this section. The results of the Tier 2 Screening are provided in Section 6.3.2.5.

6.3.2.1 AERSCREEN Meteorological Inputs

AERSCREEN modeling was carried out using simulated location-specific (worst-case) screening meteorological data generated by MAKEMET program version 09183 (EPA 2011a), using local temperature extremes and surface characteristics information. The screening meteorological data produced by MAKEMET is a location-specific matrix of meteorological conditions intended to be representative the meteorological possibilities for that geographic location. The screening meteorological data was generated for each facility subject to Tier 2 modeling using minimum and maximum ambient temperatures derived from historical daily temperature records at meteorological station closets to the facility, in the United States Historical Climatology Network. Extremes were determined using all historical records, spanning from 50 and over 100 years, depending on the station location. Site-specific surface characteristic data for the area around the facility were processed using United States Geological Survey National Land Cover Data (USGS) and EPA model AERSUFRACE (EPA 2008). Surface characteristics (albedo, Bowen ration and surface roughness) were provided in the form of seasonal 12 sector characteristics representative of a one kilometer (km) radius area centered at the facility. The remaining MAKEMET input parameters, such as minimum wind speed, anemometer height, and specified number of wind directions etc. used the default AERSCREEN values.

6.3.2.2 AERSCREEN Buildings and Receptor Location Inputs

EGBE 1-hour modeled concentrations are calculated by AERSCREEN at specific locations within the user-specified grid. For the Tier 2 screening, the specified receptor grid for each facility extended outward from each facility's property line to a distance of 5,000 meters (16,404 feet). The AERSCREEN default receptor spacing (within this grid) of 25 meters (82 feet) was used for the entire grid.

Property boundary information required for AERSCREEN modeling was obtained from Tier 2 survey responses, or was obtained from publically available sources, as described for Step B and Tier 1 screening. The property plans and images obtained from the local agencies were georeferenced by overlaying them onto an aerial image from Google Earth. For Tier 2 screening, the building dimensions, orientation, and distance to the property line were

determined using the Google Earth program. For buildings with multiple roof heights, each roof level was estimated using Google Earth's "Street View" feature and comparing the building height to a known height (e.g., a door). In the absence of a clear street view image, the height of the building's shadow was compared to that of a known shadow height such as that of a truck trailer or power line post, in order to estimate the building height.

6.3.2.3 AERSCREEN Elevation Data Inputs

AERSCREEN requires a determination whether complex terrain[r] is present within 5 km of the facility being modeled. Aerial imagery with elevations was also used to make that determination. Only one facility subject to Tier 2 modeling was identified as having the potential for complex terrain—the [redacted] facility in [redacted] WV [redacted]. All remaining sites for which Tier 2 modeling was required are located in areas with relatively flat terrain. For the [redacted] facility in WV, potential effects of complex terrain were evaluated in AERSCREEN by incorporating digital elevation data from the National Elevation Dataset (NED) (USGS; EPA 2009), at the resolution of 0.33 arc-second. For this facility, the results of the AERSCREEN modeling with terrain effects produced slightly lower annual average EGBE concentrations than if terrain effects were omitted. Consequently, complex terrain effects are not significant at the [redacted] WV facility. Nonetheless, to be conservative, the slightly higher AERSCREEN results that excluded terrain effects were used to represent the Tier 2 modeling results for this facility.

6.3.2.4 AERSCREEN EGBE Point and Fugitive Source Inputs

Tier 2 surveys were distributed to all facilities requiring Tier 2 modeling in order to collect the following facility-specific information: stack inside diameters, exit gas temperatures, building dimensions/configuration, and detailed information on the extent of the property boundary. As with the Step B/Tier 1 surveys, in order to increase responsiveness among the CMI-member facilities, CMI was enlisted to assist with survey distribution and follow up.

Following survey data collection, facilities were categorized as either (1) facilities for which Tier 2 survey responses were received or (2) facilities for which Tier 2 survey information was not provided. For facilities that did not respond, the missing information was obtained from publically available sources, in the same manner as described above with respect to Step B and Tier 1 screening. Where required parameters were not available from either survey responses or publically available sources, default assumptions were used, as described further below.

<u>EGBE Point and Fugitive Emission Rates</u>

Stack and fugitive emission rates used for chronic exposure modeling in the model (in units of grams per second [gps]) were derived from annual Certain Glycol Ether emissions reported to TRI and the proportion of Certain Glycol Ether emissions that EGBE comprises (as

[r] Complex terrain term refers to the setting where terrain features surrounding the facility, within a 5 km radius, exceed the stack height.

reported by each facility in their Tier 2 survey response). Where facilities did not provide this information, EGBE emissions were conservatively assumed to be 100% of the Certain Glycol Ether emissions reported to TRI. For evaluating chronic exposures, the EGBE emission rates used to model each point (stack) and volume source were developed from annual EGBE emissions for each facility, based on an assumption that facilities operate continuously. Based on survey responses received for facilities modeled during Tier 2 (surveys were received from 92% of facilities modeled during Tier 2), this assumption is reasonable. All respondents indicated that their facilities operated continuously throughout the year.

EGBE Point-Source Parameters

Separate AERSCREEN model runs were performed for each facility's stack emissions. In each model run, the facility's total EGBE point-source emissions were assumed to exhaust from a single stack. Sources of information for stack parameters used in Tier 2 modeling are discussed below.

For the two facilities that did not provide Tier 2 survey responses (i.e., [redacted] in [redacted] VA and [redacted] in [redacted] WI), information from the 2005 and 2008 NEI databases was used to estimate individual stack parameters. Based on the NEI database information, these facilities each reported VOC releases from a single stack at each facility. The NEI data provided the following stack parameters for these two facilities: stack height; stack inner diameter; exhaust temperature; and exit velocity. However, because the NEI database does not provide specific information on the location of the stacks at a facility, a sensitivity analysis was performed using AERSCREEN to determine the most conservative hypothetical stack location for the stack at each of these two facilities (i.e., the location that produced the highest modeled air concentration based on the stack parameters in the NEI database). First, to determine the likely location of the stack at each facility, aerial images were analyzed to first identify the section of each facility's building(s) that was most likely associated with process emissions (i.e., the portion of the building where stacks were visible). For point-sources (stacks), this analysis involved modeling a range of stack-to-property distances and stack-to-building configurations, including hypothetical stack locations that would be expected to result in higher modeled concentrations due to building downwash effects or proximity of the source to the property line. The worst-case stack location at each facility as determined in the sensitivity analyses was used for the final point-source AERSCREEN model run for these two facilities.

For facilities that provided Tier 2 survey responses, AERSCREEN was used to model each facility's total point-source EGBE emissions. For each stack determined to emit or potentially emit EGBE at the facility, individual AERSCREEN model runs were performed. For each model run, the facility's combined EGBE stack emissions were assumed to exhaust from each stack independently. The AERSCREEN model run that resulted in the highest predicted annual average EGBE concentration for a facility was conservatively selected to represent the worst-case (maximum) predicted airborne EGBE concentration for all point-source EGBE emissions from that facility.

EGBE Fugitive Source Parameters

For Tier 2, fugitive EGBE emissions were modeled as a single volume source, where the initial vertical dimension ($\square_y$) was derived from the facility's roof height and the initial horizontal dimension ($\square_z$) was derived from the building area, consistent with EPA guidance for selecting volume source parameters (EPA 1995d). The information provided by the facilities in Tier 2 survey indicates that fugitive EGBE emissions are released from rooftop vents on the portion of the building encompassing manufacturing operations. The release height of the volume source was therefore considered to be equivalent to each building's height. For facilities that did not respond to the Tier 2 survey and that had multiple buildings on site, aerial images were examined to identify likely production areas, based on presence of stacks, roof vents, etc. Fugitive emissions were assumed to be associated with those likely production areas. For all facilities (both with and without Tier 2 survey responses), volume sources were checked for the presence of an "exclusion zone condition" in AERSCREEN. Specifically, an exclusion zone condition applies if the distance between the volume center and closest property line (referred to as "PD") is less than or equal to 2.15 times the initial horizontal lateral dimension. In such cases, the volume source lateral dimension was reduced to ensure that the resulting $\square_z$ was equal to (PD-1)/2.15.

6.3.2.5 Tier 2 Results

For each facility in the three TRI emission data sets (2009, 2010, 2011 calendar years) subjected to Tier 2 screening, a facility's Tier 2 worst-case (maximum) predicted airborne EGBE concentration was compared to the EGBE RfC of 1.6 mg/m^3. Facilities for which the worst-case Tier 2 concentration of EGBE in ambient air was less than the RfC screened out and required no further analysis. As summarized in Table 6-5 and detailed in Appendix D, all facilities screened out at Tier 2 because all worst-case EGBE airborne concentrations at or beyond the property boundaries were predicted to be below the EGBE RfC of 1.6 mg/m^3. The results of the Tier 2 chronic exposure assessment are summarized below:

- For the 12 facilities retained for Tier 2 modeling based on 2009 emissions, the maximum predicted annual average concentration was 1.20 mg/m^3 (i.e., 75% of the RfC). The minimum and average concentrations modeled for all facilities were 0.25 mg/m^3 and 0.54 mg/m^3 (corresponding to 15% and 33% of the RfC), respectively.
- For the 13 facilities retained for Tier 2 analysis based on 2010 emissions, the maximum predicted annual average concentration was 1.04 mg/m^3 (i.e., 65% of the RfC). The minimum and average concentrations modeled for all facilities were 0.25 mg/m^3 and 0.54 mg/m^3 (corresponding to 15% and 33% of the RfC), respectively.
- For the 12 facilities retained for Tier 2 analysis based on 2011 emissions, the maximum predicted annual concentration was less than or equal to 1.16 mg/m^3 (i.e., 73% of the RfC). The minimum and average concentrations modeled for all facilities were 0.24 mg/m^3 and 0.51 mg/m^3 (corresponding to 15% and 31% of the RfC), respectively.

Of the facilities for which Tier 2 modeling was performed, the [redacted] facility in [redacted] MA produced the highest modeled chronic EGBE impacts for all three years, with a maximum

annual average EGBE concentration of 1.20 mg/m^3 (i.e., 75% of the RfC), based on 2009 emissions data. Despite the use of very conservative assumptions and the inherent conservatism of the AERSCREEN model and screening meteorological data, the Tier 2 screening results demonstrate that EGBE emissions from individual facilities do not pose a significant risk of chronic health effects at or beyond the property boundaries for individual facilities. AERSCREEN model output files are provided in Appendix F.

Although all facilities screened out at Tier 2, in order to further test the conservatism of the screening procedure and to estimate the margin of safety provided by the screening procedure, six facilities that had screened out in Tier 2 modeling were subjected to additional analysis using EPA's long-term Tier 3 analysis. This analysis is described in Section 6.6, which discusses an analysis of uncertainty and conservatism of assumptions used to model chronic exposures from individual facilities.

6.4 Chronic Inhalation Exposure Assessment for Clusters of Facilities

The preceding analysis focused on potential risks associated with exposures to emissions from individual facilities. In the event that several emitting facilities are located within a limited geographic area, local residents may be exposed to the combined emissions from clusters of facilities. Therefore, the potential for chronic EGBE ambient air impacts from clusters of facilities was also evaluated as part of this petition.

Zip codes were selected as the geographic area used in this analysis, which evaluated potential chronic EGBE concentrations in ambient air from facilities located within all zip codes containing at least two facilities reporting non-zero emissions of Certain Glycol Ether emissions to TRI in 2009, 2010, and 2011. For the reasons described in greater detail below (Section 6.5.3), the zip code approach used in this petition is more conservative than the zip code/census tract approach used by Dolinoy and Miranda (2004). In addition, the method used for this facility cluster evaluation is similar to, but more refined than use of the metropolitan areas for the cluster evaluation used in the HAP delisting petition, a methodology EPA reviewed and accepted as appropriate and conservative that metropolitan area cluster evaluation as part of the HAPs delisting decision (68 FR 65653).

6.4.1 Facility Cluster Evaluation Tiered Screening Methodology

A conservative tiered modeling approach was also used to evaluate potential chronic airborne EGBE concentrations in ambient air from clusters of proximate facilities. The methodology used is analogous to the tiered modeling approach applied to individual facilities (see Sections 6.2 and 6.3), as discussed further below.

6.4.2 Step A Screening (Cluster Evaluation)

For the facility cluster evaluation, Step A was used to prescreen the inventory of all facilities that reported non-zero emissions of Certain Glycol Ethers to TRI for the 2009, 2010 and 2011 reporting years. Any zip code that contained at least two facilities reporting emissions of Certain Glycol Ethers during these three years was retained for evaluation in Step A. As with

the Step A screening performed on individual facilities, each facility's annual TRI combined stack and fugitive Certain Glycol Ethers emissions were conservatively combined and used to represent the facility's total annual EGBE emissions.

This approach differs from that employed by Dolinoy and Miranda (2004) in their evaluation of TRI-reported and potential non-TRI-reported emissions, but is a more conservative and appropriate basis for screening the clusters of facilities throughout the United States. Dolinoy and Miranda (2004) evaluated different spatial scales for estimating exposures to glycol ethers by modeling potential air concentrations at specific locations. Their approach took into account the relative distances to each source and the dispersion that occurs over those distances. They concluded that, for the purposes of determining spatially explicit exposure patterns, finer-grained resolution (e.g., census blocks) modeling revealed potential localized exposure hot-spots that are not apparent when modeling at higher resolution (e.g., zip codes). The screening approach in this petition, however, is not spatially explicit and combines facilities over geographic areas and treats them as a single source. Therefore, this approach does not account for air dispersion that occurs between facility boundaries. In addition, pooling facilities from larger geographic areas (i.e., zip codes rather than census blocks) captures more facilities within a single unit, and thus is considered more conservative than use of the potentially smaller subset of facilities when using smaller geographic areas.

In the facility cluster evaluation, Step A used the same "inverted" Tier 1 table described in Section 6.2.1. The inverted Tier 1 table provides annual EGBE emission thresholds (expressed as tpy) above which the annual average EGBE concentration would be predicted to exceed the RfC of 1.6 mg/m^3. Stack and fugitive emissions of Certain Glycol Ethers from all facilities in the same zip code were summed, and treated as if exhausted from a single point source with an emission height of zero meters and a minimum distance to fenceline of 50 meters. Based on the EGBE RfC of 1.6 mg/m^3, the corresponding threshold EGBE annual threshold emission rate for Step A screening is 4.9 tpy. Consistent with the Step A screening for individual facilities, any zip code for which the combined EGBE (point and fugitive) exceeded 4.9 tpy, was retained for further refined analysis.

The number of zip codes containing more than one facility reporting Certain Glycol Ether emissions was 158 in 2009, 164 in 2010, and 159 in 2011 (Table 6-6). The greatest number of facilities within a single zip code was 6 (zip code 60007, Elk Grove Village, IL). These zip codes were subjected to the Step A screening, with the following results:

- Of the 158 zip codes subjected to Step A screening for the 2009 TRI reporting year, 58 had cumulative emissions of Certain Glycol Ethers (assumed to be 100% EGBE) greater than 4.9 tpy;
- Of the 164 zip codes subjected to Step A screening for the 2010 TRI reporting year, 62 had cumulative emissions of Certain Glycol Ethers (assumed to be 100% EGBE) greater than 4.9 tpy; and
- Of the 159 zip codes subjected to Step A screening for the 2011 TRI reporting year, 65 had cumulative emissions of Certain Glycol Ethers (assumed to be 100% EGBE) greater than 4.9 tpy.

Those zip codes with combined emissions of Certain Glycol Ethers above 4.9 tpy underwent Step B screening, as discussed below.

6.4.3 Step B Screening (Cluster Evaluation)

The purpose of the Step B screening for facility clusters is to provide an initial assessment of chronic exposures for geographic areas (zip codes) that contain more than one facility emitting EGBE (or potentially emitting EGBE—i.e., reported TRI emissions of Certain Glycol Ethers). This screening consisted of two components. The first component included zip codes where emissions were dominated by a single facility. The second component included the remaining zip codes, where emissions were more evenly distributed across multiple facilities.

In order to identify the clusters dominated by one facility, the Certain Glycol Ethers emissions from the top reporting facility were compared to the cumulative Certain Glycol Ethers emissions for the zip code. If the percentage of cumulative emissions from one facility was at least 90% of the total, the zip code was evaluated as part of the first component of the Step B screen (i.e., dominated by a single facility). Any zip code for which the percentage of emissions from a single facility was less than 90% of the total was evaluated as part of the second component of the Step B screening.

For those zip codes evaluated under the first component of the facility cluster Step B screening, the maximum impacts from the individual facility Step B screening (Section 6.2.4 and Appendix C, Table C-4) for each facility in the zip code were compared to the RfC of 1.6 mg/m^3. If the maximum annual average EGBE concentration among all facilities in the zip code was less than 90% of the RfC, the zip code screened out and no further analysis was required. The cumulative zip code emissions from those zip codes that did not screen out at this point were compared to a threshold emissions level derived from the inverted Tier 1 lookup table developed for the Step A screening (Table 6-1). The threshold emissions level was determined based on the following assumptions, consistent with the Step B screening for individual facilities (Section 6.2.3):

1. All air emissions of Certain Glycol Ethers were assumed to be EGBE.
2. All air emissions in the zip code were assumed to be released from a single point source that was 10 meters high and 50 meters from the fenceline.
3. Fugitive emissions were combined with point-source emissions.

Based on these conservative assumptions, the threshold emissions rate that would correspond to the RfC is 75.8 tpy (Table 6-1). Zip codes with cumulative emissions greater than 75.8 tpy were retained for more refined facility cluster evaluation. The screening results from this first analysis are summarized below:

Based on the 2009 TRI inventory of facilities emitting Certain Glycol Ethers, 31 of the 58 zip codes that did not screen out at Step A contained one facility that represented more than 90% of the Certain Glycol Ethers emissions released in that zip code. The estimated maximum annual average EGBE concentrations for all 31 zip codes were less than 90% of the RfC. Thus,

none of the 31 zip codes were retained for the more refined Tier 1 analysis based on 2009 TRI data.

Based on the 2010 TRI inventory of facilities emitting Certain Glycol Ethers, 30 of the 62 zip codes that did not screen out at Step A contained one facility that represented more than 90% of the Certain Glycol Ethers emissions released in that zip code. The estimated maximum annual average EGBE concentrations for 29 of these zip codes were less than 90% of the RfC. Thus, one of these zip codes (i.e., 27320 in Reidsville, NC), was retained for the more refined Tier 1 analysis based on 2010 TRI data.

Based on the 2011 TRI inventory of facilities emitting Certain Glycol Ethers, 30 of the 64 zip codes that did not screen out at Step A contained one facility that represented more than 90% of the Certain Glycol Ethers emissions released in that zip code. The estimated maximum annual average EGBE concentrations for 29 of these zip codes were less than 90% of the RfC. Thus, one of these zip codes (i.e., 27320 in Reidsville, NC), was retained for the more refined Tier 1 analysis based on 2011 TRI data.

The second component of the Step B facility cluster evaluation evaluated all remaining zip codes that contain at least two facilities emitting EGBE (or potentially emitting EGBE—i.e., reported TRI emissions of Certain Glycol Ethers) and were not included in the preceding analysis. This second component of Step B was conducted for the following zip codes: (1) 24 zip codes for the 2009 TRI emission inventory; (2) 26 zip codes for the 2010 TRI emission inventory; and (3) 31 zip codes for the 2011 emission TRI inventory). The cumulative EGBE emissions (sum of the EGBE emissions for the TRI-reporting facilities in the zip code) for each zip code were compared to the threshold emissions level of 75.8 tpy, described above.

Based on these conservative assumptions, the majority of zip codes evaluated in the second component of Step B screened out. Those retained are shown in Table 6-7 and summarized below:

21 of the 24 zip codes analyzed based on the 2009 TRI emission inventory screened out at Step B. The three zip codes retained for more refined modeling were 60609 in Chicago, IL; 45840 in Findlay, OH; and 26062 in Weirton, WV.

22 of 26 zip codes analyzed based on the 2010 TRI emission inventory screened out at Step B. The four zip codes retained for more refined modeling were 60609 in Chicago, IL; 45840 in Findlay, OH; 46350 in La Porte, IN; and 26062 in Weirton, WV.

29 of 31 zip codes zip codes analyzed based on the 2011 TRI emission inventory screened out at Step B. The two zip codes retained for more refined modeling were 45840 in Findlay, OH and 26062 in Weirton, WV.

Combining the results from the two component analyses of the Step B screening, a total of five unique zip codes required further refined modeling in the Tier 2 screening using AERSCREEN to determine if long-term EGBE exposures resulting from EGBE emissions from clusters of facilities in these zip codes exceed the RfC, when less conservative assumptions are used. This included three zip codes based on the 2009 TRI data, five zip codes for 2010, and three zip codes for 2011.

6.4.4 Tier 2 Screening (Cluster Evaluation)

Because the initial Tier 1 lookup table for point sources does not lend itself for use in screening clusters of sources beyond the initial Step B screening step described in the previous section, Tier 1 analysis was not conducted as part of the cluster evaluation. As such, the five zip codes that did not screen out during Step B (cluster evaluation) were subjected to Tier 2 modeling instead. The Tier 2 modeling for the facility clusters was carried out using the same general approach used for the Tier 2 AERSCREEN modeling of individual facilities described in Section 6.3, with some minor differences discussed below.

AERSCREEN modeling of each facility within the five zip codes was performed using location-specific screening meteorological data generated by MAKEMET. However, while local meteorological inputs into the MAKEMET (e.g., temperature extremes) were identical for all facilities within the zip code, surface characteristic inputs were unique for each facility and were therefore based on the land cover characteristics of a 1-km radius area surrounding the individual facility. All individual facilities within the five zip codes were modeled assuming flat terrain[s] and using the same receptor grid configuration described in Section 6.3. As with the Tier 2 modeling of individual facilities, AERSCREEN 1-hour concentration results were converted to maximum annual average (chronic) impacts for comparison to the RfC, by multiplying the 1-hour average values by the scaling factor of 0.1[t].

As with the Tier 2 analysis for individual facilities, the facility cluster evaluation included facilities that provided Tier 2 survey responses and those that did not. Of the 12 facilities included in the facility cluster evaluation, 7 provided Tier 2 survey responses and 5 did not. For facilities that provided Tier 2 survey responses, source parameterization and AERSCREEN modeling of each facility was carried out in the same manner as described in Section 6.3.2 for individual facilities. Modeling was based on facility-specific information provided in the survey response, including actual stack parameters (stack height, diameter, temperature, and exit velocity), building dimensions, property boundary information and urban or rural setting designation.

Five facilities (one in each of these five zip codes) did not provide Tier 2 survey responses. For these facilities, point and fugitive emission source parameter inputs required for Tier 2 modeling were derived from publically available sources. Where the NEI database provided information on stack parameters, a sensitivity analysis was performed to determine the worst-case stack-to-building configuration and stack-to-fenceline distance, in the same manner

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[s] As discussed in Section 6.2.3.2, with the exception of one facility in WV, all other facilities subject to Tier 2 modeling were located in areas of relatively flat terrain. For the facility in WV, the potential effects for complex terrain were evaluated in AERSCREEN by incorporating digital elevation data. For this facility, the results of the AERSCREEN modeling with terrain effects produced slightly lower annual average EGBE concentrations than if terrain effects were omitted. Consequently, complex terrain effects are not significant at this facility. Nonetheless, to be conservative, the slightly higher AERSCREEN results that excluded terrain effects were used to represent the Tier 2 modeling results for this facility.

[t] To estimate the maximum (chronic) annual average EGBE ambient air concentrations, AERSCREEN applies a scaling factor of 0.1 to the model-generated maximum 1-hour average concentration output, in accordance with EPA's AERSCREEN guidance (EPA 2011)

described in Section 6.3.2. A summary of the treatment of NEI stack data for these facilities is provided below:

- For two facilities, [redacted] in [redacted] OH and [redacted] in [redacted] NC, the NEI database provided information on a single stack at each facility. For these, stack parameters from the NEI database were used for the Tier 2 modeling, and the most conservative location for the single stack was determined through a sensitivity analysis performed in the same manner described for the Tier 2 screening for individual facilities (see Section 6.3.2).
- For two other facilities, [redacted] in [redacted] IL and [redacted] in [redacted]IN, the NEI database provided information on multiple stacks at each facility (e.g., NEI provides information on 20 stacks for [redacted]). For these facilities, the sensitivity analysis was simplified by selecting the most conservative combination of stack parameters among all stacks for which parameters were provided (i.e. conservative, from the perspective of resulting in the highest modeled annual average EGBE concentration). In other words, the hypothetical stack used in the Tier 2 modeling for that facility would have the height of the shortest NEI reported stacks, the exhaust temperature of the coolest stack, and the smallest diameter and the lowest velocity among all NEI stacks reported for the facility. This practice yields a hypothetical stack with the most conservative combined assumptions (more conservative than any of the individual stacks), and thus approximates the worst possible dispersion scenario for point-source emissions. The most conservative location for this hypothetical stack was determined through a sensitivity analysis performed in the same manner described for the Tier 2 screening for individual facilities.
- For the fifth facility (i.e., [redacted] in [redacted] WV) lacking a survey response, the NEI database included no information on stack parameters. For this facility, all point-source releases were therefore very conservatively modeled as fugitive emissions for the Tier 2 modeling (i.e. both point and fugitive emission rates were combined and modeled as a single volume source centered on the presumed production area of the facility building).

Fugitive emissions at each facility were modeled as a volume source, with modeling input parameters developed in the same manner as described in Section 6.3.2. The maximum modeled chronic impact for each facility in the zip code was calculated as the sum of the modeled maximum concentration from the volume source and the worst-case stack.

The maximum annual average air concentration for the entire zip code was calculated as the sum of the maximum impacts from each of the modeled facilities within the zip code (calculated using AERSCREEN in the same manner as described in Section 6.3.2). The individual facility maximum impacts were summed, regardless of where these maximum impacts occurred—i.e. for each facility modeled, the maximum impact for that facility may not occur at the same receptor location as the other facilities. The Tier 2 results of the maximum chronic (annual average) impacts for each cluster (zip code) are presented in Table 6-8 and modeling output files for the Tier 2 modeling are provided in Appendix F.

As shown in Table 6-8 for all three inventories (2009, 2010, and 2011), projected worst-case annual average EGBE concentrations at or beyond the property line for all five zip codes were appreciably below the RfC of 1.6 mg/m^3, as summarized below:

- Based on 2009 TRI emissions of facilities emitting Certain Glycol Ethers, the predicted maximum annual average concentration across all five zip codes modeled using Tier 2 was 0.91 mg/m^3 (i.e., 57% of the RfC). The minimum and average results for the five zip codes were 0.26 mg/m^3 and 0.52 mg/m^3, respectively (corresponding to 16% and 32% of the RfC, respectively).
- Based on 2010 TRI emissions of facilities emitting Certain Glycol Ethers, the maximum annual average concentration across all five zip codes modeled using Tier 2 was 1.16 mg/m^3 (i.e., 73% of the RfC). The minimum and average results for the five zip codes were 0.27 mg/m^3 and 0.58 mg/m^3 respectively (corresponding to 17% and 36% of the RfC, respectively).
- Based on 2011 TRI emissions of facilities emitting Certain Glycol Ethers, the maximum annual average concentration across all five zip codes modeled using Tier 2 was 0.74 mg/m^3 (i.e., 47% of the RfC). The minimum and average results for the five zip codes were 0.26 mg/m^3 and 0.49 mg/m^3 respectively (corresponding to 16% and 31% of the RfC, respectively).

Tier 2 modeling of the zip codes based on 2009, 2010, and 2011 TRI data indicated that the Chicago IL zip code (facility cluster) yielded the highest predicted chronic EGBE impact for all years evaluated, with a maximum calculated maximum annual average concentration of 1.16 mg/m^3 (i.e., 73% of the RfC) based on 2010 emissions.

Section 6.5 provides an analysis of uncertainty and conservatism of assumptions used in modeling chronic exposures from clusters of EGBE-emitting facilities.

6.5 Uncertainty Analysis

Based on the results of the tiered modeling approach for individual facilities and clusters of facilities presented in Sections 6.2 through 6.4 of this petition, the maximum annual average emissions of EGBE are not predicted to exceed the RfC for EGBE. Thus, even under highly conservative assumptions, EGBE emissions from facilities in the U.S. do not pose a risk to populations living around the facilities.

Nonetheless, to further demonstrate the margin of safety for this conclusion, all facilities and zip code clusters screened out at Tier 2 modeling were subjected to more refined modeling using AERMOD (Tier 3). In addition, the conservatism of assumptions made during each of the steps of the tiered analysis is discussed in further detail in this uncertainty analysis, and generally would apply to both the chronic and acute tiered modeling, although for the acute exposure assessment additional discussion of uncertainty is provided in the acute MOE assessment found in Section 6.6.3.

6.5.1 Conservatism of Step A through Tier 2

In several ways, Step A and Step B provide a more conservative screening approach than EPA's long-term Tier 1 analysis:

- In Step A, all reported Certain Glycol Ethers emissions were assumed to be EGBE, even though EGBE represents only about 52% of the market share (SRI 2010).
- In Steps A and B, all stack emissions were conservatively assumed to exhaust from one stack.
- In Step A, all emissions data were initially evaluated as if they are emitted through a single stack with a release height of 0 meters with a distance to fenceline of 50 meters. This scenario is not likely to occur often, if at all. The conservatism of the default assumption of a 0-meter emissions source height was evaluated based on the site-specific data provided by the facilities. The minimum release height reported is just over 3 meters. Furthermore, if the Step A screening is based on a release height of 2 meters and a distance to fence line of 10 meters, the screening threshold is 8.6 tpy (Table 6-1), 75% higher than the screening emission threshold used in our analysis.

The Tier 1 screening analysis also affords significant conservatism in the treatment of point and fugitive emission sources of EGBE:

- For Tier 1 screening, all point-source emissions are conservatively assumed to be released from a single stack from the list of all stacks onsite that could possibly release EGBE. The single stack selected was the one that yields the maximum potential fenceline concentration, regardless of whether it is the stack from which the majority of the EGBE is actually released.
- For Tier 1 screening, all fugitive emissions are assumed to be released from a single fugitive source, wherein the distance to fenceline was determined by the minimum distance from the edge of the fugitive source to the property boundary.

Conservatism of the Tier 2 analysis is also present on several levels. It is inherent in the use of a screening-level model such as AERSCREEN, and in the use of screening meteorology used by the model. Conservatism is also provided by the selection of parameters used for the Tier 2 modeling of each facility's point and fugitive EGBE emissions, and in the methodology used to calculate the combined point and fugitive impacts for each facility. These various levels of conservatism in the Tier 2 analysis are discussed in more detail in the remainder of this section.

Screening air quality models such as AERSCREEN are conservative by design, and are intended to provide the means for performing a prescreening analysis prior to engaging in full scale modeling using models such as AERMOD/AERMET (EPA 2012, 2004d). AERSCREEN's conservatism stems from the following key model characteristics and assumptions:

- The use of screening meteorological data in AERSCREEN (generated by MAKEMET) is designed to include the worst-case meteorological extremes for a given geographic location, including the least favorable dispersion conditions, which would be expected to produce the highest modeled ambient air concentrations (impacts). These most extreme

combinations of meteorological parameters in the screening meteorological dataset would rarely if ever occur in actual meteorological data and thus represent a level of conservativeness in the AERSCREEN modeling.

- The screening meteorological data is a theoretical sequence of meteorological hourly conditions that AERSCREEN uses to predict the maximum 1-hour average concentration at each prescribed location. As discussed above, for purposes of evaluating maximum predicted long-term air concentrations in the Tier 2 modeling, this maximum 1-hour result is scaled by 0.1 to approximate a maximum annual average air concentration. The resulting maximum annual average result is therefore based on a worst-case meteorological hour. This practice is far more conservative than the approach used in AERMOD, which employs actual meteorological data to calculate an annual average result from all meteorological hours.
- While AERSCREEN uses the same algorithms as the full-scale dispersion model AERMOD, AERSCREEN employs certain conservative assumptions not used in AERMOD modeling. For instance, information on the closest distance between the source and the fenceline is treated conservatively in AERSCREEN, which uniformly assumes this distance for all directions from the emission source. AERMOD instead allows that the property boundary be defined realistically at varying distances to the source in different directions.

In addition to the built in conservatism of the AERSCREEN model, the assumptions used in modeling point-source emissions at each facility provides an additional level of conservatism in Tier 2 modeling, as summarized below:

- As with the very conservative Step A screening, stack impacts were modeled as if each facility's total stack emissions were emitted from the single stack that produced the worst-case results, even though point-source emissions would actually be distributed across multiple stacks (providing greater dispersion).
- AERSCREEN is capable of modeling only one source at the time. As such, for multiple emission sources such as those modeled for this petition, the combined contribution of all sources at a facility are conservatively calculated as the sum of maximum results from the individual emission source model runs. In almost all circumstances, this practice would overestimate the result achieved by modeling all emission sources simultaneously.

In addition to the conservatism of the assumptions and methods used in the Tier 2 modeling of individual facilities, the facility cluster evaluation also incorporated the following additional conservative elements:

- Each of the five zip codes (clusters) modeled using the Tier 2 methodology included one facility for which a Tier 2 survey response was not received. For these facilities, highly conservative assumptions were used to model facility EGBE emissions. Specifically, point-source emission for each of these facilities were conservatively modeled using the least favorable stack location (based on a sensitivity analysis of predicted AERSCREEN results) and the most conservative combination of stack parameters reported to the NEI.

In addition, all Certain Glycol Ether reported air emissions from these facilities were conservatively assumed to be 100% EGBE.

- As an additional source of "spatial" conservatism in the AERSCREEN modeled results for each cluster, the cumulative impacts from multiple facilities in each zip code modeled were calculated as the sum of the maximum predicted impact from each facility at or beyond the property boundary, regardless of the specific (receptor) location that this impact was determined by the model to occur. Given that the receptor location of maximum impact for each facility is invariably closely located to the facility boundary, and distances between individual facilities in certain clusters are as much as 1,500 meters, the estimated maximum cumulative impact for each cluster was almost certainly overestimated.
- And finally, in addition to the spatial conservatism resulting from summing each facility impacts irrespective of the receptor location at which they occurred, a "temporal" conservatism is also present in the Tier 2 application of AERSCREEN for modeling facility clusters. AERSCREEN calculates a worst-case result for each facility emission source, which is based on the worst-case meteorological hour in the screening meteorological data set. This worst-case meteorological hour is likely to differ from emission source to emission source at a facility as well as from facility to facility. As such, the summing of maximum impacts across facilities introduces a level of temporal conservatism that almost certainly overestimates the maximum cumulative impact for each cluster.

Even though all individual facilities and facility clusters (zip codes) with non-zero Certain Glycol Ether emissions reported to TRI for 2009, 2010, and 2011 screened out at the conservative Tier 2 modeling step (i.e. the maximum annual average EGBE air concentrations at/beyond facility boundaries were below the RfC), in order to further demonstrate the margin of safety afforded in the tiered modeling approach, Tier 3 modeling using the EPA-approved refined air dispersion model AERMOD was performed, as discussed below.

6.5.2 Tier 3 Modeling (Individual Facilities)

As a further demonstration of the conservatism of the tiered modeling approach for individual facilities, and to provide further evidence of the "margin of safety" afforded for all facilities that screened out at Step A, Step B, Tier 1, or Tier 2, six facilities were modeled using EPA's regulatory AERMOD (EPA 2004d, EPA 2012) and AERMET (EPA 2004f, EPA 2011b) system (i.e., Tier 3 of the tiered modeling approach). These six facilities all previously screened out at Tier 2 based on their 2009, 2010, and 2011 TRI emissions and were also facilities that provided detailed information in Tier 2 survey responses. They included

- the three individual facilities that had the highest Tier 2 modeled maximum annual average EGBE concentrations ([redacted] in [redacted]MA, [redacted] in [redacted] WA, and [redacted] in [redacted] SC);
- two additional facilities that were also part of the Tier 2 facility cluster evaluations, and which were top emitters within their respective zip codes ([redacted] in [redacted] WV, [redacted] in [redacted] IL); and

- one additional facility that reported the maximum annual emissions of Certain Glycol Ethers in the TRI from 2009 through 2011 ([redacted] in [redacted] NC).

The six facilities subjected to Tier 3 modeling were also among the top 4% of emitters among all facilities reporting Certain Glycol Ethers emissions in their TRI reports for 2009 through 2011 (see Appendix B Tables B-1 through B-3). For each of these facilities, EGBE comprised between 85% and 100% of each facility's Certain Glycol Ether reported emissions.

Tier 3 modeling using AERMOD is the most refined analysis step, and is consistent with EPA's Tiered Modeling Guidelines (EPA 1992a). The Tier 3 analysis was conducted with the AERMOD model (v.12345, EPA 2012) in accordance with EPA's Guideline on Air Quality Models (40 CFR Part 51 Appendix W), EPA's tiered modeling guidelines (EPA 1992a), the AERMOD User Guide (EPA 2004d), and the AERMOD Implementation Guide (EPA 2009). Compared to Tier 2 modeling, Tier 3 modeling with AERMOD provides more realistic (yet still conservative) estimates of projected impacts of EGBE emission at locations at or beyond each facility's fenceline. The principle refinements afforded by AERMOD over AERSCREEN are summarized below, and discussed in more detail in the remainder of this section:

- The Tier 3 AERMOD modeling uses actual meteorological data from the closest weather station, rather than the artificially generated screening meteorological data sets used with AERSCREEN.
- Tier 3 modeling takes into account the variability of the actual property boundary, rather than using a single distance between each emission source and the property boundary, as is assumed for AERSCREEN. This refinement allows a more realistic treatment of dispersion effects between a stack and receptors.
- The Tier 3 modeling incorporates the distribution of EGBE emissions across stacks at a facility, rather than assuming that all stack emissions of EGBE occur from a single stack (with the worst stack location assumed).
- Tier 3 modeling with AERMOD permits simultaneous modeling of multiple emission sources, which yields collective impacts from all sources for each receptor location.
- Tier 3 modeling with AERMOD modeling allows for the direct calculation of long-term averages for predicted air concentrations through use of multi-year meteorological data sets.

The use of representative meteorological data processed using AERMET provides more realistic estimates of predicted impacts under actual atmospheric dispersion conditions characteristic of the geographic setting at each facility. The AERMOD modeling for each location was performed using five years of recent representative meteorological data (2006 through 2010 calendar years), from the meteorological stations closest to each facility. Meteorological data were processed using EPA's AERMET v. 11059 (EPA 2004f, EPA 2011b) meteorological preprocessor. The use of five years of hourly meteorological data ensures that AERMOD modeling results incorporate expected interyear meteorological variability at each location, while capturing the occasional short-term extreme meteorological conditions. The use of actual meteorological measurements in sequence also allows for the modeling of long-term

(chronic) concentrations directly, without needing to estimate them empirically by scaling 1-hour (short-term) impacts, as was required when using AERSCREEN.

Finally, AERMOD's capability to model multiple sources in a single run allows that the combined impacts from multiple sources within a facility, or those from multiple facilities in a given domain be estimated more realistically than by simply superimposing their maxima as it was done in the Tier 2 screening.

The Tier 3 AERMOD modeling used Universal Transverse Mercator (UTM) geographic coordinates for all emission sources, buildings and receptor locations modeled. NED terrain elevation data from USGS with resolution at 0.33 arc-second were used to incorporate elevation information for emission sources and receptor locations. Offsite concentrations were calculated at specified receptor locations within a nested receptor grid and along each facility's property boundary. Property boundary receptors were spaced at 25 meter intervals. Offsite receptors were spaced at 50 meters in the Cartesian receptor grid out to a distance of 350 meters from the facility. A second coarser receptor grid with spacing of 100 meters was used for distances between 350 meters up to 2 km from each facility; 500 meter receptor spacing was used for receptors at distances from 2 km to 5 km from the approximate center of each facility.

While the Tier 3 modeling for all six facilities relied on the same individual stack and volume source parameters used for Tier 2 modeling, the Tier 3 modeling also considered the distribution of EGBE emissions among the different stacks at a given facility, which was a level of refinement not considered in the Tier 2 screening. For one of the six facilities evaluated using Tier 3 modeling (the [redacted] facility located in [redacted] MA), the distribution of EGBE emissions between stacks was not provided. For this facility, stack emissions were assumed to be equally distributed among facility stacks for the Tier 3 modeling.

As discussed above, the Tier 3 modeling used five years of actual meteorological data. The AERMOD modeling was performed independently for each year, resulting in predicted maximum annual average concentrations at each receptor for each year of meteorological data. The maximum predicted annual average concentration for each receptor location was then conservatively calculated as the highest of the five modeled annual average concentrations for a given receptor. Results of the chronic (annual average) Tier 3 AERMOD modeling results for individual facilities is provided in Table 6-9 and model output files are provided in Appendix F. As shown in Table 6-9:

- Based on 2009 emissions, the maximum Tier 3 result among the six facilities was 0.269 mg/m^3, for the [redacted] facility in WA, which represents less than 17% of the RfC.
- Based on 2010 emissions, the maximum Tier 3 result among the six facilities was 0.253 mg/m^3, again for the [redacted] facility in WA, which represents less than 16% of the RfC.
- Based on 2011 emissions, the maximum Tier 3 result among the six facilities was 0.256 mg/m^3, for the [redacted] facility in MA, which represents less than 16% of the RfC.

These results indicate that, with the more refined and realistic (yet still conservative) assumptions used in the Tier 3 modeling, chronic exposures to EGBE for the highest emitting facilities are well below the RfC.

6.5.3 Tier 3 Modeling (Clusters of Facilities)

As a further demonstration of the conservatism of the tiered modeling approach for clusters of facilities, Tier 3 modeling was performed for facility clusters in two zip codes: (1) 60609 in Chicago, IL, which had the highest cumulative Tier 2 impact among the five zip codes evaluated in Tier 2; and (2) 26062 in Weirton, WV, the zip code evaluated in Tier 2 that contained the largest number of individual facilities (i.e., five) reporting emissions of Certain Glycol Ethers to TRI in a single zip code.

Tier 3 modeling for the facility cluster evaluation was performed with AERMOD using the same general methodology used for the Tier 3 modeling of individual facilities described in Section 6.5.2. Specifically, the AERMOD modeling for each facility relied on five years of representative meteorological data, with location information (UTM coordinates) and elevation data for all emission sources and buildings. Worst-case impacts from EGBE emissions at each facility were modeled for all receptor locations at or beyond each facility's property boundary using the same receptor grid spacing specified in Section 6.5.2. The principle difference between Tier 3 modeling of individual facilities (Section 6.5.2) and the Tier 3 modeling of facility clusters is that for facility cluster modeling, all modeled facilities were modeled simultaneously in AERMOD, and thus the cumulative impact from all facilities was calculated by AERMOD simultaneously.

Results of the chronic (annual average) Tier 3 AERMOD modeling of the two zip codes is provided in Table 6-8 (model output files are provided in Appendix F), and briefly summarized below:

- Zip Code 60609 in Chicago, IL – The maximum Tier 3 impact for this zip code was 0.11 mg/m^3 (2009 emissions), 0.18 mg/m^3 (2010 emissions), and 0.14 mg/m^3 (2011 emissions) corresponding to 7%, 12%, and 9% of the RfC, respectively.
- Zip Code 26062 in Weirton, WV – The maximum Tier 3 impact for this zip code was 0.16 mg/m^3 (2009 emissions), 0.16 mg/m^3 (2010 emissions), and 0.15 mg/m^3 (2011 emissions) corresponding to 10% of the RfC, in each year.

Predicted worst-case EGBE air concentrations for all modeled clusters based on 2009, 2010, and 2011 emissions averaged 0.15 mg/m^3, or 10% of the RfC. As these cluster analysis results demonstrate, even when considering the collective impacts of clusters of facilities in a zip code, and conservatively assuming the worst-case meteorological data year, the maximum annual average concentration of EGBE for all clusters modeled is predicted to be well below the RfC.

The predicted worst-case clusters impacts were less than the highest individual facility impacts presented in Section 6.5.2. This outcome reflects the fact that none of the individual facilities with the highest individual impacts are located in zip codes considered in the facility cluster evaluation (i.e. none were located in zip codes that contained more than one facility reporting emissions of Certain Glycol Ethers to the TRI during 2009, 2010, or 2011).

6.5.4 Conservatism of the Tiered Modeling Approach

In total, the potential for facility emissions of EGBE to result in chronic exposures greater than the RfC was evaluated for all United States facilities reporting non-zero emissions of Certain Glycol Ether to TRI during 2009 (1,109 facilities), 2010 (1,149 facilities), and 2011 (1,099 facilities).

The magnitude of conservatism (and margin of safety) built into the tiered modeling approach can be clearly demonstrated by comparing the reduction in maximum long-term modeled impacts between the lowest (most conservative) tier to the highest (most refined) modeling tiers. This reduction was demonstrated for the subset of individual facilities evaluated in all five tiers of the tiered modeling approach (Step A through Tier 3), the results of which are summarized below:

- In comparing initial (Step A and B) screening results to the results of the chronic exposure Tier 1, 2, and 3 analyses of high-emitting facilities, the maximum annual average concentrations decreased by an average of 84% when the same facility was evaluated first under Step A[u] and then under Step B.
- For the individual facilities subject to Tier 1, Tier 2, and Tier 3 modeling, the reduction in maximum predicted annual average concentrations in moving from Step B to Tier 1 averaged 24%. The reduction in the maximum predicted annual average concentrations in moving from Tier 1 to Tier 2 averaged 80% (based on 2009, 2010, and 2011 TRI emissions). The reduction observed in moving from Tier 2 to Tier 3 averaged 70% (Table 6-10).
- Thus, the cumulative conservatism of evaluating facilities using Step A, relative to Tier 3, averaged 99%.

These results demonstrated that for the highest emitting facilities, the modeled maximum annual average ambient concentrations resulting from Tier 3 modeling were consistently at least two orders of magnitude lower than the most conservative (Step A) screen applied, providing a significant margin of safety for those facilities screening out at lower tiers of modeling (Table 6-10). This tiered modeling approach also indicates a significant margin of safety even when considering possible year to year variability of EGBE emissions from facilities. As a demonstration of this margin of safety, consider that even the facility with the highest Tier 3 result of 0.269 mg/m^3 ([redacted] facility in [redacted] Washington based on its 2009 emissions) was well below (i.e., 17% of) the RfC. A gross estimate of range for overall interyear variability of EGBE emissions might be expected to generally follow the overall United States EGBE consumption trend, which is shown in Figure 2-1(SRI 2010). As illustrated in this figure, United States total EGBE consumption peaked in approximately 2005, and has steadily declined since then. The calculated ratio of United States total EGBE consumption in 2005

[u] Although impacts were not explicitly calculated for the Step A screening, they were calculated for the comparison in Table 6-10 by using the EPA tier 1 lookup table and the conservative Step A assumptions (EGBE is 100% of Certain Glycol Ether emissions, all air emissions are released from a single point source with a stack height of 0 meters and a fenceline distance of 50 meters).

versus 2009 is 1.3 (i.e., consumption was 30% higher in 2005 than in 2009). By comparison, the margin of safety (ratio) for the RfC compared to the maximum Tier 3 result is 5.9. The results of this analysis support the conclusion that the tiered modeling approach provides a sufficient margin of safety that encompasses reasonable interyear variability in facility EGBE emissions.

A second analysis was conducted to further demonstrate that the margin of safety indicated by the tiered modeling is sufficient to account for interyear variability in facility EGBE emissions over time. This analysis considered the historical changes in the reported total Certain Glycol Ether emissions for all 13 facilities that were subject to Tier 2 modeling. Tier 3 modeling performed for 6 of these high emitting facilities indicated that the highest Tier 3 chronic impact was 0.269 mg/m^3, which represented only 17% of the RfC. This equates to a ratio (margin of safety) between the RfC and the worst-case Tier 3 impact of 5.9. For purposes of comparison, a review of the historical Certain Glycol Ether emissions reported for these six facilities (see Table 6-11) between 2000 and 2011 was used to calculate the ratio between the peak (highest) emissions of Certain Glycol Ethers and the emissions reported during 2009, 2010, and 2011 (i.e. the years for which emissions were evaluated using the tiered modeling approach). These ratios also provide a reasonable representation of the expected maximum interyear variability in chronic impacts for each facility. The calculated ratios ranged from 1.1 to 2.3, indicating that the interyear variability that is less than the calculated margin of safety (i.e., 5.9) between the RfC and the worst-case Tier 3 modeled result. Similarly, this analysis can be extended to the eight other high emitting facilities modeled using the Tier 2 methodology. For these facilities, the calculated maximum ratios between peak year and 2009–2011 Certain Glycol Ether emissions ranged from 1.0 and 4.1, again demonstrating that interyear variability remains within the margin of safety demonstrated with the conservative Tier 3 modeling. Thus, it is highly unlikely that any facilities would have exceeded the RfC for EGBE even during each facility's peak emission years. This analysis further supports the conclusion that the tiered modeling approach provides a sufficient margin of safety that encompasses reasonable interyear variability in facility EGBE emissions. This analysis conservatively assumed that historical EGBE emissions represent the same fraction of Certain Glycol Ether emissions as in recent years (2009-2011).

Finally, the same conclusion of a sufficient margin of safety is also reached by examining trends in maximum TRI-reported Certain Glycol Ether emissions from any facility for each reporting year from 2000 to 2011 (see Figure 5-1). As shown in this figure, there has been remarkably little variability in the Certain Glycol Ether emissions from the highest emitting facilities over the past decade. Further, this variability is well within the margin of safety indicated by the ratio (5.9) between the 2009 Tier 3 modeled worst-case result and the RfC.

Consistent with EPA's conclusion in the HAPs delisting decision, the use of maximum annual average concentrations in each of the models significantly overstates the likely exposure levels of the actual exposed population (68 FR 65653):

> *The use of the maximum annual average ambient concentration for each emission source to characterize the exposed population provides a conservative approach to*

chronic exposure modeling. Furthermore, based on our experience, we judge that a refined exposure assessment estimating exposures for actual people living near these facilities would result in maximum individual exposures significantly lower than the maximum annual average ambient approach. Given the likely proximity of inhabitable areas and the variability of human activity patterns over an annualized time period, it is our expectation that actual maximum individual exposure would be at least a factor of 2 less than predicted by the models.

In conclusion, the maximum long-term exposures of persons in the vicinity of EGBE-emitting facilities are likely to be far below the estimates generated by the screening and modeling approach employed in this petition. Despite that considerable conservatism, these estimates were determined to pose a negligible risk for chronic health effects to the populations around the facilities that emit EGBE.

6.6 Acute Exposure Margin of Exposure (MOE) Assessment

As previously discussed, in the absence of an EPA Acute Exposure Guideline Level (AEGL) or other RfC for acute effects, the tiered screening approach for evaluating potential acute EGBE exposures uses a MOE methodology, which is frequently used by EPA in TRI delisting decisions in cases where an EPA RfC for short-term exposures is not available. The remainder of this section outlines the methodology and results of the acute exposure and MOE assessment of the potential short-term exposures to EGBE from individual facilities and clusters of facilities.

As discussed in Section 3.2.1.1, due to the relatively low sensitivity of human red blood cells to the hemolytic effects of EGBE, acute health effects are not expected to result from short-term ambient concentrations near EGBE-emitting facilities, and acute effects evaluations for EGBE have identified nonsystemic eye and upper respiratory tract irritation as the critical effect. Based on controlled studies of human volunteers, the lowest short-term concentration at which such irritation effects have been reported is 550 mg/m^3 (Carpenter 1956), and no irritation effects have been observed from exposure to 97 mg/m^3 for two hours during light physical exercise (Johanson et al., 1986). These acute air concentrations of concern are much higher than the predicted maximum annual average (chronic) air concentrations of EGBE estimated in Sections 6.3 through 6.5. In fact, the worst-case Tier 2 modeled chronic air concentrations for individual facilities and clusters of facilities were below these acute air concentrations of concern by factors of > 3,000 and > 500, respectively. Acute concentrations (typically evaluated based on maximum 1-hour averages) estimated using EPA tiered modeling are generally expected to be higher than chronic estimates (maximum annual averages) using the same modeling approaches. However, acute modeled concentrations that are 500 to 3,000 times greater than chronic results are highly unlikely.

In addition, a comparison of Tier 2 modeled chronic air concentrations to acute concentration of concern (i.e. the NOAEL) itself does not likely reflect the full margin of safety as the NOAEL is based on a 2-hour exposure duration, while acute tiered-modeling results are

based on a 1-hour average. A 1-hour-equivalent NOAEL would be 137 mg/m^3 (CalEPA 1999), over 40% higher. There is, therefore, a convincing basis to conclude that adverse acute effects from EGBE releases in the vicinity of emitting sources are unlikely.

To confirm this conclusion, a tiered screening analysis based on EPA's tiered modeling approach for short-term exposures to HAPs (EPA 1992a) was conducted for the 15 TRI facilities that did not screen out from Steps A & B of the chronic exposures assessment in Section 6.2. An additional tiered screening evaluation of potential short-term EGBE exposures was also conducted on the five zip codes evaluated in Section 6.3.1.

6.6.1 Acute Exposure Assessment for Individual Facilities

The tiered analysis used for short-term exposures is similar to the methodology presented for long-term exposures in Section 6.2, except that rather than modeling the maximum annual average concentrations of EGBE, the short-term modeling estimates maximum 1-hour concentrations of EGBE. The sections below describe the acute Tier 1 through Tier 2 screening methodology and results. As all individual facilities screened out at the Tier 2 step, no further refined modeling was required. However, Tier 3 modeling was performed as part of the margin of safety analysis used for the acute exposure assessment.

6.6.1.1 Tiered Modeling Methodology for Acute Exposures (Individual Facilities)

Tier 1 screening for acute exposures was performed for all 15 facilities that did not screen out at Step B chronic exposure screening. These facilities were among the top 6% of all facilities in terms of the mass of Certain Glycol Ether air emissions reported to TRI for the 2009, 2010, and 2011 (see Appendix B). These facilities also reported that EGBE made up at least 85% of all Certain Glycol Ethers used at each facility. Because these facilities represent the highest Certain Glycol Ether emitting facilities and because EGBE is the dominant or only glycol ether used at these facilities, these facilities offer a reasonable approximation of "worst-case" facilities.

A Tier 1 lookup table (Table E-1 of Appendix E) again was used to determine maximum acute (1-hour average) emissions based on distance to fenceline and stack height, consistent with EPA's Tiered Modeling Guidance (EPA 1992a). For the acute Tier 1 analysis, the short-term EGBE emissions rates (in gps) were calculated from facility annual EGBE emissions, based on the conservative assumption that EGBE releases occurred during a typical 40 hour work week for 50 weeks per year.

These short-term emission rates were used in combination with the short-term Tier 1 lookup table to determine the maximum point and fugitive 1-hour average (acute) concentrations (EPA 1992a), consistent with the method described for chronic exposure Tier 1 analysis (see Section 6.3.1). Facility total EGBE point-source releases (in gps) were conservatively assumed to be emitted from each individual stack, and the maximum short-term concentration from the Tier 1 short-term lookup table for the individual stacks was conservatively selected to represent the maximum point-source-related impact for the entire facility. Fugitive emissions were modeled as a volume source with a release height of 0 meters

and a lateral dimension of 10 meters. The release height of 0 meters is more conservative than the default release height used in the long-term Tier 1 analysis (3 meters), which was based on a modified version of EPA's Tier 1 table. This more conservative practice was adopted for consistency with the EGBE HAP delisting petition (CMA 1997). As such, the short-term exposure analysis for this petition uses an unmodified version of EPA's short-term Tier 1 lookup table (1992a). For the Tier 1 analysis, the maximum acute impact for each facility was derived from the sum of each facility's worst-case acute point and fugitive EGBE impacts, consistent with the chronic Tier 1 modeling (see Section 6.3.1).

Acute exposure Tier 2 modeling was performed for all 13 facilities that did not screen out using the Tier 1 acute screening analysis. As with the chronic exposure Tier 2 modeling for individual facilities, the Tier 2 acute exposure modeling used AERSCREEN (EPA 2011a), which is designed to provide conservative estimates of ambient air concentrations. The same facility-specific inputs for point and fugitive sources used for the chronic Tier 2 modeling were used for the acute Tier 2 modeling. However, the acute exposure analysis uses AERSCREEN's worst-case 1-hour average ambient air concentration results.

Tier 3 modeling of short-term exposures was carried out using the same general methodology employed in long-term Tier 3 modeling for longer-term exposures (Section 6.5.2). The same dispersion model (AERMOD) and site-specific meteorological data were used to model the same six individual facilities modeled with AERMOD in Section 6.5.2. These six facilities include the top three ranked facilities from Tier 2 acute analysis, two dominant emitters in the top three ranked clusters in Tier 2 acute facility cluster evaluation, and the facility reporting the largest emissions of Certain Glycol Ethers in the TRI from 2009 through 2011. Tier 3 modeling of short-term impacts was performed using the same source parameterization (assuming realistic emission distribution among stacks). The conservatism associated with AERMOD modeling is discussed in Section 6.5.4.

6.6.1.2 Acute Tiered Modeling Results (Individual Facilities)

The results from the short-term Tier 1 through Tier 3 modeling are presented in Appendix E. At the most conservative screening level (Tier 1), all but 2 of the 15 facilities had predicted maximum 1-hour concentrations above the NOAEL for acute irritation effects, 97 mg/m^3. The [redacted] facility in [redacted] Virginia had the highest predicted 1-hour Tier 1 concentrations (1,760 mg/m^3 in 2010) from all three years of TRI data[v] (2009, 2010, and 2011). Predicted 1-hour Tier 1 point-source and fugitive air concentrations are presented in Table 6-12. With the incorporation of site-specific data and more realistic accounting of stack emissions in Tier 2 and Tier 3 modeling, the predicted maximum 1-hour concentrations at all 13 remaining modeled facilities were significantly lower, as expected. The facility with the highest short-term Tier 2 concentration based on 2009–2011 TRI data the [redacted] facility in [redacted] Massachusetts, which had a maximum short-

[v] Concentrations presented are the sum of the combined maximum predicted 1-hour concentrations, at or beyond the fenceline, for fugitive/volume source emissions and point-source emissions.

term concentration of 52.41 mg/m^3 (54% of the NOAEL) based on 2009 TRI data (see Appendix E Table E-4). The maximum predicted 1-hour concentration for the short-term Tier 3 modeling for this facility was 15.24 mg/m^3 in 2009, 13.24 mg/m^3 in 2010, and 14.82 mg/m^3 in 2011 (see Appendix E Table E-6). These concentrations represent less than 15% of the acute NOAEL. The Tier 3 results, presented in Table E-6 (Appendix E), show that maximum 1-hour concentrations of EGBE at all six facilities are far below the acute NOAEL with an average predicted facility impact over the three years (i.e., less than 10% of the acute NOAEL.

6.6.2 Acute Exposure Assessment for Clusters of Facilities

6.6.2.1 Tiered Modeling Methodology for Acute Exposures (Clusters of Facilities)

Modeling the combined short-term impacts from multiple facilities within the same zip code was carried out using the same approach used in long-term facility cluster modeling. The five zip code areas that did not screen out in Step B were subjected to Tier 2 modeling. Short-term Tier 2 impacts from the five zip codes were estimated using the same screening meteorological data developed for long-term analysis and AERSCREEN model. As discussed further in Section 6.6.3, short-term emission rates were estimated using the conservative assumption that facilities operate for only 40 hours per week and only 50 weeks per year. This assumption is likely to overestimate the short-term emission rates because the high emitting facilities are CMI members and CMI reported that member facilities typically operate those manufacturing processes that use EGBE continuously and year-round.

All five zip codes screened out at Tier 2. Nonetheless, Tier 3 modeling was conducted as part of the margin of safety analysis of acute exposures associated with clusters of facilities. Of the three clusters with highest estimated Tier 2 impacts, two zip codes with sufficient site-specific data were selected for Tier 3 modeling. Tier 3 modeling of short-term impacts for two of the five zip codes for which sufficient site-specific data was available was performed using AERMOD and the same type of site-specific meteorological data developed for long-term analysis.

As with short-term modeling of individual facilities, Tier 2 and Tier 3 modeling was used the same average annual emission rates originally developed and used in long-term Tier 2 and Tier 3 cluster modeling. As discussed in Section 6.3.1.3, conservative Tier 2 treatment of stack emissions assumes that total EGBE stack emissions from a facility are released from a single stack. More realistic parameterization of stack emissions in Tier 3 accounts for actual breakdown and proportioning of EGBE emissions among the different stacks at a facility (see Section 6.4.1).

Maximum acute Tier 2 and Tier 3 impacts from clustered facilities were estimated following the same methodology used for long-term analysis (Sections 6.4.4 and 6.5.3). Maximum acute Tier 2 impacts for individual facilities were obtained by conservatively summing the maximum impacts for the separate volume and the worst-case stack scenarios, and the maximum cumulative impact for the entire cluster estimated by summing the maximum impacts from all individual facilities within the same zip code (irrespective of the specific receptor

location that each facility's maximum impacts occurred). In Tier 3, the maximum combined impact from multiple sources within a facility and the multiple facilities within a cluster were modeled using AERMOD. As discussed previously, AERMOD allows for the simultaneous modeling (in a single model execution) of all facilities in the cluster, as well as the modeled emission sources at each facility.

6.6.2.2 Acute Exposure Tiered Modeling Results (Clusters of Facilities)

Acute EGBE impacts from Tier 2 and Tier 3 cluster modeling are presented in Table 6-13. The highest short-term Tier 2 concentration based on TRI emission data from 2009 to 2011 was 50.9 mg/m^3 (for zip code 60609, Chicago IL in 2010). The maximum predicted 1-hour concentration for the short-term Tier 3 modeling for this same cluster was 14.0 mg/m^3, 23.5 mg/m^3, and 18.5 mg/m^3 for 2009, 2010, and 2011, respectively. The highest of these concentrations represents less than 24% of the acute NOAEL.

6.6.3 Acute Margin of Exposure (MOE) Assessment

The MOE approach used to evaluate the risk of potential acute irritation effects associated with short-term exposures to EGBE is consistent with previous TRI listing decisions (e.g., MEK, EPA 1998a; MIBK, EPA 1999c). The MOE was calculated as the ratio of the NOAEL for acute irritation effects, 97 mg/m^3, to the estimated short-term exposure level in the vicinity of EGBE-emitting facilities. The MOEs for the predicted 1-hour maximum concentrations for the 13 high-emitting facilities subjected to Tier 2 modeling, and the 6 facilities subjected to Tier 3 modeling, are presented in Table 6-14.

In each case that EPA applied the MOE approach in TRI listing decisions, EPA identified a numerical level below which the MOE "is associated with a concern for toxic effects." This level is generally expressed as the product of the applicable uncertainty and modifying factors uncertainty factors that the Agency considers for noncancer toxic effects. A MOE greater than this level "would generally indicate a low level of concern," whereas a MOE less than the level "is judged to be of concern" (MIBK, EPA 1999c). In the case of EGBE's acute irritation effects, the MOE determination is based on a NOAEL derived from human data. There is accordingly no need to apply uncertainty factors for interspecies extrapolation, or for LOAEL-to-NOAEL extrapolation. An intraspecies uncertainty factor of 10 has often been used to account for potentially susceptible subpopulations in EPA TRI and other program precedents.

Although the minimum MOE among facilities subjected to the most sophisticated and realistic modeling ranges from 5 to 46 (Table 6-14), the level of concern is even lower than the MOE analysis indicates for several reasons. The Standard Operating Procedures for EPA's AEGL program (NRC 2001) allow for interspecies uncertainty factors below 10 in some circumstances, and suggest that an intraspecies uncertainty factor of 3 is appropriate for substances for which only one or a small number of nonsystemic effects have been documented. As discussed in Section 3

- EGBE's systemic toxic effects are secondary to hemolysis;

- because of the relative insensitivity of humans to EGBE's hemolytic effects, and because investigation of potentially sensitive subgroups have consistently failed to reveal increased susceptibility, hemolytic effects—and other systemic effects—are not expected to occur from short-term exposures near emitting facilities; and
- nonsystemic eye and upper respiratory irritation is the sole acute health effect that has been associated with short-term exposures, and this effect is unlikely to depend substantially on metabolic, pharmacokinetic or other systemic factors that introduce variability into responses across the exposed human population.

Second, as observed above, the NOAEL for EGBE's acute irritation effects is based on a 2-hour exposure duration, and a 1-hour-equivalent NOAEL would be 137 mg/m^3 (CalEPA 1999), over 40% higher. Taken together, these two considerations effectively reduce the MOE concern level from 10 to about 2, a more than a factor of two below the lowest MOE derived from the reasonable worst-case short-term exposure assessment summarized above (Table 6-14). Accordingly, there is a persuasive basis for concluding that there is a low level of concern for acute health effects from EGBE facility emissions.

Finally, short-term emission rates were estimated using the conservative assumption that facilities operate for only 40 hours per week and only 50 weeks per year. This assumption is likely to overestimate the short-term emission rates because the high emitting facilities are CMI members and CMI reported that member facilities typically operate those manufacturing processes that use EGBE continuously, with little variability year-round. Therefore, actual hourly emission rates could be as much as four orders of magnitude lower than those used in the acute assessment.[w]

6.7 Risk Characterization Conclusions for Potential EGBE Inhalation Exposures

None of the facilities that reported non-zero emissions of Certain Glycol Ethers to the air to TRI during the 2009, 2010, and 2011 reporting years were is associated with maximum annual average concentrations of EGBE at or above the current IRIS RfC. By subjecting facilities to the more refined long-term Tier 1, 2, and/or 3 analyses in accordance with EPA's (1992a) Tiered Modeling Guidance, this petition has demonstrated that there exists at least a six-fold margin of safety as a result of the conservative screening procedure employed, not including the additional margin of safety built into the RfC value itself (see Section 3.1.3). Additionally, it was demonstrated that EGBE exposures at or above the RfC are not expected to result from emissions from multiple facilities within a limited geographic area (for this analysis, within the same zip code). Finally, screening of a subset of facilities with some of the highest annual EGBE emissions reported to TRI during 2009, 2010, and 2011 demonstrated that short-term EGBE exposures near facilities reporting Certain Glycol Ethers emissions are also highly unlikely to be associated sufficient to have resulted in any acute health effects.

[w] Continuous operations assume more than 4.3 times more hours of operations (and emissions) over the course of the year than the 40 hours per week, 50 weeks per year assumption (8,736 hours vs. 2,000 hours).

7.0 SURFACE WATER EXPOSURES AND RISKS

Although the 2009, 2010, and 2011 TRI data and the emissions inventory (Appendix B) indicate that releases to air far exceed releases to all other environmental media combined, chronic health effects posed by direct releases to water and partitioning to water were also evaluated. As previously discussed, EGBE (CAS 111-76-2) possesses physical characteristics that indicate a propensity to remain dissolved in water or to be transported to the water column. As detailed in Section 3.1, EGBE is readily biodegradable (Price et al. 1974, as cited in ATSDR 1998) and has a relatively short residence time in the environment. Its half-life in both surface water and soil ranges from 7 days to 4 weeks, while its half-life in groundwater is 14 days to 8 weeks, and its half-life in the atmosphere is approximately 3.3 to 33 hours (Howard et al. 1991, as cited in ATSDR 1998). EGBE is highly mobile in soil and is unlikely to partition from the water column to organic matter contained in sediments or suspended solids (Swann et al. 1983). The volatilization of EGBE from surface water and moist soil is slow (Lyman et al. 1982, as cited in ATSDR 1998). HSDB (http://toxnet.nlm.nih.gov) reports that an estimated BCF of 3 was calculated for EGBE, concluding that the potential for bioconcentration in aquatic organisms is low. In summary, EGBE is miscible in water and has low overall volatility, a limited tendency to bind to soil and low lipophilicity and thus low bioaccumulation potential. These characteristics indicate that the majority of EGBE in soil is in the more mobile soil water phase rather than the solid phase (Section 8.2.2). Thus, EGBE released to soil would be expected to readily move via surface runoff to surface water.

In light of the fate and transport behaviors of EGBE, this section evaluates potential risks associated with human exposures to EGBE in surface water. The same methodologies reviewed and conducted by EPA in the HAPs delisting matter are employed here, with updates to reflect surface water concentrations based on 2009, 2010, and 2011 TRI release data, the most recent version of the Mackay fugacity model (EQC v2.02; CEMC 2003), the IRIS RfD, and current EPA (2004b) guidance for dermal risk assessment. Conservative exposure assumptions were used to determine potential for adverse effects associated with reasonable maximum exposure (RME) scenarios.

7.1 Exposure Profiles

Because this evaluation is meant to apply broadly to any surface water body used for recreational and/or potable water (i.e., residential) purposes, all assumptions employed are purposefully generic and conservative. As such, this profile describes RME scenarios, likely representing at most a very small proportion of the overall United States population. The bases for all assumptions presented below are further detailed in Section 7.3.

Under the recreational scenario, three age groups (young children 1 through 5 years of age, older children 6 through 12 years of age, and adolescents/adults over 12 years of age) were assumed to swim and play in and around a lake, pond, stream, or river containing an estimated upper bound EGBE concentration of 0.000376 mg/L (i.e., the exposure point concentration). While playing and swimming in the water body, recreators were assumed to

contact EGBE dermally and through incidental ingestion of surface water. Under the residential scenario, the same three age groups were assumed to live at a house supplied with tap water containing the same exposure point concentration of EGBE. Individuals were assumed to contact EGBE in tap water through drinking water consumption and through dermal contact while showering and bathing.

The exposure point concentration of EGBE in surface water was developed using the Mackay III distributional model (EQC v2.02; CEMC 2003), based on 2010 TRI data on discharges to air, land, and water, as detailed in Section 8.2.2. In brief, it was assumed that all emissions of Certain Glycol Ethers to air, soil, and surface water throughout the United States (as reported in the 2010 TRI reports; www.epa.gov/triexplorer) are EGBE.[x] It was further assumed that all emissions are concentrated into a 100,000 square kilometer (km^2) area (approximately the size of Ohio), which is the Mackay model's default unit area (CEMC 2003). Because emissions of Certain Glycol Ethers to all media were greater in 2010 than in 2009 or 2011, the predicted surface water EGBE concentration using 2010 TRI data (0.000198 mg/L) was greater than the predicted surface water concentration based on 2009 and 2011 data (0.000190 mg/L and 0.000193 mg/L). Therefore, the water concentration based on the 20010 TRI data was used as the more conservative estimate of the upper bound concentration of EGBE in surface water. The implications of increases in EGBE releases in the future are qualitatively addressed in the Section 9.

7.2 Exposure Equations

Potential dermal and ingestion exposures were modeled based on the average daily intake (ADI), expressed in units of mg/kg BW-day, consistent with EPA (1989, 2004b) risk assessment guidance. The equations for estimating ADI for each exposure pathway are presented below. Definitions of variables that remain constant across pathways are provided for the first pathway only. Parameters that are unique to a pathway are defined for that specific pathway. While the equation listed below for the ingestion pathway is identical to that used in the HAPs petition (CMA 1997), the equation listed below for the dermal pathway is updated to reflect current EPA (2004b) guidance for dermal risk assessment and consequently differs from that used in the HAPs petition.

Ingestion of Drinking Water/Incidental Ingestion of Surface Water:

Eqn. 4

$$ADI\ (mg/kg\ BW\text{-}day) = C_w \times IR_w \times EF \times ED \times A_o \times (1/BW) \times (1/AT)$$

where:

C_w = Concentration of EGBE in water (mg/L)

IR_w = Ingestion rate (L/day)

[x] Releases to air were defined as those reported via On-Site Fugitive Air Emissions and On-Site Point Source Air Emissions. Releases to surface water were defined as those reported as On-Site Surface Water Discharges and releases to soil were defined as those reported as On-Site and Off-Site Land Treatment and Other Land Disposal.

EF = Exposure frequency (days/year)
ED = Exposure duration (years)
A_o = Oral absorption factor (unitless)
BW = Body weight (kg)
AT = Averaging time (days)

Dermal Contact with Tap Water/Surface Water While Bathing, Showering, or Swimming:

Eqn. 5

$$ADI\ (mg/kg\ BW\text{-}day) = DA_{event} \times EV \times ED \times EF \times SA \times (1/BW) \times (1/AT)$$

where:

DA_{event} = Absorbed dose per event (mg/cm^2-event)
EV = Event frequency (events/day)
SA = Skin surface area exposed (square centimeters or cm^2)

7.3 Exposure Assumptions

Calculation of ADI for the two pathways identified above requires the selection of exposure parameter values that reflect assumptions regarding individual behavior that results in contact with EGBE in surface water. All exposure factor values are listed in Tables 7-1 through 7-4 and are further described below. In all cases, exposure factor values were selected with the objective of describing RME scenarios (i.e., using assumptions that are consistently conservative in the sense that they significantly overstate the exposures likely to be experienced by the general population).

- Chemical concentration in water (C_w) − The assumed concentration of EGBE in surface water, 0.000198 mg/L, is estimated by applying Mackay's fugacity model to 2010 TRI data on releases of Certain Glycol Ethers to land, air, and water (assuming that EGBE comprises 100% of this chemical group), as further described in Section 8.2.2. For the HAPs petition, the assumed concentration of EGBE in surface water was 0.13 mg/L. Given the stronger technical basis for the value applied in this petition, it is likely more appropriate than that used for the HAPs petition. That said, Section 7.4 explores the effect that the value used in the HAPs petition has on predicted risks.
- Ingestion rate (IR) − Water IR values for both drinking water and incidental events while swimming from EPA (1989) risk assessment guidance were employed in this analysis. EPA (1989) reports a drinking water IR (IR_w) of 2 L/day for adults and older children. Young children are reported to drink 1 L/day of drinking water. For incidental ingestion of water while swimming, EPA (1989) reports IRs of 0.13 L/day for all three age groups. The same values were employed in the HAPs petition.
- Exposure frequency (EF) − Consistent with EPA (1989) risk assessment guidance, a 350 day/year EF was used for residential exposures for all age groups, assuming that individuals vacation away from home a total of 15 days/year. For recreational exposures, it was conservatively estimated that a warm climate that would permit swimming nine months/year. Therefore, adults and young children were assumed to swim once per

week, while older children were assumed to swim three times per week, yielding exposure frequencies of 36 and 108 days/year, respectively. For a cooler climate, these exposure frequencies could also represent a 4.5 month swimming season, in which adults and young children swim twice per week and older children swim six times per week. The same values were employed in the HAPs petition.

- Exposure duration (ED) − For both recreational and residential exposures, the ED was assumed to be 30 years broken down into 5 years as a young child, 7 years as an older child, and 18 years as an adolescent and adult. This assumption is similar to EPA (1989) risk assessment guidance and is consistent with the HAPs petition.
- Oral absorption factor (A_o) – It was conservatively assumed that 100% of the EGBE ingested is absorbed in the gastrointestinal tract. This assumption was employed in the HAPs petition.
- Body weight (BW) − EPA (1989) risk assessment guidance provides age-specific BWs of 70 kg, 30 kg, and 15 kg for adults and adolescents, older children, and young children, respectively. Although slightly higher (and therefore less conservative) BWs are offered in more recent EPA (1997b) guidance, the values first proposed by EPA (1989) were employed in this analysis for consistency with most other risk assessments and to ensure the conservatism of the overall assessment. The same values were employed in the HAPs petition.
- Averaging time (AT) − The AT for noncarcinogens represents the length of time between the first and last exposure, in days. Hence, the ATs for adults and adolescents, older children, and young children were set equal to 6,570 days, 2,555 days, and 1,825 days, respectively. The same values were employed in the HAPs petition.
- Event frequency (EV) – Consistent with EPA (2004b) dermal risk assessment guidance, it was assumed that residents take one shower or bath daily. Although residents may occasionally take two showers per day, they may also occasionally go without showering for a day or shower at places other than their residence. Thus, on average, this assumption is reasonable and conservative. Recreators are assumed to swim or wade three times each day that they visit recreational water bodies. When the HAPs petition was prepared, EPA guidance for dermal risk assessment did not require characterization of EV.
- Skin surface area exposed (SA) − Age-specific skin surface areas were derived from EPA (1997b) exposure assessment guidance. Surface areas of 23,000 cm^2, 12,914 cm^2, and 7,446 cm^2 are reported as upper percentile values for adults and adolescents, older children, and young children, respectively. These values are consistent with more recent EPA (2004b) guidance. It was assumed that 100% of the body contacts water during swimming, showering, and bathing. Skin surface areas applied in the HAPs petition were based on older EPA (1989) guidance and were slightly lower (i.e., less conservative) than those listed above. The HAPs petition employed surface areas of 20,900 cm^2, 12,349 cm^2, and 7,252 cm^2 for adults, older children, and young children, respectively.
- Absorbed Dose (DA_{event}) – Exhibit B-3 of EPA's (2004b) current dermal risk assessment guidelines lists a calculated value of 1.8E-6 milligrams per square centimeter (mg/cm^2)-event for the absorbed dose of EGBE via dermal contact with water (listed in the exhibit as butoxyethanol-2), assuming a chemical concentration of 1 mg/L in water. Thus, the

value of DA_{event} employed in this risk assessment was 3.6 x10-10 mg/cm^2-event, which is the product of the estimated concentration in water (0.000198 mg/L) and the default value listed in Exhibit B-3 (1.8 x 10^{-6} mg/cm^2-event). When the HAPs petition was prepared, EPA guidance for dermal risk assessment did not require characterization of DA_{event}.

7.4 Results and Conclusions

The exposure factor values were entered into the exposure equations listed above to yield ADIs for each exposure scenario, as presented in Tables 7-1 through 7-4. The ADIs were then divided by the IRIS RfD of 0.1 mg/kg BW-day (EPA 2010), to yield pathway-specific hazard quotients (HQs). Pathway-specific HQs were then summed to yield cumulative hazard indices, presented in Table 7-5. All HQs are several orders of magnitude below 1, the benchmark of acceptable hazard specified in the National Contingency Plan (EPA 1990a). Because the ADIs estimated here represent RME levels, it is likely that the ADIs and HQs in Table 7-5 represent significant overstatements of exposures and potential health risks for the vast majority of the United States population. Thus, adverse health effects are not anticipated to result from either recreational or residential exposures to EGBE in surface water.

As shown in Table 7-6, there are three main differences between the methods employed in the HAPs petition and in this petition to evaluate dermal and ingestion exposures from EGBE in surface water. First, both the underlying data (i.e., 1993 vs. 2010 TRI release data) and the model used to estimate the concentration of EGBE in surface water differ, such that the HAPs petition employed an exposure point concentration of 0.13 mg/L, while this petition uses a value of 0.00020 mg/L, a value that is 650-fold lower. Because the lower value is based on the latest release data and the current version of Mackay's fugacity model, it is expected to be the more accurate value. Nonetheless, the impact of assuming that surface water contains 0.13 mg/L on overall hazard estimates is evident by simply multiplying the maximum HQ shown in Table 7-5 (i.e., 0.0001) by 650, which yields a theoretical HQ of 0.08. Because this value is also well below 1, the assumed exposure point concentration does not affect the overall conclusions of this risk assessment.

The second main difference between the surface water hazards calculated in the HAPs petition and in this petition relates to the RfD. In 1997, EPA had not yet completed work on the IRIS RfD, and accordingly the draft interim value of 3 mg/kg BW-day under review at that time was employed in the 1997 HAPs petition. Thus, the final IRIS RfD of 0.1 mg/kg BW-day employed in this petition has a stronger scientific basis and is 30-fold more conservative than that used in the HAPs petition.

Third, in 1997, the equation typically used to estimate dermal dose differed from that now recommended by EPA (2004b) dermal exposure guidelines. However, given the much greater influence of the ingestion pathway over the dermal pathway in terms of the cumulative hazard, the change in approach to dermal risk assessment has minimal effect on overall conclusions regarding risk. Nonetheless, the method employed was updated to reflect the strongest technical basis and current regulatory practice.

In conclusion, the three main changes to the approach employed to calculate surface water hazards reflect the most recent emissions data, and advances in knowledge and practice related to fugacity modeling, EGBE toxicity, and dermal risk assessment. While these updates are certainly appropriate for generating more realistic estimates of potential hazards, they do not substantially change the overall conclusions of the assessment that predicted ingestion/dermal hazards (as measured by HQs) are well below 1 regardless of the combination of assumptions employed. Indeed, the maximum surface water HQ predicted in the HAPs petition was 0.007, while the maximum value predicted in this petition is 0.0001 (Table 7-6).

8.0 ECOLOGICAL RISKS

A series of ERAs has been prepared for EGBE (CAS 111-76-2), including several ERAs prepared in the HAPs delisting proceeding. All have concluded that EGBE is not expected to cause significant adverse environmental effects. Nevertheless, an updated ERA was performed as part of this petition to account for changes in emissions rates since the mid-1990s, as well as to incorporate more recent ecotoxicological information. The ERAs conducted for the HAPs delisting petition are summarized below, followed by a detailed description of the updated ERA developed to support this petition.

8.1 HAPs Delisting Ecological Risk Assessments

Several ERAs were conducted for EGBE in connection with EPA's review of the petition to remove EGBE from the CAA HAPs list. The first was prepared on behalf of the Panel as part of the HAPs delisting petition (CMA 1997). EPA's Office of Air Quality Planning and Standards then retained the Cadmus Group to prepare Tier 1 and Tier 2 ERAs. The Tier 1 ERA (Cadmus 2000b) employed extremely conservative point estimates of exposure and effects, while somewhat less conservative assumptions were used for the Tier 2 ERA (Cadmus 2000a). While the same general approach was employed in all three ERAs, specific assumptions varied. Nonetheless, the Panel and the EPA Tier 2 ERAs concluded that EGBE is not expected to cause significant adverse ecological effects, and the Agency ultimately made the same finding when it removed EGBE from the CAA HAPs list. The HAPs ERAs for EGBE are summarized below.

8.1.1 The Panel's ERA

Based on a review of the ecotoxicological literature and an evaluation of the relative sensitivities to EGBE by many receptors, the Panel's HAPs ERA (CMA 1997) evaluated two assessment endpoints: (1) sustainability of aquatic plant communities and (2) sustainability of small mammal populations.

The Panel's HAPs assessment used the Mackay Level III model to calculate the distribution of EGBE in air, water, and soil based on 1996 TRI national emissions. EGBE releases into the 100,000 km^2 area contained within the Mackay model were estimated by assuming that EGBE represents 50% of all Certain Glycol Ethers releases reported nationally as (1) point and fugitive air emissions; (2) releases directly to surface water; (3) releases to publicly owned treatment works (POTWs); (4) onsite land releases; and (5) transfers off site for disposal. The 1996 releases to air, water, and soil used in the Panel's HAPs analysis are listed in Table 8-1.

The Mackay model predicted that the majority of EGBE released to air is deposited to soil and water, while EGBE released to water and soil tends to remain in those media. The overall persistence of EGBE in the environment was estimated to be 19 days and losses were largely attributed to advection and reactions (e.g., degradation). Application of the Mackay Level

III model predicted concentrations of EGBE in air, water, and soil (at equilibrium), as shown in Table 8-2.

The predicted equilibrium water concentration (0.00135 mg/L) was used to evaluate exposure of aquatic plants to EGBE. Exposure of small mammals to EGBE was estimated based on EPA's (1993a) exposure equations for deer mice (*Peromyscus maniculatus*), considering direct ingestion of soil, water, and food, resulting in an EGBE dose of 0.203 mg/kg BW-day for small mammals.

An aquatic TRV was derived from the lowest relevant toxicity value available for aquatic plants—a 125 mg/L acute no observed effect concentration (NOEC) for growth rate inhibition in green algae (Dow 1988, Table 3-2). An uncertainty factor of 100 was applied to adjust the acute NOEC to be representative of chronic effects, because no data were available to clarify the potential difference in effects between acute and chronic exposures. Therefore, the Panel's HAPs assessment (CMA 1997) employed a TRV of 1.25 mg/L for evaluating risk to aquatic plants.

In the absence of any available studies of EGBE toxicity in wildlife, the small mammal TRV was derived from the 91-day drinking water study in female Fischer rats, which was also used in the IRIS assessment that was available at that time (EPA 1999a) to develop the human oral RfD for EGBE. The chronic LOAEL for this study was 59 mg/kg BW-day (Appendix A-2).[y] The rat chronic LOAEL was divided by a uncertainty factor of three to adjust for the absence of a NOAEL, to derive a TRV of 20 mg/kg BW-day for small mammals (CMA 1997).

Dividing the surface water concentration predicted by Mackay Level III modeling (0.00135 mg/L) by the aquatic TRV (1.25 mg/L) yielded an HQ of 0.0012. For small mammals, the predicted dose of 0.203 mg/kg BW-day was divided by the TRV of 20 mg/kg BW-day, to yield an HQ of 0.01. HQs less than 1.0 indicate that ecological effects are unlikely to occur. Thus, the Panel's HAPs assessment (CMA 1997) concluded that EGBE was unlikely to pose significant ecological risk under current or future uses.

8.1.2 EPA ERAs

The EPA HAPs ERAs (Cadmus 2000a, b) narrowed the assessment endpoints selected by CMA (1997) to some degree, selecting the following receptors for their analysis: (1) aquatic microorganisms in waters receiving atmospheric emissions of EGBE from nearby large sources and (2) small mammals with home ranges located immediately downwind of large sources of EGBE emissions. These endpoints are inherently more conservative than those employed by the earlier Panel assessment because they focus on those organisms that are in the immediate vicinity of EGBE emissions. EPA employed a tiered approach, wherein the first tier of analysis was intentionally very conservative. The Tier 1 ERA was not designed to generate a definitive

[y] The chronic LOAEL used to calculate the RfD differs slightly form the published LOAEL in the original study (82 mg/kg BW-day; NTP 1993) and presented in Appendix A-2 because IRIS (EPA 1999a) used water consumption rates and female body weights measured during the last week of exposure to calculate dose.

conclusion regarding potential ecological risks. Rather, it was intended to screen out those scenarios that clearly do not present concern.

8.1.3 Tier 1 ERA

EPA's application of the Mackay model differed somewhat from that used in the Panel's HAPs analysis. In particular, for Tier 1, EPA used the Level I Mackay model to determine the equilibrium distribution of EGBE in a model environment with 1,000 kg of EGBE emitted to the air. The Level I model does not account for any advection or degradation reaction losses of EGBE, and it predicted that more than 99% of the EGBE released to the model environment partitioned to water. The predicted air concentration was 0.000000423 mg/m^3, the predicted water concentration was 0.000497 mg/L, and the predicted soil concentration was 0.000024 mg/kg (Cadmus 2000b).

Because the assumed EGBE release rate used in the EPA Tier 1 assessment (1,000 kg) is arbitrary and unrelated to actual releases, the exposure concentrations were scaled as a function of both the distribution of EGBE determined from the Level I Mackay model and the predicted maximum annual average concentration of EGBE from the highest emitter in the 1993 TRI. The predicted maximum annual average concentration (0.327 mg/m^3) was 773,050 times greater than the air concentration (4.23×10^{-7} mg/m^3) predicted by the Level I Mackay model using the arbitrary release of 1,000 kg. The predicted water and soil concentrations were converted to concentrations that would be in equilibrium with the maximum annual average concentration at or beyond the fenceline, by multiplying each Mackay Level I modeled concentration by 773,050. This assumption is unrealistically high by a very large margin because maximum annual average air concentrations were calculated by assuming no interchange between EGBE in air, soil, or water. The Mackay model indicates that EGBE preferentially partitions to soil and water from air, which would dramatically lower maximum annual average concentrations at or beyond the fenceline. This assumption is also unrealistic because it does not account for the effect of dilution of air concentrations over time or space. The concentrations used in the EPA Tier 1 assessment (Cadmus 2000b) are presented in Table 8-2.

The equilibrium water concentration listed in Table 8-2 was used to evaluate exposure of aquatic microorganisms to EGBE. For small mammals, EPA's Tier 1 ERA used the meadow vole (*Microtus pennsylvanicus*) rather than the deer mouse, because the vole's diet has a higher proportion of plants and thus would likely have higher exposures to EGBE (Cadmus 2000b). In addition to dietary and drinking water pathways, the inhalation pathway for small mammals was evaluated. Exposure factor values and the dose equation were drawn from EPA (1993a) wildlife exposure assessment guidance, resulting in an estimated dose of 163.8 mg/kg BW-day for the meadow vole.

The lowest relevant toxicity value identified in the EPA Tier 1 assessment (Cadmus 2000b) for aquatic microorganisms was for the protozoan *Endosiphon sulcatum*, which experienced inhibition of cell multiplication following a 72-hour acute exposure to 91 mg/L. An acute-to-chronic uncertainty factor of 100 was applied to derive a TRV of 0.91 mg/L for aquatic

microorganisms. For small mammals, the EPA Tier 1 assessment adopted the same TRV developed by the Panel, 20 mg/kg BW-day. The resulting Tier 1 HQ for aquatic microorganisms was 422, while the Tier 1 HQ for small mammals was 8.2. Therefore, EPA concluded that additional ecological evaluation for both receptors was warranted and proceeded with a Tier 2 ERA.

8.1.4 Tier 2 ERA

The EPA Tier 2 ERA (Cadmus 2000a) evaluated the same assessment endpoints and pathways considered in the Tier 1 ERA; however, several of the unrealistic assumptions used in the Tier 1 assessment were replaced with more plausible estimates of exposure and effects. The Mackay Level III model was used to determine the equilibrium distribution of EGBE in a model environment with 1,000 kilograms per hour (kg/hr) of EGBE emitted to the air. Because advection and degradation reactions are accounted for in the Level III model, the predicted equilibrium concentrations were considerably lower than the Tier 1 model predictions. The predicted air concentration was 5.89×10^{-5} mg/m^3, the predicted water concentration was 6.56×10^{-4} mg/L, and the predicted soil concentration was 1.19×10^{-2} mg/kg (Cadmus 2000a). Because the assumed release rate (1,000 kg/hr) was arbitrary, it was again necessary to scale the predicted concentration based on the maximum annual average concentration predicted from the 1993 TRI (0.327 mg/m^3). The resulting concentrations, listed in Table 8-2, were used in the Tier 2 exposure assessment.

A water concentration of 3.64 mg/L (Table 8-2) was used to evaluate exposure of aquatic microorganisms to EGBE. The exposure model for the meadow vole (EPA 1993a) was used to estimate small mammal exposure to EGBE, yielding an estimated dose of 2.15 mg/kg BW-day.

For the Tier 2 effects assessment, EPA applied an acute-to-chronic uncertainty factor of 10 to the lowest relevant toxicity value of 91 mg/L, yielding a TRV of 9.1 mg/L for aquatic microorganisms. For small mammals, the same TRV (20 mg/kg BW-day) used in the Panel ERA and EPA's Tier 1 ERA was also applied in the Tier 2 ERA. The Tier 2 HQ for aquatic microorganisms was 0.40 and the Tier 2 HQ for small mammals was 0.11. Because both HQs were less than 1, the ERA conducted on behalf of EPA concluded that ecological risks due to exposure to EGBE are unlikely (Cadmus 2000a). When EPA evaluated these results in the HAPs delisting determination, it found the water concentration of 3.64 mg/L predicted in the Tier 2 ERA to be a "worst-case estimate" that would not be approached in communities near EGBE-emitting facilities, "because numerous variables were not taken into consideration that, if considered, were likely to reduce estimates of EGBE in water" (68 FR 65653 [EPA 2003]).

8.2 Updated ERA

For this petition, the previous HAPs ERAs were updated to reflect more realistic assumptions related to EGBE fate and transport in environmental media, current data on EGBE releases, and recent publications on EGBE ecotoxicity.

8.2.1 Problem Formulation

The assessment endpoints selected for this ERA were (1) sustainability of aquatic populations and communities and (2) sustainability of small terrestrial mammal populations. As detailed below in the effects assessment, because the aquatic organism TRV was selected based on the most sensitive aquatic species tested, the first assessment endpoint is considered protective of all types of aquatic organisms. Thus, it is not necessary to limit this endpoint to aquatic plants (as had been done in the Panel's HAPs assessment [CMA 1997]) or aquatic microorganisms (as had been done in the EPA HAPs ERAs [Cadmus 2000a,b]). As in the previous ERAs, the selected assessment endpoints were evaluated based on HQs, which are equal to the ratio of the estimated exposure concentration (or dose) to the TRV.

As in the EPA HAPs analyses, this ERA used meadow voles to represent small terrestrial mammals, given their expected higher exposures compared to other small mammal species. The same pathways used in the previous ERAs were also used in this analysis. Therefore, aquatic organism exposure was evaluated based on estimated surface water concentrations, and small terrestrial mammal exposure was evaluated based on the same exposure model used by the EPA HAPs analyses, considering the exposure pathways of inhalation and direct ingestion of soil, water, and food.

8.2.2 Exposure Assessment

The Mackay Level III fugacity model (EQC v2.02; CEMC 2003) was used to estimate the distribution of EGBE in air, water, and soils based on 2009, 2010, and 2011 TRI release data. Four types of releases of Certain Glycol Ethers were applied to the model: (1) point and fugitive air emissions; (2) releases directly to surface water; (3) onsite land treatment and other land releases; and (4) transfers off site for land treatment and other land disposal. These reported releases were used to estimate national release rates (in kg/hr) to air, water, and soil. Although EGBE comprises less than 50% of all ethylene glycol ethers consumed in the United States (SRI 2010), it was conservatively assumed to make up 100% of Certain Glycol Ethers reported by TRI as released in 2009, 2010, and 2011. National release rates from 2009, 2010, and 2011 were used to model the distribution of EGBE in air, water, and soil within the modeled area (100,000 km^2). That is, it was assumed that all Certain Glycol Ethers released nationwide in 2009, 2010, and 2011 were actually EGBE and were actually released within an area the size of the state of Ohio. While these assumptions are clearly conservative, because they are not arbitrary (i.e., they are based on actual release data), they require substantially less extrapolation and therefore introduce considerably less uncertainty compared to those applied in the EPA ERAs. Table 8-1 lists the 2009, 2010, and 2011 release rates used in the model. With the exception of the updated release rates, input parameter values used in the Level III model (Table 8-3) were consistent with those used by EPA (Cadmus 2000a). The predicted air, water, and soil concentrations based on 2009, 2010, and 2011 release rates are presented in Table 8-2.

Because the equilibrium air, surface water, and soil concentrations were highest in 2010, all ecological risk assessment calculations were conducted based on the 2010 TRI release data.

The predicted equilibrium water concentration (1.98 x 10^{-4} mg/L) of EGBE was used to evaluate exposure of aquatic organisms. Exposure of small terrestrial mammals to EGBE was estimated based on inhalation and direct ingestion of soil, water, and plants using the same total daily intake (TDI) equation and input values used by EPA (Cadmus 2000a) for meadow voles:

Eqn. 6

$$TDI = (C_a \times IR_a \times 3) + (C_w \times IR_w) + IR_{diet} \sum_{i=1}^{N} (C_i \times P_i)$$

where:

- C_a = concentration of EGBE in air (mg/m^3)
- IR_a = inhalation rate (cubic meters per kilogram body weight per day or m^3/kg BW-day)
- C_w = concentration of EGBE in water (mg/L)
- IR_w = water ingestion rate (kilograms per kilogram body weight per day or kg/kg BW-day)
- IR_{diet} = total food ingestion rate (kg/kg BW-day)
- C_i = concentration of EGBE in diet item i (mg/kg)
- P_i = proportion of diet made up by diet item i (unitless)

In this equation, consistent with EPA (1993a) wildlife exposure assessment guidance and EPA's HAPs ERA for EGBE (Cadmus 2000a), the inhalation rate was multiplied by three to account for the inhalation rates derived in the laboratory, rather than from field metabolic rates. EPA (1993a) guidance recommends adjusting inhalation rates upwards by a factor of two to three to estimate rates expected in the wild. The values used for each of these parameters are presented in Table 8-4. The resulting EGBE dose for small terrestrial mammals is predicted to be 0.029 mg/kg BW-day.

8.2.3 Effects Assessment

The toxicity data compiled for aquatic organisms in Table 3-2 were reviewed to determine whether the TRVs used in the HAPs ERAs warrant updating. Because aquatic toxicity data are available for a variety of aquatic species representing a range of taxa and trophic levels (Table 3-2), a species sensitivity distribution approach was used for the aquatic organism effects assessment. The species sensitivity distribution approach can be used when toxicity values for the same endpoint (i.e., mortality) are available for a range of species. The advantage of this approach is that it incorporates all available toxicity data rather than relying on a single critical study. It is not possible, however, to use a species sensitivity distribution approach for the terrestrial mammalian effects assessment, because the available laboratory mammal toxicity data cover many different endpoints, but only a few species. Therefore, this assessment relies on the same TRV approach to assess potential risks to terrestrial mammals as used in the Panel and EPA HAPs ERAs. The following two subsections further detail the effects assessments for aquatic organisms and terrestrial mammals.

8.2.3.1 Aquatic Species Effects Assessment

Acute toxicity tests have been conducted on a variety of aquatic species (Table 3-2). Therefore, rather than relying on a single critical study, a species sensitivity distribution approach is used to assess potential effects to all aquatic organisms. Species sensitivity distributions have been used in previous ERAs (Solomon et al. 1996, Hall et al. 1998), they are included in the EPA guidance for ERAs (EPA 1998b), are implicit in EPA's derivation of ambient water quality criteria (Stephan et al. 1985, Fisher and Burton 2003), and they are the focus of a book reviewing their use in ecotoxicology in North America and Europe (Posthuma et al. 2002). In short, the approach is well tested and well accepted by the scientific and regulatory communities alike.

Species sensitivity distributions incorporate toxicity data from all species tested for similar endpoints (e.g., LC_{50} findings) into a distribution showing the percent of organisms that are affected at various chemical concentrations. The distribution of toxicity values can then be easily compared to environmental concentrations to determine the percent of species likely to be affected at the observed or predicted environmental concentrations.

Acute species sensitivity distributions were compiled from the aquatic vertebrate and invertebrate values presented in Table 3-2. For consistency across species, the following rules were adapted from EPA guidance on calculating ambient water quality criteria (Stephan et al. 1985) for selecting toxicity values to incorporate into the acute species sensitivity distribution:

- Endpoint – Only LC_{50} determinations were included.
- Exposure duration – With one exception, values derived from 96-hour exposures were preferred for most species. Per Stephan et al. (1985), 48-hour exposures were preferred for *Daphnia* sp. If values derived from 96-hour exposures were not available for a given species, 72-hour or 48-hour exposures were used.
- Species weighting – Rather than using the geometric mean of multiple acute values for a given species to obtain a species mean acute value (in accordance with Stephan et al. 1985), each acceptable acute value for a species was retained as a discrete point in the distribution. Acute values were then weighted by the number of tests per species to account for intraspecies variability, using methods described by Duboudin et al. (2004b).

Chronic toxicity values were available for seven species of aquatic vertebrates and invertebrates (Table 3-2) and the lowest chronic value (7.2 mg/L, rotifer) was greater than the lowest acute value (5.4 mg/L, grass shrimp). As discussed in Section 3.3 above, questions have been raised about the validity of the toxicity finding in the grass shrimp. Because the species sensitivity distribution generated from the chronic toxicity data incorporated fewer species and did not include values for the most sensitive species from the acute data, a more conservative approach was used to generate a chronic species sensitivity distribution, as follows.

Duboudin et al. (2004a) present a method for extrapolating chronic species sensitivity distributions for chemicals with limited chronic toxicity data by using the acute species sensitivity distributions for vertebrates and invertebrates (Figure 8-1). The acute species sensitivity distributions are used to calculate means and standard deviations for chronic vertebrate and

invertebrate species sensitivity distributions, based on empirical relationships between the acute and chronic toxicity distributions for 25 representative chemicals (Duboudin et al. 2004a). The calculated chronic distribution means and standard deviations for vertebrate and invertebrate species are then used to calculate chronic values from each of the acute toxicity values, thus populating the chronic species sensitivity distributions for vertebrates and invertebrates (Table 8-5). The calculated vertebrate and invertebrate chronic toxicity values are then combined with any algae or microbe toxicity data that might be available for the chemical, in order to generate a chronic species sensitivity distribution representative of all aquatic organisms (Duboudin et al. 2004a). The vertebrate and invertebrate acute species sensitivity distributions and the chronic species sensitivity distribution for all aquatic organisms for EGBE are presented in Figure 8-2.

The chronic species sensitivity distribution was used to assess effects to aquatic organisms by using the distribution to determine the EGBE surface water concentration that is predicted to protect at least 80% of aquatic organisms. Because the acute to chronic distribution relationship was established using LC_{50} findings for acute values and NOECs for chronic values (Duboudin et al. 2004a), the calculated chronic values for aquatic organisms (Table 8-5) represent predicted NOECs following chronic exposures. Therefore, the 80th percentile of the calculated chronic species sensitivity distribution represents the concentration at which no chronic effects (e.g., growth or reproduction) occur in at least 80% of the species tested. The 80th percentile of the no effect distribution was selected for this assessment based on a review of regulatory precedents to establish minimum acceptable ecological effect levels for remedial decisions at hazardous waste sites (Suter et al. 1995). Twenty percent was determined to be the minimum detectable effect level in the chronic and subchronic toxicity tests and field-based bioassessment protocols that are typically used to detect effects in ecological endpoints (Suter et al. 1995). One advantage of the species sensitivity distribution approach, however, is that any percentile can be readily identified and used, depending upon the degree of protection preferred. For example, ambient water quality criteria are derived based on the 95th percentile of the acute effect distribution (Stephan et al. 1985, Fisher and Burton 2003), while the 90th percentile of chronic effect distributions has been used in several ERAs (Klaine et al. 1996, Solomon et al. 1996, Hall et al. 1998). The 80th percentile of the no effect chronic distribution is 8.7 mg/L (Figure 8-2). While this value is used to evaluate risks to aquatic organisms in Section 8.2.4, the effect of using the 90th and 95th percentiles is also discussed.

8.2.3.2 Mammalian Effects Assessment

Several EGBE toxicity studies in laboratory mammals have been released since the last compilation of toxicity values (ATSDR 1998), but few provide relevant endpoints for ERA (Appendix A-2). As discussed above, due to its low K_{ow} and relatively short atmospheric half-life, EGBE released into the environment partitions into surface water (Section 8.1.2, Table 8-3). Therefore, laboratory mammal toxicity studies focusing on inhalation, injection, or in vitro routes of exposure do not represent environmental exposure to EGBE for small mammals. The results from three drinking water studies have been published since the ATSDR (1998) compilation was issued (Appendix A-2). One is an acute toxicity study on F344 rats where a LOAEL for

histopathological effects of 250 mg/kg BW-day is reported after two to four doses (Nyska et al. 2003); the second is from a single dose mortality study with guinea pigs where an LD_{50} of 1,414 mg/kg BW is reported (Gingell et al. 1998); and the third is from a multigenerational chronic study with mice where the LOAEL for mortality, growth, and reproductive effects was 10,000 mg/kg BW-day (Lamb et al. 1997). The first two acute studies do not provide an appropriate representation of environmental exposures to EGBE and all three studies present toxicity values much greater than the toxicity value that is the basis for EPA's RfD. In addition, none of the other oral exposure studies (e.g., oral gavage) provide a more sensitive toxicity value than the basis for the RfD (Appendix A-2). Therefore, this assessment uses the same small mammal TRV (20 mg/kg BW-day) applied in the previous HAPs ERAs. However, in light of the Lamb et al. (1997) study, this TRV is certainly conservative.

8.2.4 Risk Characterization

HQs were calculated to evaluate ecological risks using the equation below:

Eqn. 7

$$HQ = Exposure / TRV$$

Based on 80th percentile, the HQ for aquatic organisms is 0.00002, indicating that they are not likely to be at risk from the highly conservative EGBE exposure scenario presented above. Based on the 95th and 90th percentiles, the HQs for aquatic organisms are 0.00005 and 0.00009, respectively. Similarly, the HQ for small mammals was 0.001, indicating that they also are not likely to be at risk, even under the conservative assumptions used in this exposure scenario.

Both calculations reflect a high margin of safety because the HQs are much less than 1. For example, surface water concentrations would have to be more than 10,000 times higher than was predicted using the Mackay Level III model in order for exposures to approach the 80th percentile of the chronic species sensitivity distribution for aquatic organisms. Similarly, the dose to small mammals would have to be 300 times higher in order for exposures to approach the mammalian TRV.

The many conservative assumptions used to determine EGBE distribution, toxicity, and exposure further contribute to the margin of safety provided by this ERA. For example, in the Level III Mackay model, the total 2010 national emission rates for Certain Glycol Ethers were applied to a default model area approximately the size of the state of Ohio. Although the equilibrium distributions based on the 2009 and 2011 national emissions were also modeled, the equilibrium concentrations from the 2010 were used in the ERA because they were the highest from the three most recent years. In addition, the modeled area is 100,000 km^2 (Mackay et al. 1992) which is approximately 1.3% of the size of the continental United States. Because the modeled area is based on a default value, the modeled concentrations are expected to overestimate actual ambient concentrations, by up to three orders of magnitude.

In addition, although EGBE makes up only about half of the ethylene glycol ethers consumed in the United States, all releases of Certain Glycol Ethers in the TRI were conservatively assumed to be EGBE. Thus, the ERA was based on the conservative assumption that EGBE consumption is two-fold higher than most recent data suggest (SRI 2010).. Uncertainty is also potentially contributed to this analysis through the selected TRVs. The 80th percentile from the calculated chronic species sensitivity distribution was used for the aquatic organism TRV in this assessment. Although the 80th percentile of the no effect distribution is believed to be the most appropriate effect level for evaluating population and community level effects, it is worth noting that using the 95th percentile (2.3 mg/L) or the 90th percentile (4.2 mg/L) would only slightly increase the HQ for aquatic organisms. In addition, because the Duboudin et al. (2004a) method for extrapolating chronic species sensitivity distributions from acute distributions is still being evaluated for a variety of chemicals, it is worth noting that the TRV derived from the 80th percentile of the chronic species sensitivity distribution in this analysis is generally comparable to the TRVs used in the HAPs ERAs: 1.25 mg/L (CMA 1997), 0.91 mg/L (Cadmus 2000b), and 9.1 mg/L (Cadmus 2000a). Aquatic HQs calculated using the TRVs employed by the Panel (CMA 1997) and in EPA's Tier 1 and 2 assessments (Cadmus 2000a,b) would be 0.0002, 0.0002, and 0.00002, respectively. Therefore, using any of the TRVs from the previous ERAs would not significantly change the HQ for aquatic organisms calculated above.

8.3 Conclusions

Potential ecological risks posed by EGBE are the subject of three separate ERAs—the Panel's HAPs ERA (CMA 1997), EPA's HAPs ERA (Cadmus 2000a, b; EPA 2003, 2004a), and the analysis presented in this petition. Each assessment is consistent with EPA modeling and exposure assessment guidance and founded on highly conservative assumptions about EGBE distribution, toxicity, and exposure. The findings of all three assessments support the conclusion that EGBE does not meet the ecotoxicity listing criteria in Section 313(d)(2)(C). The Panel's HAPs analysis found no evidence of risk to aquatic plants or small terrestrial mammals from EGBE using national emissions data from the 1996 TRI when glycol ether emissions were almost double their current levels. The EPA HAPs analyses used what the Agency has called "worst-case" assumptions about EGBE mixing in the environment downwind of the facility with the highest glycol ether emissions in the country, but nevertheless found no evidence of risk to aquatic microorganisms and small terrestrial mammals. The updated assessment presented in this petition blends the most scientifically sound methods and assumptions from the previous analyses with updated emissions and ecotoxicological data and the more conservative assumption that EGBE represents 100% of reported releases of Certain Glycol Ethers. Like its predecessors, this ERA finds no evidence of adverse effects in aquatic organisms or small mammals from facility releases of EGBE. The margins of safety associated with the HQs generated in this ERA are sufficiently large to ensure that adjustments to individual input values (such as those related to the concentration of EGBE in surface water and the TRV) will not

change the conclusion of this ERA that EGBE is not expected to cause significant adverse environmental effects.

9.0 SUMMARY AND RATIONALE FOR DELISTING EGBE

The case for removing EGBE (CAS 111-76-2) from the EPCRA TRI reporting list is straightforward and compelling. The available scientific data indicate that EGBE poses a low potential for adverse human health and environmental effects, thus making an exposure assessment appropriate under EPA's interpretation of the TRI listing criteria in Section 313(d)(2) of EPCRA. This petition uses essentially the same protective health and environmental criteria and is consistent with the conservative exposure assessment methods that formed the basis of the Agency's HAPs delisting decision. Because emissions of EGBE are about half the levels evaluated in the HAPs delisting decision, EPA's HAPs findings that EGBE releases may not reasonably be anticipated to cause any adverse effects to the human health or the environment have an even stronger basis in the context of this petition.

In addition, the policies and goals of the TRI program would be well served by deleting EGBE from the EPCRA Section 313 reporting list. EPA's policy of ensuring consistency with other Agency decisions should be highly influential here, particularly in light of the confusion—and the concomitant potential for misdirected community priorities—that currently exists because EGBE has been found not to be "hazardous" under the CAA but remains on the EPCRA list of chemicals deemed to be "toxic" based on essentially identical statutory criteria. In this instance, misdirected local priorities can have real environmental consequences. Because EGBE is an effective cosolvent for water-based coatings, inks, and similar products, removing it from the TRI list would eliminate the disincentive that currently exists under EPCRA to its use in formulations that have substantial VOC-reduction benefits as compared to many other solvents.

9.1 Delisting EGBE Is Fully Consistent with EPCRA's TRI Listing Criteria as Interpreted by EPA

Section 313(d) of EPCRA calls for the delisting of a chemical where "there is not sufficient evidence to establish" that the chemical "is known to cause or can reasonably be anticipated to cause" any of three types of effects:

(A) significant adverse acute human health effects;

(B) (i) cancer or teratogenic effects, or (ii) serious or irreversible reproductive dysfunctions, neurological disorders, heritable genetic mutations, or other chronic health effects; or

(C) a significant adverse effect on the environment of sufficient seriousness, in the judgment of the Administrator, to warrant reporting under EPCRA.

As EPA has interpreted these criteria (59 FR 61432 [EPA 1994a]), exposure may be considered for chronic human health and environmental effects if a substance exhibits "low to moderately low toxicity based on a hazard assessment," so that "unrealistic exposures would be necessary for it to pose a risk to communities." As detailed in the qualitative hazard evaluation presented in Section 3 above and summarized in Table 9-1, EGBE's potential to cause adverse

human health or environmental effects is appropriately assessed as low under EPA's hazard assessment criteria for TRI listing determinations.

With respect to potential adverse chronic human health effects, EPA has determined that hemolysis is the critical effect, and that prevention of hemolysis will protect against any other systemic effect potentially associated with EGBE exposure (Section 3.2). The scientific data show, moreover, that humans are resistant to the hemolytic effects of EGBE (Section 3.2.1.3). The PBPK model used in the IRIS assessment (Corley et al. 1994) predicts that, even in humans exposed continuously by inhalation to an EGBE-saturated atmosphere, maximum blood concentrations of EGBE's toxic metabolite (BAA) would be well below the level needed to produce hemolysis in humans (Udden 2002, EPA 2010). Likewise, even minor prehemolytic effects are not expected to occur in humans from ingestion exposures in excess of 500 mg/kg BW-day. Such inhalation and ingestion doses are not realistically expected to occur in the vicinity of EGBE-emitting facilities, where empirical and modeling-based estimates of air and surface water concentrations are many orders of magnitude below such exposures. (See Section 3.4.1 and Table 9-1).

EGBE's potential to cause significant adverse ecological effects is likewise appropriately evaluated as low under EPA's TRI hazard assessment criteria and past listing decisions. EGBE exhibits low potential for persistence or bioaccumulation (Section 3.1). Consistent with the findings of a series of ecotoxicity reviews of EGBE (WHO 1998, 2010, Staples 1998, Devillers et al. 2002, Environment Canada 2002, INERIS 2006), EPA concluded in the HAPs delisting rulemaking that EGBE causes only "very minor" effects that "are unlikely to be ecologically significant" (68 Fed. Reg. 65657 [EPA 2003]). In addition to the absence of any impacts on ecosystems, the scientific data indicate that EGBE's limited adverse effects on aquatic organisms occur only at what EPA's TRI listing criteria consider to be high exposures, meaning that EGBE is properly evaluated as a low-toxicity chemical in terms of potential environmental effects (see Sections 3.3 and 3.4.2; Table 9-1).

Because EGBE "is of low toxicity and unrealistic exposures would be necessary for it to pose a risk to communities," EPA's interpretation of EPCRA's TRI listing criteria calls for the consideration of exposures in determining whether to grant this petition and delist EGBE (59 FR 61442 [EPA 2004a]). Potential human and environmental exposures to EGBE were studied intensively by EPA in the HAPs rulemaking. There, EPA stated it was "confident" that "the results are more likely to overestimate rather than underestimate true exposures and risks" and, accordingly, determined that "the potential for adverse human health and environmental effects to occur from projected exposures is sufficiently low to provide reasonable assurance that such adverse effects will not occur" (68 Fed. Reg. 65660 [EPA 2003]). As summarized in Table 9-2, there is an even stronger basis for making this finding here.

Specifically, the general approach and specific assumptions employed in the exposure assessment presented here (Sections 4 through 8) are consistent with those that the Administrator's HAPs delisting decision found to be appropriate and conservative. EPA determined in the HAPs delisting proceeding (68 FR 65651-52) that the EPCRA TRI database "provide[s] a reasonable representation of … EGBE emissions" and "an adequate basis for

dispersion modeling and … exposure assessment." Accordingly, nationwide exposure potential is assessed in Section 5 by developing an inventory of Certain Glycol Ether releases using 2009, 2010, and 2011 TRI data, applying the assumption, in the absence of facility-specific information to the contrary, that EGBE represents 100% of reported glycol ether releases. More importantly, because this petition is based on current TRI data showing that emissions have declined by more than half from the 1993 TRI data used in the HAPs delisting rulemaking, predicted exposures have fallen substantially from the levels EPA evaluated in the HAPs context.

As described in Section 6, every EGBE-emitting facility listed in the TRI database has been subjected to a screening process very similar to that used in the HAPs proceeding to determine whether any facility has the potential to have maximum annual average concentrations of EGBE greater than the IRIS RfC of 1.6 mg/m^3 at or beyond the fenceline. Despite the highly conservative assumptions used in the screening, no EGBE-emitting facility was found to have potential maximum exposures above the RfC. AERMOD modeling conducted to test the conservatism of the screening step predicts that the maximum annual average concentrations are likely to be approximately two orders of magnitude below the RfC (see Section 6.5). Similarly, potential cumulative impacts from clusters of smaller sources are separately evaluated in Sections 6.4 and 6.5 using a methodology more conservative than that used in the HAPs proceeding, and the results show predicted maximum annual average concentrations of EGBE resulting from clusters of smaller sources within the same zip code are well below the RfC. The key findings of the facility and cluster assessments appear in Table 9-2.

In addition to screening facilities for long-term exposures to EGBE, we also evaluated the potential for short-term exposures near EGBE-emitting facilities to cause acute human health effects, *viz.*, eye and upper respiratory tract irritation, which has been identified as the critical effect for short-term exposures. As discussed in Section 3.2.1.1, above, because of the relatively high insensitivity of human red blood cells to the hemolytic effects of EGBE, the lowest short-term exposure level at which such irritation effects have been reported is 550 mg/m^3, and no irritation effects have been observed at 97 mg/m^3. These concentrations are higher than the maximum annual average concentrations estimated above based on EPA modeling guidelines by factors of >3,000 and >500, respectively. There is, accordingly, a convincing basis to conclude that adverse acute effects from EGBE facility releases is unlikely. Nevertheless, six high-emitting facilities offering a reasonable approximation of "worst-case" acute exposures were screened using EPA's short-term modeling methods for HAPs (EPA 1992a). The results were evaluated against the NOAEL of 97 mg/m^3 in a MOE analysis. Predicted maximum 1-hour concentrations at or beyond the fencelines of all six facilities screened were far below the NOAEL based on Tier 2 and 3 modeling, with Tier 3 MOEs ranging from 25 to 198. These results, presented in Section 6.6 and summarized in Table 9-2, are more than adequate to support a finding that EPCRA's acute effects delisting criterion is met, because the NOAEL is derived from human data meaning, in accordance with EPA TRI listing decisions, that MOEs above 10 "indicate a low level of concern" for potential acute effects. As developed in Section

6.4, several additional considerations suggest strongly that the potential for acute effects is far lower than the MOE analysis indicates.

This petition also evaluates the potential for chronic health effects posed by human contact with EGBE in surface water, based on essentially the same conservative assumptions and models that EPA used in the HAPs evaluation, with updates to reflect: the estimated surface water concentration based on 2009, 2010, and 2011 TRI data, the current RfD, and changes in EPA (2004b) guidance for dermal risk assessment. As developed in Section 7, the worst-case dose—for residents that consume and bathe in impacted water year-round for 30 years—was estimated to be 0.00001 mg/kg BW-day. Dividing the dose by the RfD yields an HQ of 0.0001 (see Table 9-2).

To assess potential adverse environmental effects, Section 8 builds on the three ERAs conducted in the HAPs proceeding by applying 2009, 2010, and 2011 TRI data to the Mackay Level III fugacity model to yield updated estimates of the maximum surface water concentration. Applying an updated TRV for aquatic organisms identified in a supplemental review of the ecotoxicity literature for EGBE, the ERA presented in this petition predicts HQs of 0.00002 for aquatic organisms and 0.001 for small mammals. (See Table 9-2.)

The results of these assessments show that estimated EGBE exposures in the vicinity of emitting facilities anywhere in the United States are well below the IRIS RfC and RfD for inhalation and dermal/ingestion exposures as well as appropriate ecological TRVs. All HQs generated by the exposure assessments developed for this petition are well below 1.0 and even lower than the HQs that led EPA to find in the HAPs delisting proceeding that releases of EGBE may not reasonably be anticipated to cause adverse human health or environmental effects. Because this petition uses assessment methods consistent with those EPA found appropriate and conservative in the HAPs case, there is an even stronger basis for making the same determination here.

9.2 Substantial Conservatism is Incorporated into Every Primary Element of the Toxicological, Exposure, and Ecological Assessments Presented in this Petition

The HQs estimated in this petition are overstated by at least three to five orders of magnitude because of the substantial conservatism built into every principal part of HHRA and ERA presented here, as summarized in Table 9-3 and discussed below.

9.2.1 IRIS Reference Values

In general, IRIS reference values are conservative criteria establishing a “daily exposure to the human population, including sensitive subgroups, that is likely to be without an appreciable risk of deleterious effects during a lifetime” (EPA 2010). As discussed in Section 4.2 above and summarized in Table 9-3, the specific IRIS RfC and RfD values that EPA derived for EGBE should provide ample protection against acute human health effects and reflect several significant elements of conservatism that likely render them significantly lower than necessary to protect against chronic health effects.

First, both the RfC and RfD were based on hemolytic effects in rats and, although the available data indicate that humans are 100 times less sensitive to the hemolytic effects of EGBE (see Section 3.2.1.3), the IRIS assessment uses interspecies uncertainty factors of 1 (ingestion) and 3 (inhalation) in deriving the reference values. The IRIS values therefore may reflect an additional safety margin of 100 to 300, and the available scientific data suggest that they may be far below exposure levels that would be fully protective of human health (EPA 2010).

Second, both the RfC and RfD incorporate an intraspecies uncertainty factor of 10 (EPA 2010). This factor is probably unnecessarily high by a factor of 3 to 10, because investigations of population groups that might be expected to show increased sensitivity to hemolytic effects of EGBE (including the young, the old, and individuals with sickle cell anemia or hereditary spherocytosis) do not show increased susceptibility.

Third, although the RfC is developed to be protective of continuous exposures over a human lifetime, the air concentrations that are compared to the RfC in the analysis are maximum predicted annual average concentrations. Concentrations averaged over a 70-year lifetime would be expected to be considerably lower than maximum annual averages, although the degree of conservatism contributed by this assumption cannot be quantified.

Finally, although the 2010 IRIS assessment finds “limited” evidence of potential carcinogenicity from rodent studies, subsequent mechanistic studies have led EPA to conclude that, even if the limited tumor findings in rodents are relevant to humans, the current RfC and RfD provide adequate protection against any such risk. Therefore, any uncertainties relating to the limited animal carcinogenicity data evaluated in the IRIS assessment have been eliminated and should not be significant considerations in an up-to-date assessment of human health risks.

9.2.2 Exposure Assessments

As developed in Sections 5, 6, and 7 of this petition and as summarized in Table 9-3, the models and assumptions used in the human inhalation and surface water exposure assessments presented in this petition reflect several significant elements of conservatism.

First, the inventory developed here (Section 5) assumes that all releases of Certain Glycol Ethers reported in the TRI database are EGBE, unless facility-specific information to the contrary is available. Because EGBE comprises 52% of United States annual consumption of glycol ethers (SRI 2010), the inventory’s assumption that all releases of Certain Glycol Ether are EGBE (in the absence of facility-specific information to the contrary) generally overstates EGBE releases by a factor of two.

Second, the chronic screening approach used in this petition (Section 6) predicts maximum annual average concentrations of EGBE for every emitting facility in the United States required to file Form R reports under TRI. Similarly, the acute screening approach predicts the maximum 1-hour average concentration of EGBE at facility fencelines. As EPA observed in the HAPs proceeding, the “use of the maximum annual average ambient concentration for each emission source to characterize the exposed population provides a conservative approach to chronic exposure modeling” and “[g]iven the likely proximity of inhabitable areas and the

variability of human activity patterns over an annualized time period, it is our expectation that actual maximum individual exposure would be at least a factor of 2 less than predicted by the models" (68 FR 65653 [EPA 2003]).

Third, the conservatism built into the screening procedure is evident when a subset of those facilities that screened out at Step B was subjected to Tier 1, 2, and/or 3 analyses. On average, the maximum annual average concentrations decreased by 99.3% when the same facility that was first evaluated under Step A was subsequently evaluated under Tier 3. That is, the maximum predicted annual average concentration generated under the more robust Tier 3 modeling was more than two orders of magnitude lower than that generated by the most conservative Step A screen. The Step B screen yielded maximum predicted annual average concentrations that were, on average, more than 26-fold higher than those generated using Tier 3 modeling.

Fourth, our assessment of potential acute health effects, based on (1) the NOAEL of 97 mg/m^3 derived from human data and (2) the estimated reasonable worst-case estimated maximum hourly average concentration, resulted in acute MOEs of over 5. An MOE above 5 is protective because the NOAEL is based on human data, EPA AEGL guidance calls for an interspecies uncertainty factor from 3 to 10 for nonsystemic irritation effects, and an appropriate time-adjustment would support an estimated 1-hr NOAEL of 137 mg/m^3, over 40% higher that the value used in the MOE derivation.

Fifth, EPA found that the modeling and assumptions used to assess ingestion and dermal exposures arising from EGBE in surface water levels were conservative and the maximum exposure estimates developed using the Agency's model, shown in Table 7-5, represents a worst-case exposure scenario (68 FR 65653-54). In addition, exposure point concentrations in surface water were calculated by assuming that 100% of releases of Certain Glycol Ethers to all media were EGBE and were concentrated into 100,000 km^2. In reality, because EGBE represents 52% of the market share of ethylene glycol ethers, actual releases of EGBE are likely overestimated by two-fold. Because the 100,000 km^2 unit area represents 1.3% of the total land area of the United States, actual concentrations may be overestimated by up to two orders of magnitude.

9.2.3 Ecological Risk Assessment

The ERAs previously conducted in the HAPs delisting proceeding and the updated ERA prepared for this petition conclude that EGBE concentrations are three or more orders of magnitude lower than highly protective levels of ecotoxicological concern (Section 8). In addition, EPA noted in the HAPs delisting decision that the TRVs used in the ERA "were derived from very minor effects which were unlikely to be ecologically significant" (68 FR 65657 [EPA 2003]).

As noted above, the exposure point concentrations in surface water are likely overestimated by up to 150-fold, due to the assumptions that 100% of releases of Certain Glycol Ethers to all media are EGBE and are concentrated into 100,000 km^2 (an area that is approximately 1.3% of the area of the United States). Conservative exposure assumptions

applied to the TDI calculation for small mammals are consistent with those employed in EPA's HAPs ERAs. Conservatism is also contributed by the TRVs for aquatic species (based on the most sensitive organism tested), and small mammals (based on the same underlying study used to generate the RfD, which may be too low by a factor of 50 to 100). Finally, as EPA found in the HAPs delisting decision, the evaluation of relatively nonsevere effects on individual organisms rather than effects that are likely to be ecologically significant at more complex levels of organization (population, community, ecosystem) contributes substantial conservatism to the ERA.

As summarized in Table 9-3, the above considerations, taken together, indicate that the already low HQs derived in Sections 6 through 8 and summarized in Table 9-2 may overstate potential chronic health and environmental risks of EGBE releases by as much as two to five orders of magnitude. Accordingly, the toxicity, exposure, and ecotoxicity assessments presented in this petition support an even higher level of confidence than EPA expressed in the HAPs delisting decision for the conclusion that there is "reasonable assurance" that "adverse human health and environmental effects" from EGBE facility emissions "will not occur."

9.3 In Light of the HAPs Delisting Decision, EPA's Policy of Ensuring Consistency with Other Agency Decisions Supports Removal of EGBE from the TRI Reporting List

EPA has emphasized the need to ensure that TRI listing decisions are consistent with "other EPA decisions on the same chemical, to the extent that such decisions relate to the same basic criteria for human health and the environment" (52 FR 5481 [EPA 1987a]). A policy of maintaining consistency across different environmental programs has long been in place at EPA, because it is essential to maintain the Agency's credibility as a scientific and regulatory body. But it has special significance here because, as developed below, the conclusion that EGBE should be removed from the TRI reporting list follows directly from the findings the Administrator made recently in the HAPs delisting.

CAA Section 112 calls for the removal of substances from the HAPs list where EPA finds that "there is adequate data on the health and environmental effects of the substance to determine that … the substance may not reasonably be anticipated to cause any adverse effects to the human health or adverse environmental effects." By its plain language, Section 112 places a higher burden on delisting decisions than does EPCRA Section 313. EPCRA calls for delisting where "there is <u>not</u> <u>sufficient</u> <u>evidence</u> to establish" that a chemical "can reasonably be anticipated to cause" the designated health and environmental effects. Section 112, in contrast, requires more than a finding that the data are "not sufficient" to establish the stated health and environmental findings. Section 112 requires "<u>adequate</u> <u>data</u>" "to determine that … the substance <u>may</u> <u>not</u> reasonably be anticipated to cause" adverse health or environmental effects.

Moreover, Section 112 requires a showing that a substance may not reasonably be anticipated to cause "<u>any</u> adverse effects to the human health." The CAA finding clearly encompasses the EPCRA human health delisting criteria in Section 313(d)(2)(A) & (B), which are limited to the specific health effects mentioned in the statute. Likewise, Section 112 requires

a demonstration that the substance to be delisted may not reasonably be anticipated to cause "adverse environmental effects," a test that is at least as broad, if not broader, than EPCRA Section 313(d)(2)(C), which refers to "a significant adverse effect on the environment of sufficient seriousness … to warrant reporting under this section."

In short, the Administrator's finding under Section 112 that EGBE "may not reasonably be anticipated to cause any adverse effects to the human health" or "adverse environmental effects" should be given at least heavy weight in applying the EPCRA delisting criteria to this petition unless, of course, significant changes in the relevant scientific and other data indicate that potential adverse human health and ecological risks are significantly greater than EPA found in 2004. This petition demonstrates that any such risks are far lower.

As demonstrated above, this petition is based on essentially the same exposure assessment methodology and ecological criteria that formed the basis for EPA's HAPs findings. The only significant differences between the scientific and factual record the Agency evaluated in the HAPs proceeding and the demonstrations made here are updates to human health criteria and use of the most recent TRI data available. Despite (i.e., 1%) growth in consumption since 1990 (SRI 2010), EGBE emissions have declined significantly as compared to the 1993 TRI data considered in the HAPs case, principally as a result of VOC emission control regulations and other environmental programs. Although the toxicity criteria have changed due to refinement of the data and modeling procedures used by EPA in deriving its RfD and RfC, as shown in Table 9-3, these criteria incorporate substantial levels of conservatism. Furthermore, the greater stringency in the toxicity criteria is more than balanced by the reduction in emissions and resultant human exposure such that predicted risks have decreased since the HAPs evaluation.

The human and environmental exposures conservatively estimated here are significantly lower than those EPA found appropriate to delist EGBE under Section 112. Consequently, EPA's determinations in the HAPs delisting proceeding, that EGBE releases "may not reasonably be anticipated to cause any adverse effects to the human health" or "adverse environmental effects," have an even stronger scientific and factual basis in the context of this petition under EPCRA. Further, the concurrent increase in consumption (+1%) and decrease in emissions (-70%) since 1993 suggests that the scientific basis for these findings would not be undermined even if current consumption and emission patterns of EGBE are taken into account.

9.4 Removing EGBE from the TRI Would Promote the Local Risk Management and Pollution Prevention Objectives of EPCRA

The purposes of EPCRA are to "to inform persons about releases of toxic chemicals to the environment; to assist governmental agencies, researchers, and other persons in the conduct of research and data gathering; [and] to aid in the development of appropriate regulations, guidelines, and standards" (42 U.S.C. § 11023(h)). Thus, the EPA TRI website (http://www.epa.gov/tri/whatis.htm) describes the objectives of the program as follows:

> One of Emergency Planning and Community Right-to-Know Act (EPCRA)'s primary purposes is to inform citizens of toxic chemical

> releases in their areas. EPCRA Section 313 requires EPA and the States to collect data annually on releases and transfers of certain toxic chemicals from industrial facilities and make the data available to the public through the Toxics Release Inventory (TRI).....The goal of the Toxics Release Inventory Program is to provide communities with information about toxic chemical releases and waste management activities and to support informed decision making at all levels by industry, government, non-governmental organizations, and the public.

EPA has indicated elsewhere (59 FR 61443) that "[b]y listing chemicals that present a hazard and providing TRI data on these chemicals to the public, EPA allows the public to make the determination as to whether there is a risk in their community." As this passage indicates, the dissemination of accurate information on "chemicals that present a hazard" is critical to the success of the TRI program. An inventory that includes nonhazardous chemicals, particularly high-volume chemicals like EGBE, undermines the statutory goals by diverting the attention and resources of the public, regulatory officials, and researchers away from facilities and chemicals that should be the focus of local risk management and pollution prevention programs.

These considerations are significant in the case of EGBE. Many EGBE-using facilities, particularly can manufacturing plants, do not release reportable quantities of other TRI chemicals, including other chemicals in the "Certain Glycol Ethers" category. Nevertheless, as long as EGBE remains on the TRI, many of these facilities will continue to routinely appear on local and regional lists of "top toxics emitters" even though EPA has found that EGBE releases may not reasonably be anticipated to cause adverse human health or environmental effects. The contradictory signals that EPA is sending to local communities are confusing, undermine the credibility of the TRI program as a reliable source of information on toxic releases, and unfairly brand some EGBE-using facilities as major sources of "toxics."

VOC control considerations also support the delisting of EGBE from the TRI. Although it is now settled that EGBE's status as a VOC is not a sufficient basis for keeping it on the TRI reporting list,[z] facilities emitting EGBE remain subject to national and state/local emissions reporting and control programs under the ozone attainment provisions of Title I of the CAA. In fact, when EPA removed EGBE from the CAA HAPs list, it emphasized that it "will continue to be … regulated under EPA's criteria pollutant (ozone) program (69 FR 69321 [EPA 2004a]).[aa] Accordingly, removal of EGBE from the TRI reporting list should not adversely affect ozone attainment programs under Title I of the CAA.

Delisting EGBE may assist in achieving objectives of Title I. VOC emission control has long been a bedrock of EPA's ozone attainment strategy, particularly in consumer and

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[z] American Chemistry Council v. Whitman, 406 F.3d 738, 742 (D.C. Cir. 2005).

[aa] EPA also indicated in the same passage that EGBE would continue to be listed on the TRI, but at that time the Agency continued to adhere to the position, since reversed on judicial review, that EGBE's status as a VOC is an adequate basis for listing on the TRI.

commercial products (EPA 1995, 2007). Although EGBE is a VOC, its physical characteristics support its use as a cosolvent for water-based formulations in many consumer and commercial coating products. In some applications, the switch to waterborne solvent formulations may reduce solvent content from up to 80% of the formulation to as little as 2% to 10%. EPA has often recognized that waterborne formulation, where commercially feasible, can contribute significantly to the ozone attainment objectives of the CAA. As recently as July 2007, the Agency emphasized that "water-based coatings are an environmentally friendly technology that we do not want to be lost as an option to manufacturers" (72 FR 38966 [EPA 2007]). EPA also has acknowledged that "it is important that manufacturers retain as much flexibility as possible" in developing reformulations that reduce the ozone-forming potential of their products while continuing to "meet the performance specifications required" (*ibid.*). The Agency has recognized, accordingly, the need to avoid regulatory measures that needlessly discourage manufacturers from using "environmentally friendly technologies" or unintentionally encourage the public, local regulators and manufacturers to use other solvents that may be toxic or highly reactive compounds that actually generate more ozone (*ibid.*).

As mentioned above, the primary goal of the TRI program, as EPA has put it, is to "empower" citizens and local regulators to "hold companies accountable" for releases of toxic chemicals, and to "make informed decisions about how toxic chemicals are to be managed." Maintaining EGBE on the TRI, particularly after the Agency has concluded that facility releases are not hazardous to human health or the environment, invites confusion and the concomitant potential for local decisions that actually impede the ozone attainment goals of Title I of the CAA. Conversely, removing EGBE from the TRI would eliminate an existing impediment to the replacement of solvent-based products with EGBE/water-based solvents with the potential to significantly lower overall VOC emissions. In short, as long as EGBE remains on the TRI, the Inventory cannot achieve its fundamental objective of providing accurate information that will enable business, regulators and the public to make environmentally sound decisions.

Significantly, the possibility of future increases in EGBE consumption—whether as a continuation of current favorable trends in favor of water-based solvents as a result of the removal of EGBE from the TRI reporting list or for other reasons—would not cast doubt, now or in the future, on the conclusion that facility releases of EGBE may not reasonably be anticipated to cause any adverse human health or adverse environmental effects. As discussed in Section 2.5, VOC emission limits, together with other potential factors such as corporate product stewardship programs, are likely responsible for the substantial (about 70%) reduction in EGBE emissions since the mid-1990s even while annual consumption increased through the 1990s and early 2000s (Figure 2-1). More recently, the national consumption of EGBE has stabilized and even declined. These factors keep to a minimum the potential for increased community exposures to EGBE in the future even if production or consumption rise in response to its removal from the TRI reporting list or for other reasons. In any case, the substantial conservatism built into very significant element of the toxicological, exposure, and ecological assessments presented in this petition—as measured by the two-to-five orders of magnitude overstatements in the HQs presented in Tables 9-2 and 9-3 above, render theoretical any

concern that future increases in EGBE production or consumption might justify a reevaluation of the determination that facility releases of EGBE may not reasonably be anticipated to cause any adverse human health or adverse environmental effects.

In conclusion, removing EGBE from the TRI reporting list is called for under the listing criteria of EPCRA Section 313(d)(2) as interpreted by EPA, is necessary to ensure consistency with other EPA programs (particularly the HAPs program), and would promote the objectives of the statute by encouraging increased use of a chemical with demonstrated environmental benefits without interfering with other federal or local environmental programs and policies. Accordingly, the Panel respectfully requests that the Administrator grant this petition and remove EGBE from the TRI reporting list.

10.0 REFERENCES

ACGIH. 1991. Documentation of the Threshold Limit Values and Biological Exposure Indices. Sixth Edition. American Conference of Governmental Industrial Hygienists, Cincinnati, OH. 162-163. (As cited in ATSDR 1998.)

ACGIH. 2003. 2-Butoxyethanol. In: Documentation of the TLVs and BEIs with Other Worldwide Occupational Exposure Values, 2004 CD-ROM. American Conference of Governmental Industrial Hygienists, Cincinnati, Ohio.

ACGIH. 2012. Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. American Conference of Governmental Industrial Hygienists, Cincinnati, Ohio.

Amoore, J.E. and E. Hautala. 1983. Odor as an aid to chemical safety: Odor thresholds compared with threshold limit values and volatilities for 214 industrial chemicals in air and water dilution. *J. Appl. Toxicol.* 3(6):272-289. (As cited in ATSDR 1998.)

Assessment Technologies, Inc. 1996. Ethylene Glycol mono-Butyl Ether (EGBE): An Environmental Risk Assessment – Final Report. Fairfax. VA. December 4.

ASTER. 1995. ASTER (Assessment Tools for the Evaluation of Risk) Ecotoxicity Profile: Ethanol, 2-Butoxy. Duluth, MN: Environmental Research Laboratory, United States Environmental Protection Agency. February 17, 1995. (As cited in ATSDR 1998.)

Atkinson, R. 1987. A structure-activity relationship for the estimation of rate constants for the gas-phase reactions of OH radicals with organic-compounds. *Intern. J. Chem. Kin.* 19(9):799-828. (As cited in ATSDR 1998.)

ATSDR. 1998. Toxicological Profile for 2-Butoxyethanol and 2-Butoxyethanol Acetate. Agency for Toxic Substances and Disease Registry, U. S. Department of Health and Human Services, Public Health Service. Atlanta, Georgia. August.

Bartnik, F.G., A.K. Reddy, G. Klecak, V. Zimmermann, J.J. Hostynek, and K. Kunstler. 1987. Percutaneous absorption, metabolism, and hemolytic activity of *n*-butoxyethanol. *Fundam. Appl. Toxicol.* 8:59-70.

Boatman, R.J. 2004. Review of studies concerning the tumorigenicity of 2-butoxyethanol in B6C3F1 and its relevance for human risk assessment. *Journal of Toxicology and Environmental Health* 7(5):385-398.

Cadmus. 2000a. A Tier II Ecological Risk Assessment for Air Emission of Ethylene Glycol Butyl Ether. March 13, 2000, Prepared by The Cadmus Group, Inc. for U.S. Environmental Protection Agency Office of Air Quality and Planning Standards, Research Triangle Park, NC 27711.

Cadmus. 2000b. Ecological Risk Assessment for Ethylene Glycol Butyl Ether to Address the Clean Air Act Section 112(b) Petition Submitted by the Chemical Manufacturers Association to Delist this Substance. Revised February 15th, 2000, Prepared by The Cadmus Group, Inc. for U.S. Environmental Protection Agency Office of Air Quality and Planning Standards. Research Triangle Park, NC 27711.

CalEPA. 1999. Determination of Acute Reference Exposure Levels for Airborne Toxicants. California Environmental Protection Agency, office of Environmental Health Hazard Assessment. March. http://www.oehha.ca.gov/air/pdf/acuterel.pdf

Carpenter, C.P., U.C. Pozzani, C.S. Weil, J.H. Nair, III, G.A. Keck, and H.F. Smyth, Jr. 1956. The toxicity of butyl cellosolve solvent. *AMA Arch. Ind. Health* 14:114-131.

CEMC. 2003. Fugacity-Based EQC Equilibrium Criterion Model. Version 2.02. Canadian Environmental Modeling Center. Trent University. Peterborough, Ontario. May. http://www.trentu.ca/cemc/models/EQC2.html

CIBA-GEIGY 1976 (table 3-2)

CIR. 1996. Final report on the safety assessment of butoxyethanol. *J. Am. Coll. Toxicol.* 15:462-526

Clayson, D.B., F. Iverson, E.A. Nera, and E. Lok. 1990. The significance of induced forestomach tumors. *Ann. Rev. Pharmacol. Toxicol.* 30:441-463.

Clayson, D.B., F. Iverson, E.A. Nera, and E. Lok. 1991. Early indicators of potential neoplasia produced in the rat forestomach by non-genotoxic agents: the importance of induced cellular proliferation. *Mutat. Res.* 248:321-331.

CMA. 1996. Petition of the Chemical Manufacturers Association Ketones Panel to Delist Methyl Ethyl Ketone Under Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986. Prepared by the Chemical Manufacturers Association for submittal to the United States Environmental Protection Agency, Washington, D.C.

CMA. 1997. Petition of the Chemical Manufacturers Association Ethylene Glycol Ethers Panel to Remove Ethylene Glycol Butyl Ether from the List of Hazardous Air Pollutants under Section 112(b) of the Clean Air Act Amendments of 1990. Prepared by the Chemical Manufacturers Association for submittal to the United States Environmental Protection Agency, Washington, D.C.

Cogliano, V., Y. Grosse, R. Baan, K. Straif, B. Secretan, F. El Ghissassi. 2004. Advice on formaldehyde and glycol ethers. *The Lancet Oncology.* 5:528.

Corley, R.A., G.A. Bormett, B.I. Ghanayem. 1994. Physiologically-based pharmacokinetics of 2-butoxyethanol and its major metabolite, 2-butoxyacetic acid, in rats and humans. *Toxicol Appl Pharmacol* 129:61-79. (As cited in EPA 1999a.)

Corley, R.A., D.A. Marham, C. Banks, P. Delorme, A. Masterman, and J.M. Houlel. 1997. Physiologically based pharmacookinetics and the dermal absorption of 2-butoxyethanol vapor by humans. Fundam. Appl. Toxicol. 39:120-130 (As cited in EPA 2010)

Corley, R.A., D.M. Grant, E. Farris, KK Weitz, J.J. Soelberg, KD. Thrall, and T.S. Poet. 2005. Determination of age and gender differences in biochemical processes affecting the disposition of 2-butoxyethanol and its metabolites in mice and rats to improve PBPK modeling. Toxicol. Let. 156:127-161.

Corthals, S. M., L. M. Kamendulis, J. E. Klaunig. 2006. Mechanisms of 2-butoxyethanol-induced hemangiosarcomas. *Toxicol Sci* 92(2):378-86.

Dartsch, P.C., S. Hildenbrand, W. Gforer, R. Kimmel, and F.W. Schmahl. 1999. Cytotoxic effects of 2-butoxythanol in vitro are related to butoxyacetaldehyde, an intermediate oxidation product. *Environmental Toxicology and Pharmacology* 7:135-142.

Deisinger, P.J., and R.J. Boatman. 2004. In vivo metabolism and kinetics of ethylene glycol monobutyl ether and its metabolites, 2-butoxyacetaldehyde and 2-butoxyacetic acid as measured in blood, liver and forestomach in mice. *Xenobiotica* 34 (7):675-685.

Devillers, J., A. Chezeau, V. Poulson, E. Thybaud. 2003. Effects of ethylene glycol ethers on the reproduction of *Ceriodaphnia dubia. Chemosphere*. 50:373-376.

Devillers, J., A. Chezeau, E. Thybaud, V. Poulsen, J.M. Porcher, L. Graff, P. Vasseur, F. Mouchet, V. Ferrier, F. Quiniou. 2002. Ecotoxicity of ethylene glycol monobutyl ether and its acetate. *Toxicology Mechanisms and Methods* 12:255-263.

Dill, J.A., K.M. Lee, D.J. Bates, D.J. Anderson, R.E. Johnson, B.J. Chou, L.T. Burke, and J.H. Roycroft. 1998. Toxicokinetics of inhaled 2-butoxyethanol and its major metabolite, 2-butoxyacetic acid, in F344 rats and B6C3F1 mice. *Toxicology and Applied Pharmacology* 153:227-242.

Dolinoy, D.C. and M.L. Miranda. 2004. GIS Modeling of Air Toxics Releases from TRI-Reporting and Non-TRI-Reporting Facilities: Impacts for Environmental Justice. *Environmental Health Perspectives* 112(17): 1717-1724.

DOT. 1990. Hazardous materials and special provisions. Department of Transportation. Code of Federal Regulations. 49 CFR 172.101. (As cited in ATSDR 1998.)

Dow. 1988. DOWANOL EB Glycol Ether: Evaluation of Toxicity to the Green Algae, Selenastrum capricornutum printz. The Dow Chemical Company, Mammalian and Environmental Toxicology Research Laboratory. June 21.

Dow. 1993. The Glycol Ethers Handbook. Dow Chemical Co. Midland MI. (As cited in ATSDR 1998.)

Duboudin C, Ciffroy P and Magaud H. 2004a. Acute-to-chronic species sensitivity distribution extrapolation. *Environmental Toxicology and Chemistry* 23:1774-1785.

Duboudin C, Ciffroy P and Magaud H. 2004b. Effects of data manipulation and statistical methods on species sensitivity distributions. *Environmental Toxicology and Chemistry* 23:489-499.

ECETOC. 1994. Special Report No.7 -- Butoxyethanol Criteria Document Including a Supplement for 2-Butoxyethyl Acetate. European Centre for Ecotoxicology and Toxicology of Chemicals, Brussels, Belgium.

ECETOC. 2005. The Toxicology of Glycol Ethers and its Relevance to Man. Technical Report 64. European Centre for Ecotoxicology and Toxicology of Chemicals, Brussels, Belgium.

Eisenreich, S.J., B.B. Looney, and J.D. Thornton. 1981. Airborne organic contaminants in the Great Lakes ecosystem. *Environ. Sci. Technol.* 15 (1):30 38. (As cited in ATSDR 1998.)

Environment Canada and Health Canada. 2002. Priority Substances List Assessment Report, 2-Butoxyethanol.(http://www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/contaminants/psl2-lsp2/2_butoxyethanol/2_butoxyethanol_e.pdf).

EPA. 1971. Tolerance range for agriculture products. United States Environmental protection Agency. 40 CFR 180.1001. (As cited in ATSDR 1998.)

EPA. 1977. List of chemicals produced by affected facilities. 40 CFR 60.489. (As cited in ATSDR 1998.)

EPA. 1982. Preliminary Assessment Information Manufacturers Report. 40 CFR 712.30. (As cited in ATSDR 1998.)

EPA. 1984. Acute toxicity studies on Wellaid 31. Study submitted to the US Environmental Protection Agency by Amoco Corporation. (As cited in WHO 1998; 2010)

EPA. 1986a. Guidelines for Carcinogen Risk Assessment. U.S. Environmental Protection Agency, Risk Assessment Forum, Washington, DC. September 24. 51 FR 33993-34003.

EPA. 1986b. Substances subject to all provisions of health and safety data report. 40 CFR 716.120. (As cited in ATSDR 1998.)

EPA. 1987a. Statement of Policy and Guidance Regarding Petitions Under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986. Federal Register Vol. 52, pp. 3479-3483.

EPA. 1987b. Bulk Organic Chemical. 40 CFR 414 Subpart G. (As cited in ATSDR 1998.)

EPA. 1988. Toxic Chemical Release Reporting; Community Right-to-Know; Titanium Dioxide. Federal Register June 20, 1998, Volume 53, pp. 23108-23112.

EPA. 1989. Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part A), Interim Final. United States Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, DC. EPA/540/1-89/002. December.

EPA. 1990a. National Oil and Hazardous Substances Pollution Contingency Plan. 40 CFR Chapter 1, Subchapter J, Part 300. United States Environmental Protection Agency. (http://www.epa.gov/oilspill/pdfs/40cfr300.pdf)

EPA. 1990b. Chemicals Affected by Subpart NNN. 40 CFR 60.667. (As cited in ATSDR 1998.)

EPA. 1992a. A Tiered Modeling Approach for Assessing the Risks due to Sources of Hazardous Air Pollutants. United States Environmental Protection Agency, Office of Air Quality, Planning and Standards. Research Triangle Park, N.C. EPA-450/4-92-001.

EPA. 1992b. Synthetic Organic Chemical Manufacturing Industry Chemicals. 40 CFR 63.106. (As cited in ATSDR 1998.)

EPA. 1992c. Hazard Assessment Guidelines for Listing Chemicals on the Toxic Release Inventory. Revised Draft, May 26, 1992.

EPA. 1993a. Wildlife Exposure Factors Handbook: Volume 1. United States Environmental Protection Agency, Office of Research and Development, Washington, D.C. EPA/600/R-93/187a.

EPA. 1993b. Exemptions from the Requirement of a Tolerance. Chemicals affected by standards of performance for volatile organic compound emissions from synthetic organic chemical manufacturing industry reactor process. 40 CFR 60.707. (As cited in ATSDR 1998.)

EPA. 1994a. Addition of Certain Chemicals; Toxic Chemical Release Reporting; Community Right-to-Know; Final Rule. Federal Register Vol. 59. pp. 61432-61485.

EPA. 1994b. Glycol Ethers Category; Toxic Chemical Release Reporting; Community Right-to-Know. Federal Register Vol. 59. pp. 34386-34391.

EPA. 1995a. Butyl Benzyl Phthalate; Toxic Chemical Release Reporting; Community Right-to-Know. Federal Register February 17, 1995, Volume 60, pp. 9299-9301.

EPA. 1995b. Expanded Exposure Assessment for Ethylene Glycol in Response to Delisting Petition. United States Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances, Washington, DC. June.

EPA 1995c. Study of volatile Organic Compound Emissions from Consumer and Commercial Products: Report to Congress. United States Environmental Protection Agency, EPA-453-R-94-066-A, Washington, DC. June.

EPA. 1995d. User's Guide for the Industrial Source Complex (ISC3) Dispersion Models, Volume I – User Instructions, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Emissions, Monitoring, and Analysis Division, Research Triangle Park, NC. EPA-454/B-95-003a, September 1995.

EPA. 1996a. Proposed Guidelines for Carcinogen Risk Assessment. U.S. Environmental Protection Agency, Office of Research and Development, Washington, DC. EPA/600/P-92/003C. April. 61 FR 17960-18011.

EPA. 1996b. Diethyl Phthalate; Toxic Chemical Release Reporting; Community Right-to-Know. Federal Register July 29, 1996, Volume 61, Number 146, pp. 39356-39359.

EPA. 1996c. Di-(2-ethylhexyl) Adipate; Toxic Chemical Release Reporting; Community Right-to-Know. Federal Register July 31, 1996, Volume 61, Number 148, pp. 39891-39894.

EPA. 1997a. Ethylene Glycol; Toxic Chemical Release Reporting; Community Right-to-Know. Federal Register May 7, 1997, Volume 63, Number 88, pp. 24919-24924.

EPA. 1997b. Exposure Factors Handbook, Volume I – General Factors. United States Environmental Protection Agency, Office of Research and Development, National Center for Environmental Assessment, Washington, DC. EPA/600/P-95/002Fa. August.

EPA. 1998a. Methyl Ethyl Ketone; Toxic Chemical Release Reporting; Community Right-to-Know. Federal Register March 30, 1998, Volume 63, Number 60, pp. 15195-15200.

EPA. 1998b. Guidelines for Ecological Risk Assessment. U.S. Environmental Protection Agency. Washington, DC, USA. April. EPA/630/R-95/002F.

EPA. 1999a. Toxicological Review of Ethylene Glycol Monobutyl Ether (EGBE) (CASRN 111-76-2) In Support of Summary Information on the Integrated Risk Information System (IRIS). US. Environmental Protection Agency. October. http://www.epa.gov/iris/toxreviews/0500-tr.pdf

EPA. 1999b. Ethylene Glycol Monobutyl Ether (EGBE) (2-Butoxyethanol) (CASRN 111-76-2). United States Environmental Protection Agency, Integrated Risk Information System. http://www.epa.gov/iris/subst/0500.htm

EPA. 1999c. Methyl Isobutyl Ketone; Toxic Chemical Release Reporting; Community Right-to-Know. Federal Register February 23, 1999, Volume 64, Number 35, pp. 8769-8774.

EPA. 1999d. Acetonitrile; Community Right-to-Know Toxic Chemical Release Reporting. 64 Federal Register March 5, 1999, Volume 64, Number 43, pp. 10597-10604.

EPA. 2003. List of Hazardous Air Pollutants, Proposed Rule. Federal Register November 21, 2003, Volume 68, Number 225, pp. 65648-65663. http://www.epa.gov/fedrgstr/EPA-AIR/2003/November/Day-21/a28787.htm .

EPA. 2004a. Petition to Delist of Ethylene Glycol Monobutyl Ether, Final Rule. Federal Register November 29, 2004, Volume 69, Number 228, pp. 69320-69325. http://www.epa.gov/fedrgstr/EPA-AIR/2004/November/Day-29/a26071.htm .

EPA. 2004b. Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment), Final. United States Environmental Protection Agency, Office of Superfund Remediation and

Technology Innovation, Washington, DC. EPA/540/R/99/005. OSWER 9285.7-02EP, PB99-963312. July.

EPA. 2004c. Community Air Screening How-to-Manual. U.S. Environmental Protection Agency, Washington, DC. EPA 744-B-04-001.

EPA. 2004d. AMS/EPA Regulatory Model – AERMOD. Version 04300. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Emissions Monitoring and Analysis Division, Research Triangle Park, NC. October. http://www.epa.gov/scram001/dispersion_prefrec.htm#aermod

EPA. 2004e. User's Guide for the AMS/EPA Regulatory Model – AERMOD. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Emissions Monitoring and Analysis Division, Research Triangle Park, NC. October.

EPA. 2004f. Addendum – User's Guide for the AMS/EPA Regulatory Model – AERMOD. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Emissions Monitoring and Analysis Division, Research Triangle Park, NC. EPA-454/B-03-001. September.

EPA 2004g. User's Guide for the AERMOD Meteorological Preprocessor (AERMET). U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Emissions Monitoring and Analysis Division, Research Triangle Park, NC. EPA-454/B-03-002. November.

EPA. 2005a. An Evaluation of the Human Carcinogenic Potential of Ethylene Glycol Butyl Ether. U.S. Environmental Protection Agency. EPA 600/R-04/123.

EPA. 2005b. AERMOD Implementation Guide. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Emissions Monitoring and Analysis Division, Research Triangle Park, NC. September.

EPA. 2006. Integrated Risk Information System (IRIS); Request for Chemical Substance Nominations for 2007 Program. Federal Register December 22, 2006, Volume 71, Number 246, pp. 77017-77019. http://www.epa.gov/fedrgstr/EPA-ESEARCH/2006/December/Day-22/r21970.pdf .

EPA. 2007. National Volatile Organic Compound Emission Standards for Aerosol Coatings; Proposed Rule. Federal Register July 16, 2007, Volume 72, Number 135, pp. 38952-38991.

EPA. 2008. AERSURFACE User's Guide. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Air Quality Assessment Division, Air Quality Modeling Group, Research Triangle Park, NC. EPA-454/B-08-001, January 2008.

EPA. 2009. AERMOD Implementation Guide, AERMOD Implementation Workgroup, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Air Quality Assessment Division, Research Triangle Park, NC. Last Revised: March 19., 2009.

EPA. 2010. Ethylene glycol monobutyl ether (EGBE) (2-Butoxyethanol) (CASRN 111-76-2). U.S. Environmental Protection agency. Integrated Risk Information System. http://222.epa.gov/iris/subst/0500.htm

EPA. 2011a. AERSCREEN User's Guide. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Air Quality Assessment Division, Air Quality Modeling Group, Research Triangle Park, NC. EPA-454/B-11-011, March.

EPA. 2011b. User's Guide for the AERMOD Meteorological Preprocessor (AERMET). Addendum. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Air Quality Assessment Division, Air Quality Modeling Group, Research Triangle Park, NC. EPA-454/B-11-011, February.

EPA. 2012. User's Guide for the AMS/EPA Regulatory Model – AERMOD. Addendum. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Air Quality Assessment Division, Research Triangle Park, NC. EPA-454/B-03-001, December.

Fisher, D.J., and D.T. Burton. 2003. Comparison of two U.S. Environmental Protection Agency species sensitivity distribution methods for calculating ecological risk criteria. *Human and Ecological Risk Assessment* 9 (3):675-690.

Foster, J. R. 2000. EGBE (Ethylene Glycol Butyl Ether, EGBE): The Proposed Mode of Action in the Induction of Hemangiosarcomas in Male Mouse Liver and Its Significance for Man. Macclesfield, Cheshire, United Kingdom: Central Toxicology Laboratory, Alderley Park; report no: Ctl/r/1465. (As cited in EPA 2005a.)

Ghanayem, B.I. and C.A. Sullivan. 1993. Assessment of haemolytic activity of 2-butoxyethanol and its major metabolite, butoxyacetic acid, in various mammals including humans. *Hum. Exp. Toxicol*. 12(4):305-311. (As cited in ATSDR 1998.)

Ghanayem, B.I., P.C. Blair, M.B. Thompson, et al. 1987. Effect of age on the toxicity and metabolism of ethylene glycol monobutyl ether (2-butoxyethanol) in rats. *Toxicol. Appl. Pharmacol*. 91:222-234. (As cited in ATSDR 1998.)

Ghanayem, B.I., P.H. Long, S.M. Ward, B. Chanas, M. Nyska, and A. Nyska. 2001. Hemolytic anemia, thrombosis, and infarction in male and female F344 rats following gavage exposure to 2-butoxyethanol. *Ex. Toxic Pathol* 53:97-105.

Ghanayem, B.I., S.M. Ward, B. Chanas, and A. Nyska. 2000. Comparison of the acute hematotoxicity of 2-butoxyethanol in male and female F344 rats. *Human and Experimental Toxicology* 19:185-192.

Gingell, R., R.J. Boatman, and S. Lewis. 1998. Acute toxicity of ethylene glycol mono-*n*-butyl ether in the guinea pig. *Food and Chemical Toxicology* 36:825-829.

Green, T., A. Toghill, R. Lee, R. Moore, and J. Foster. 2000. The development of forestomach tumours in the mouse following exposure to 2-butoxyethanol by inhalation: Studies on the mode of action and relevance to humans. *Toxicology* 180:257-273.

Gualtieri, J.F., L. DeBoer, C.R. Harris, and R. Corley. 1995. Repeated ingestion of 2-butoxyethanol: Case report and literature review. *J. Toxicol. Clin. Toxicol*. 41:57-62.

Hall, L.W. Jr, M.C. Scott, and W.D. Killen. 1998. Ecological risk assessment of copper and cadmium in surface waters of Chesapeake Bay watershed. *Environmental Toxicology and Chemistry* 17 (6):1172-1189.

Harrison, P.T.C. 1992. Propionic acid and the phenomenon of rodent forestomach tumorigenesis: a review. *Food Chem. Toxicol.* 30:333-340.

Hoflack, J.C., M.J. Durand, G.G. Poirier, A. Maul, and P. Vasseur. 1997. Alteration in methyl-methanesulfonate-induced poly(ADP-ribosyl)ation by 2-butoxyethanol in Syrian hamster embro cells. *Carcinogenesis* 18 (12):2333-2338.

Howard, P.H. 1993. Handbook of Environmental Fate and Exposure Data; Vol. IV. Chelsea, MI: Lewis Publishers. (As cited in ATSDR 1998.)

Howard, P.H., R.S. Boethling, W.F. Jarvis, W.M. Meylan, and E.M. Michalenko. 1991. Handbook of Environmental Degradation Rates. Lewis Publishers Inc., Chelsea, MI.

HSDB. 1997. Hazardous Substances Data Bank. National Library of Medicine, National Toxicology Program (via TOXNET), Bethesda, MD. October. (As cited in ATSDR 1999.)

HSDB. 2005. Ethylene Glycol Mono-N-Butyl Ether. Hazardous Substances Data Bank, National Library of Medicine. National Institutes of Health. National Toxicology Program (via TOXNET http://toxnet.nlm.nih.gov).

IARC. 2004. Recent Meetings; Volume 88: Formaldehyde, 2-Butoxyethanol and 1-*tert*-Butoxy-2-propanol 2-9 June 2004. International Agency for Research on Cancer, Lyon, France (http://monographs.iarc.fr/ENG/Meetings/vol88.php).

IARC. 2006. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Volume 88: Formaldehyde, 2-Butoxyethanol and 1-*tert*-Butoxy-2-propanol. International Agency for Research on Cancer, Lyon, France. December 2006.

Imperial Chemical Industries (ICI). 1985. Ethylene glycol butyl ether and butoxyacetic acid: their effects on erythrocyte fragility in four species. Study No. WV 0062. NTIS Report No. OTS0521233. As cited in CIR (1996).

INERIS. 2005. *European Union Risk Assessment Report: 2-butoxyethanol. Draft*. Institut Nationel de l'Environnement Industriel et des Risques. Verneuil-en-Halatte, France.

INERIS. 2006. *2-Butoxyethanol (EGBE). Part I - Environment. Summary Risk Assessment Report*. Institut Nationel de l'Environnement Industriel et des Risques. Verneuil-en-Halatte, France.

IPCS. 1997. SIDS Initial Assessment Report for 6th SIAM, 2-Butoxyethanol. International Programme on Chemical Safety, World Health Organization, Geneva, Switzerland http://www.inchem.org/documents/sids/sids/111762.pdf.

Johanson G, Kronborg H, Naslund PH, Nordquist MB. 1986. Toxicokinetics of inhaled 2-butoxyethanol (ethylene glycol monobutyl ether) in man. *Scand J Work Environ Health* 12:594-602.

Johanson, G., I. Michel, D. Norback, et al. 1989. Biological monitoring of exposure to ethylene glycol ethers. Arch Toxicol (Suppl 13): 108-l 11. (As cited in ATSDR 1998.)

Klaine, S.J., G.P. Cobb, R.L. Dickerson, K.R. Dixon, R.J. Kendall, E.E. Smith, and K.R. Solomon. 1996. An ecological risk assessment for the use of the biocide, dibromonitrilopropionamide (DBNPA), in industrial cooling systems. *Environmental Toxicology and Chemistry* 15 (1):21-30.

Koshkaryev, A., G. Barshtein, A. Nyska, N. Ezov, T. Levin-Harrus, S. Shabat, M. Nyska, M. Redlich, F. Tsipia, and S. Yedgar. 2003. 2-butoxyethanol enhances the adherence of red blood cells. *Archive Toxicology* 77:465-469.

Kroes, R. and P.W. Wester. 1986. Forestomach carcinogens: Possible mechanisms of action. *Food Chem. Toxicol.* 24:1083-1089.

Lamb, J.C., D.K. Gulati, L.M. Hommel, and K.B. Poonacha. 1997. Ethylene glycol monobutyl ether. *Environmental Health Perspectives* 105 (supplement):217.

Long, P.H., R.R. Maronpot, B.I. Ghanayem, J.H. Roycroft, and A. Nyska. 2000. Dental pulp infarction in female rats following inhalation exposure to 2-butoxyethanol. *Toxicologic Pathology* 28 (2):246-252.

Lyman, W.J., W.F. Reehl, and D.H. Rosenblatt. 1982. Handbook of Chemical Property Estimation Methods. New York: McGraw-Hill. pp. 4-9, 5-4, 6-3, 15-16. (As cited in ATSDR 1998.)

Mackay, D., S. Paterson, W.Y. Shiu. 1992. Generic models for evaluating the regional fate of chemicals. *Chemosphere*. 24:695-717.

Marsden, C. and S. Mann, eds. 1963. Solvents Guide. New York, NY: Interscience Publishers, 111-112. (As cited in ATSDR 1998.)

Maryland. 1985. Maryland Industrial Survey. Bethesda, MD.

Merck. 1989. The Merck Index: An Encyclopedia of Chemicals, Drugs, and Biologicals. Rahway, NJ: Merck & Co., Inc. 1566. (As cited in ATSDR 1998.)

NICNAS. 1996. Summary Report: 2-Butoxyethanol in Cleaning Products: Priority Existing Chemical No. 6. National Industrial Chemicals Notification and Assessment Scheme, Commonwealth of Australia, Australian Government Publishing Service, Canberra. 35 pp.

NIOSH. 1983. The Glycol Ethers, with Particular Reference to 2-Methoxyethanol and 2-Ethoxyethanol: Evidence of Adverse Reproductive Effects. Current Intelligence Bulletin No. 39. United States Department of Health and Human Services, Public Health Service, Centers for Disease Control and National Institute for Occupational Safety and Health, Cincinnati, OH. PB 84-155142. May.

NIOSH. 1990. Criteria for a recommended standard: Occupational exposure to ethylene glycol monobutyl ether and ethylene glycol monobutyl ether acetate. Cincinnati, OH: National Institute for Occupational Safety and Health, Public Health Service, U.S. Department of Health, Education and Welfare. NTIS No. PB91-173369. (As cited in ATSDR 1998.)

NIOSH. 2001. NIOSH Pocket Guide to Chemical Hazards & Other Databases. Cincinnati, OH: United States Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institutes for Occupational Safety and Health. DHHS (NIOSH) Publication No. 2001-145 (CD-OM). August.

NPCA. 1997. National Paint and Coatings Association. http:/www.paint.org/value.htm. January 1. (As cited in SRI 2004.)

NTP. 1993. Ethylene glycol ethers, 2-ethoxyethanol, 2-butoxyethanol administered in drinking water to F344/N rats and B6C3Fl mice. NTP toxicity report series no. 26. National Toxicology Program, National Institutes of Health, Public Health Services, U.S. Department of Health and Human Services. NIH publication 93-3349. (As cited in ATSDR 1998.)

NTP. 2000. Toxicology and Carcinogenesis Studies of 2-Butoxyethanol (CAS no. 111-76-2) in F344/N Rats and B6C3F1 Mice (Inhalation Studies). National Toxicology Program, Washington, DC. NTP technical report series no. 484. http://ntp.niehs.nih.gov/ntp/htdocs/LT_rpts/tr484.pdf.

NRC. 2001. Standing Operating Procedures for Developing Acute Exposure Guideline Levels for Hazardous Chemicals. Subcommittee on Acute Exposure Guideline Levels, Committee on Toxicology, Board on Environmental Studies and Toxicology, Commission on Life Sciences, National Research Council. National Academy Press, Washington, D.C.

Nyska, A., C.R. Moomaw, N. Ezov, S. Shabat, T. Levin-Harrus, M. Nyska, M. Redlich, M. Mittelman, S. Yedgar, and J. Foley. 2003. Ocular expression of vascular cell adhesion

molecule (VCAM-1) in 2-butoxyethanol-induced hemolysis and thrombosis in female rats. *Ex. Toxic Pathol* 55:231-236.

Nyska, A., R.R. Maronpot, P.H. Long, J.H. Roycroft, J.R. Hailey, G.S. Travlos, and B.I. Ghanayem. 1999. Disseminated thrombosis and bone infarction in female rats following inhalation exposure to 2-butoxyethanol. *Toxicologic Pathology* 27 (3):287-294.

OECD. 1997. Screening Information Dataset (SIDS) initial assessment report on 2 butoxyethanol. 6th SIDS Initial Assessment Meeting. Paris, Organisation for Economic Cooperation and Development.

OSHA. 1974. Occupational Safety and Health Administration. 29 CFR 1910.100. (As cited in ATSDR 1998)

OSHA. 1990. 2-Butoxyethanol (Butyl Cellosolve), 2-Butoxyethyl Acetate (Butyl Cellosolve Acetate), Method 83. Salt Lake City, Utah: Organic Methods Evaluation Branch. OSHA Analytical Laboratory, Occupational Safety and Health Administration. (As cited in ATSDR 1998)

Park, J., L.M. Kamendulis, J.E. Klaunig. 2002a. Effects of 2-Butoxyethanol on Hepatic Oxidative Damage. *Toxicol. Lett.* 126: 19-29. (As cited in EPA 2005a)

Park, J., L.M. Kamendulis, J.E. Klaunig. 2002b. Mechanisms of 2-butoxyethanol carcinogenicity: studies on Syrian hamster embryo (SHE) cell transformation. *Toxicol. Sci.* 68: 43-50. (As cited in EPA 2005a)

Poet, T.S., J.J. Soelberg, K.K. Weitz, T.J. Mast, R.A. Miller, B.D. Thrall, and R.A. Corley. 2003. Mode of action and pharmacokinetic studies of 2-butoxyethanol in the mouse with an emphasis on forestomach dosimetry. *Toxicological Sciences* 71:176-189.

Posthuma, L., G.W. Suter II, and T.P. Traas. 2002. *Species Sensitivity Distributions in Ecotoxicology.* CRC Press: Boca Raton, FL, USA.

Price, K.S., G.T. Waggy, and R.A. Conway. 1974. Brine shrimp bioassay and seawater BOD of petrochemicals. *J. Water Pollut. Control Fed.* 46:63-77. (As cited in ATSDR 1998.)

Riddick, J.A. and W.B. Bunger, ed. 1970. Organic solvents. New York, NY: Wiley-Interscience, 471, 862-863. (As cited in ATSDR 1998.)

Rowe, V.K. and M.A. Wolf. 1982. Derivatives of gylcols. In: Patty's industrial hygiene and toxicology. 3rd ed. New York, NY: John Wiley and Sons. 2C: 3909-3911,3931-3939. (As cited in ATSDR 1998.)

Sawant, S.D., P.G. Doucet, W. Slob, B.L. Blaylock, and H.M. Mehendale. 1999. Experimental mathematical validation of a novel concept of extended 2-butoxyethanol autoprotection. *International Journal of Toxicology* 18:307-316.

Siesky, A. M., L.M. Kamendulis, J.E. Klaunig. 2002. Hepatic effects of 2-butoxyethanol in rodents. *Toxicol. Sci.* 70: 252-260. (As cited in EPA 2005a.)

Singh, P., B. Morris, S. Zhao, and B.L. Blaylock. 2002. Suppression of the contact hypersensitivity response following topical exposure to 2-butoxyethanol in female BALB/c mice. *International Journal of Toxicology* 21:107-115.

Singh, P., S. Zhao, and B.L. Blaylock. 2001. Topical Exposure to 2-butoxyethanol alters immune responses in female BALB/c mice. *International Journal of Toxicology* 20:383-390.

Solomon, K.R., D.B. Baker, P. Richards, K.R. Dixon, S.J. Klaine, T.W. La Point, R.J. Kendall, C.P. Weisskopf, J.M. Giddings, J.P. Giesy, L.W. Hall Jr, and W.M. Williams. 1996.

Ecological risk assessment of atrazine in North American surface waters. *Environmental Toxicology and Chemistry* 15 (1):31-76.

SRI. 2004. Chemical Economics Handbook Marketing Research Report: Glycol Ethers. Prepared by H. Chinn, U. Lochner, and K. Yagi for SRI Consulting. July. 663.5000 A

SRI. 2010. Chemical Economics Handbook Marketing Research Report: Glycol Ethers. Prepared by H. Chinn, T. Kaelin, J. Liu, and H. Mori for SRI Consulting. November. 663.5000 A.

Staples, C.A., R.J. Boatman, and M.L. Cano. 1998. Ethylene glycol ethers: An environmental risk assessment. Chemosphere 36 (7):1585-1613.

Stephan, C.E., D.I. Mount, D.J. Hansen, J.H. Gentile, G.A. Chapman, and W.A. Brungs. 1985. *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses.* U.S. Environmental Protection Agency, Office of Research and Development. Duluth, MN, USA. PB85-227049.

Suter, G.W. II, B.W. Cornaby, C.T. Hadden, R.N. Hull, M. Stack, and F.A. Zafran. 1995. An approach for balancing health and ecological risks at hazardous waste sites. *Risk Analysis* 15 (2):221-231.

Swann, R.L., D.A. Laskowski, P.J. McCall, K. Vanderkuy, and H.J. Dishburger. 1983. A rapid method for the estimation of the environmental parameters octanol water partition-coefficient, soil sorption constant, water to air ratio, and water solubility. *Res. Rev.* 85:16-28.

Tuazon, E.C., S.M. Aschmann, and R. Atkinson. 1998. Products of the gas-phase reactions of the OH radicals with 1-methoxy-2-propanol and 2-butoxyethanol. *Environ. Sci. Technol.* 32(21): 3336-3345. (As cited in INERIS 2005)

Udden M.M 1994. Hemolysis and deformability of erythrocytes exposed to butoxyacetic acid, a metabolite of 2-butoxyethanol: II Resistance in red blood cells from humans with potential susceptibility. J Appl Toxicol, 14: 97-102.

Udden, M.M. 2000. Rat erythrocyte morphological changes after gavage dosing with 2-butoxyethanol: A comparison with the *in vitro* effects of butoxyacetic acid on rat and human erythrocytes. *J. Appl. Toxicol.* 20:381-387.

Udden, M.M. 2002. *In vitro* sub-hemolytic effects of butoxyacetic acid on human and rat erythrocytes. *Toxicological Sciences* 69:258-264.

Weast, R.C., ed. 1975. Handbook of Chemistry and Physics, 55th edition. Cleveland, OH: CRC Press, Inc., C-290. (As cited in ATSDR 1998.)

Weast, R.C., ed. 1989. The CRC Handbook of Chemistry and Physics, 70th edition. Boca Raton, FL: CRC Press, Inc. C-266. (As cited in ATSDR 1998.)

WHO. 1998. *Concise International Chemical Assessment Document 10: 2-butoxyethanol*. World Health Organization. Geneva.

WHO. 2005. Selected Alkoxyethanols 2-Butoxyethanal. Concise International Chemical Assessment Document 67. World Health Organization. Geneva.

WHO. 2010. *Concise International Chemical Assessment Document 67: Selected alkoxyethanols*. World Health Organization. Geneva.

TABLES

Table ES-1. Key Findings of the Qualitative Hazard Evaluation

Toxicity Endpoint	Summary Evaluation and Principal Reference	
Acute Toxicity	Primary acute effects in humans are eye and nasal irritation at levels >500 mg/m ^{3} (Carpenter 1956); no irritation was found at current occupational exposure limits - 97 mg/m ^{3} (Johansen 1986). Facility fenceline and environmental concentrations are far lower.	
Chronic Toxicity	Releases of EGBE "may not reasonably be anticipated to cause any adverse effects to human health" (EPA, 69 FR 69322).	
Carcinogenicity	• "Limited" evidence of carcinogenicity in animals; the human carcinogenic potential of EGBE cannot be determined (IARC 2006). • Because nonlinear, nongenotoxic modes of action are likely responsible for the tumors observed in rodent studies, the IRIS RfD and RfC are adequately protective of any possible carcinogenic effects in humans (EPA Cancer Evaluation [EPA 2005a]).	
Mutagenicity	Not expected to be mutagenic or clastogenic. (EPA 2010)	
Developmental Toxicity	A "minimal" LOAEL for developmental effects = 700 mg/kg-day based on a very slight decrease in pup weight (EPA 2010).	
Reproductive Toxicity	700 and 1,300 mg/kg-day are considered to be NOAEL and LOAEL, respectively, for both maternal and reproductive effects (EPA 2010).	
Immunotoxicity	Not immunotoxic (EPA 2010)	
Other Chronic Toxicity	Continuous inhalation exposure to an EGBE-saturated atmosphere expected to result in maximum blood concentrations of EGBE's toxic metabolite (BAA) well below the level needed to produce hemolysis in humans (Udden 2002, EPA 2010).	
Environmental Toxicity	EGBE causes only "very minor" effects that "are unlikely to be ecologically significant" (EPA 2003 [68 Fed. Reg. 65657])	
Persistence	• Readily biodegradable • Half-life = 1-4 weeks in water and soil	(ATSDR 1998)
Bioaccumulation	• Bioconcentration factor = 3 • Octanol-water partition coefficient (Log K_{ow}) = 0.8	(HSDB 1997)
Terrestrial Mammals and Birds	No Data [Section 3.3, below]	
Acute Aquatic Toxicity	• Most sensitive credible LC_{50} = 89 mg/L • Most LC_{50} values > 1000 mg/L	(Section 3.3, below)
Chronic Aquatic Toxicity	• Most sensitive EC_{50} = 164 mg/L • Most sensitive LOAEL = 7.2 mg/L • Most LOAELs > 100 mg/L	(Section 3.3, below)

EGBE: ethylene glycol monobutyl ether
EPA: U.S. Environmental Protection Agency
IRIS: Integrated risk information system
LOAEL: lowest observed adverse effect level
mg/kg-day: milligrams per kilogram body weight per day
mg/L: milligrams per liter
mg/m^3: milligrams per cubic meter
NOAEL: no observed adverse effect level

Table ES-2. Key Findings of the Exposure and Risk Assessments

	HAPs Petition (1993 TRI Release Data)	This Petition (2009-2011 TRI Release Data)
Human Inhalation Exposures		
Chronic		
Maximum Annual Average Concentration (MAAC)	0.327 mg/m^3, based on Tier 3 (ISCST3) air dispersion modeling for the maximum impact facility.	All facilities screened out prior to chronic Tier 2 and 3 analyses. For subset of facilities that screened out in Tier 2, Tier 3 modeling was conducted to test the conservatism of this assessment found a predicted MAAC using Tier 3 (AERMOD) of 0.27 mg/m^3 based on 2009, 2010, and 2011 data.
RfC	13 mg/m^3	1.6 mg/m^3
Hazard Quotient (chronic)	0.02	≤ 0.2
Acute		
Maximum Hourly Average Concentration (MHAC)	n/a	For a subset of the highest emitting facilities, tiered modeling of acute exposures found a predicted MHAC using Tier 3 (AERMOD) of 3.9 mg/m3 based on the 2009, 2010, and 2011 data.
NOAEL (Irritation Based on Human Data)	n/a	97 mg/m^3
Margin of Exposure	n/a	> 25
Human Dermal and Ingestion Exposures		
Maximum Exposure	0.02 mg/kg BW-day	0.00001 mg/kg BW-day
RfD	3 mg/kg BW-day	0.1 mg/kg BW-day
Hazard Quotient	0.007	0.0001
Ecological Risk		
Small Mammals	(from Cadmus 2000a)	
Maximum Exposure	2.15 mg/kg BW-day	0.029 mg/kg BW-day
Toxicity Reference Value	20 mg/kg BW-day	20 mg/kg BW-day
Hazard Quotient	0.11	0.001
Aquatic Organisms	(from Cadmus 2000a)	
Maximum Exposure	3.64 mg/L	0.00019 mg/L
TRV	9.1 mg/L	8.7 mg/L
Hazard Quotient	0.4	0.00002

MAAC: maximum annual average concentration
mg/kg BW-day: milligrams per kilogram body weight per day
mg/L: milligrams per liter
mg/m^3: milligrams per cubic meter
RfC: IRIS reference concentration
RfD: IRIS reference dose
TRV: toxicity reference value

Table ES-3. Sources of Uncertainty and Conservatism

Section	Source of Uncertainty	Likely Effect on Outcome
3.0 Hazard Assessment		
	Humans are at least 100 times less sensitive than rats to hemolytic effects of EGBE. While a stand default interspecies UFs of 10 was not used - RfD uses UF of 1 and RfC uses UF of 3 – the actual interspecies factor is approximately 0.01.	RfD may be 100-fold overly conservative. RfC may be 300-fold overly conservative. Thus, HQs may be overestimated by a factor of 100 to 300.
	Intraspecies UF of 10 is probably overly conservative. A number of studies have found no evidence of increased susceptibility to hemolysis among sensitive subpopulations.	RfD and RfC may be overstated by an additional factor of 3 to 10.
	IARC (2006) concluded that the carcinogenicity of EGBE to humans cannot be determined and EPA (2010) concluded that carcinogenic effects from EGBE are not likely to occur in humans in the absence of critical noncancer effects.	EPA (2005) concluded that the RfD and RfC are adequately protective of carcinogenic effects in humans, if any. Thus, question of carcinogenicity does not affect petition outcome.
5.0 Emissions Inventory		
	TRI only lists releases of Certain Glycol Ethers. In the absence of specific data for EGBE releases, assumed all Certain Glycol Ethers releases were EGBE.	Because EGBE represents 52% of market share of ethylene glycol ethers (SRI 2010), actual releases of EGBE may be overestimated 2-fold, on average.
	TRI data are self-reported using a variety of methods. Individual facility data vary considerably in certainty.	Actual releases of Certain Glycol Ethers by facilities may be greater than or less than those reported on TRI. No evidence of systematic under-reporting.
6.0 Screening of Airborne Concentrations		
	a. Chronic	
	Step A assumed 100% of reported releases to air were exhausted through a single point 0 m high and 50 m from fence line. Resultant threshold rate (4.9 tpy) more conservative than that associated with 2 m high emission point located 10 m from fenceline (8.6 tpy), which encompasses virtually all facilities in inventory for which stack configuration data are available.	Maximum annual average concentrations predicted under Step A were up to 250-fold higher than those predicted using Tier 3 dispersion modeling. Thus, HQs predicted using Step A overestimated by 85-250 times.
	Tier 2 employed site-specific data on emission rates, stack and fugitive source physical parameters, and property boundaries. The maximum MAAC under Tier 2 was 1.2 mg/m^3, as compared to maximum MAAC under Tier 3 of 0.3 mg/m^3. Tier 2 results differed from Tier 3 results for the same facilities by factors of 1.2 to 6.7.	HQs predicted using Tier 2 overestimated by 2 times or more.
	Modeled maximum annual average concentration is highly conservative estimate of exposure over a lifetime.	Per EPA, actual maximum annual average concentrations are 2-fold lower than modeled values. Comparison of an annual average concentration to an RfC designed to be protective over a lifetime substantially overstates risk by an unknown margin.
	DEGREE OF CONSERVATISM ASSOCIATED WITH CHRONIC HUMAN INHALATION HAZARDS	(50 to 100) x (3 to 10) x 2 x (2 to 85) x ? = ***600 to 170,000 or more***
	b. Acute	
	The acute MOE based on the NOAEL of 97 mg/m^3 and the estimated reasonable worst-case estimated MHAC is approximately 18 mg/m^3. Because the NOAEL is derived from human data, per EPA TRI precedents MOEs >10 "indicate a low level of concern" for acute effects associated with EGBE facility releases.	An MOE above 5 is protective because EPA AEGL guidance calls for an interspecies uncertainty factor from 3-10 for non-systemic irritation effects, and an appropriate time-adjustment would support a 1-hr NOAEL of 137 mg/m^3.

Table ES-3. Sources of Uncertainty and Conservatism

Section	Source of Uncertainty	Likely Effect on Outcome
7.0 Surface Water Exposures and Risks		
	Exposure point concentrations in surface water calculated by assuming that 100% of U.S. releases of Certain Glycol Ethers to all media are EGBE and are concentrated into an area the size of the state of Ohio.	Because EGBE represents 52% of consumption of ethylene glycol ethers (SRI 2010), actual releases of EGBE may be overestimated 2-fold, on average. Because 100,000 km^2 represents 1.3% of total land area of U.S., actual concentrations of EGBE may be overestimated 77-fold.
	Exposure assumptions (350 day/yr, 70 years, all water contacted contains EGBE)	Actual exposure intensity likely to be considerably lower, but degree of conservatism cannot be quantified.
	DEGREE OF CONSERVATISM ASSOCIATED WITH HUMAN DERMAL AND INGESTION HAZARDS	(50 to 100) x (3 to 10) x 2 x 77 x ? = ***23,100 to 154,000 or more***
8.0 Ecological Risk Assessment		
	Exposure point concentrations in surface water calculated by assuming that 100% of U.S. releases of Certain Glycol Ethers to all media are EGBE and are concentrated into an area the size of the state of Ohio.	As previously noted, actual releases of EGBE may be overestimated 2-fold, on average, and actual concentrations of EGBE may be overestimated 77-fold.
	Conservative exposure assumptions for small mammals (inhalation rate, ingestion rate, bioaccumulation factor) consistent with Cadmus (2000a)	Actual exposure intensity likely to be considerably lower, but degree of conservatism cannot be quantified.
	TRV for aquatic organisms based on most sensitive species tested, which may not be representative of aquatic community present in most U.S. water bodies.	Although actual sensitivity of other aquatic organisms to EGBE may be considerably lower, degree of conservatism cannot be quantified.
	TRV for small mammals is based on same underlying data used to derive RfD. Thus, small mammal TRV shares same uncertainties as listed above with respect to Section 3.0.	TRV may be 50 to 1,000-fold overly conservative due to UFs.
	HQs focused on what EPA calls "very minor" effects on individual organisms, rather than effects that are likely to be ecologically significant.	Although individual organisms are likely to be substantially more sensitive than populations, communities, or ecosystems, degree of conservatism cannot be quantified.
	DEGREE OF CONSERVATISM ASSOCIATED WITH RISKS TO AQUATIC ORGANISMS	2 x 77 x ? = ***154 or more***
	DEGREE OF CONSERVATISM ASSOCIATED WITH RISKS TO SMALL MAMMALS	2 x 77 x (50 to 1,000) x ? = ***7,700 to 154,000 or more***

EGBE: ethylene glycol monobutyl ether
EPA: U.S. Environmental Protection Agency
FR: Federal Register
HQ: hazard quotient
IARC: International Agency for Research on Cancer
IRIS: Integrated Risk Information Service
km^2: square kilometer
m: meter
MAAC: Maximum annual average concentration
mg/m^3: milligrams per cubic meter
RfC: reference concentration
RfD: reference dose
tpy: tons per year
TRI: Toxics Release Inventory
TRV: toxicity reference value
UF: uncertainty factor

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Table 2-1. Regulatory Standards and Guidelines Applicable to EGBE

Media	Agency	Description	Information	References [a]
NATIONAL				
Regulations:				
Air	EPA OAQPS	List of Chemicals Produced by Affected Facilities	Yes	40 CFR 60.489, EPA 1977
	EPA OAQPS	Chemicals Affected by Standards of Performance for Volatile Organic Emissions from Synthetic Organic Chemical Manufacturing Industry Distillation Operations	Yes	40 CFR 60.667, EPA 1990b
	EPA OAQPS	Chemicals Affected by Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry Reactor Processes	Yes	40 CFR 60.707, EPA 1993b
	EPA OAQPS	Synthetic Organic Chemical Manufacturing Industry Chemicals	Yes	40 CFR 63 Table 1 to Subpart F, EPA 1992b
	OSHA	Permissible Exposure Limit (TWA)[b]	50 ppm (240 mg/m^3) skin [c]	29 CFR 1910.100, OSHA 1974
Water	EPA OW	Effluent Guidelines and Standards - Organic Chemicals, Plastics, and Synthetic Fibers - Bulk Organic Chemicals	Yes	40 CFR 414, subpart G, EPA 1987b
Other	EPA OPPTS	Tolerance Range for Agriculture Products	Conditionally Exempted from Tolerance	40 CFR 180.920, EPA 1971
	EPA OPPTS	Substance Subject to All Provisions of Health and Safety Data Reporting	Yes	40 CFR 716.120, EPA 1986b
Guidelines:				
Air	ACGIH	TLV-TWA for Occupational Exposure [d]	20 ppm (97 mg/m^3)	ACGIH 2012
	OSHA	Permissible Exposure Limit - TWA for Occupational Exposure [d]	50 ppm (240 mg/m^3) skin [b]	29 CFR 1910.1000
	NIOSH	Immediately Dangerous to Life or Health (IDLH)	700 ppm (3,383 mg/m^3)	NIOSH 2001
	NIOSH	Recommended Exposure Limit for Occupational Exposure (TWA)[e]	5 ppm (24 mg/m^3) skin [b]	NIOSH 1990
STATE				
Regulations and Guidelines:				
Air	AZ	AZ Ambient Air Quality Guidelines (24 hours)	0.9 mg/m^3	http://www.az deq.gov/environ/air/download/modeling.pdf
	AZ	AZ Ambient Air Quality Guidelines (1 hour)	3.6 mg/m^3	
	CA	Inhalation Reference Level (1 hour)	14 mg/m^3	CalEPA 1999
	CT	Hazard Limit Value (8 hours)	2.4 mg/m^3	Reg. of CT State Agencies, Section 22a-174-29
		Hazard Limit Value (30 minutes)	12 mg/m^3	

Table 2-1. Regulatory Standards and Guidelines Applicable to EGBE

Media	Agency	Description	Information	References [a]
NATIONAL				
Air	ND	Guideline Concentration (8 hours)	1.9 mg/m^3	http://www. ndhealth.gov/AQ/Toxics/North%20Dakota%20Air%20Toxics%20Policy.pdf
	TX	Effects Screening Level (1 hour)	0.21 mg/m^3	http://www.tceq.texas.gov/toxicology/esl/list_main.html#esl_1
	TX	Effects Screening Level (Annual)	3.7 mg/m^3	

a. As cited in ATSDR 1998
b. Time-weighted average concentrations that must not be exceeded during any 8-hour work shift of a 40-hour week
c. Skin designation that there is a potential for dermal absorption and that skin exposure should be prevented through the use of gloves, coveralls, goggles, and other appropriate equipment.
d. ACGIH TLV-TWA is a time-weighted averaged concentration for an 8-hour workday and a 40-hour workweek.
e. Recommended exposure limit is a time-weighted average concentration for up to a 10-hour workday during a 40-hour work week.
ACGIH: American Conference of Governmental Industrial Hygienists
EGBE: ethylene glycol monobutyl ether
EPA: U.S. Environmental Protection Agency
mg/m^3: milligrams per cubic meter
NIOSH: Naitonal Institute for Occupational Safety and Health
OAQPS: Office of Air Quality Planning and Standards
OPPTS: Office of Pollution Prevention and Toxic Substances
OSHA: Occupational Safety and Health Administration
OW: Office of Water
ppm: parts per million
TLV: Threshold Limit Value
TWA: Time Weighted Average

Table 3-1. Physical and Chemical Properties of EGBE

Property	Information	Reference [a]
Molecular weight	118.17	Merck 1989
Color	colorless	Marsden and Mann 1963
Physical state	liquid	Merck 1989
Melting point	-70 C -75 C	HSDB 1997 ASTER 1995
Boiling point	171 C at 760 mm Hg 50 C at 4 mm Hg	Weast 1975 Weast 1989
Density at 20 C	0.9019 g/mL	Merck 1989
Odor	Faint odor Mild ethereal odor	Marsden and Mann 1963 ACGIH 1991
Odor threshold Air Water	 0.10 ppm (v/v) 0.4 ppm (v/v) No data	 Amoore and Hautala 1983 OSHA 1990
Solubility Water at 25 C Organic solvent(s)	 Soluble in all proportions Miscible with alcohol, ether Soluble in most organic solvents	 Riddick and Bunger 1970, Weast 1975 Weast 1975 Merck 1989
Partition coefficients Log Kow Log Koc	 0.83 0.84 1.83 (calculated) 1.79 (calculated)	 HSDB 1997 ASTER 1995 HSDB 1997, Lyman et al. 1982 ASTER 1995
Bioconcentration factor Log BCF	 0.40 (calculated)	 HSDB 1997, Lyman et al. 1982
Vapor pressure At 20 C At 25 C	 0.76 mm Hg 0.88 mmHg	 HSDB 1997 Dow 1993
Henry's law constant (atm-m^3/mol)	2.08×10^{-8} (calculated) 5.44×10^{-6} (calculated)	Howard 1993, HSDB 1997 ASTER 1995
Vapor-phase rate constant for reaction with photochemically produced hydroxy radicals	1.96×10^{-11} cm^3/molecule-second at 25 C (estimated)	Atkinson 1987
Atmospheric half-life at 25 C and 5 x 10^5 hydroxyl radicals/m^3	17 hours (calculated)	HSDB 1997
Autoignition temperature	238 C 244 C	HSDB 1997 Marsden and Mann 1963, OSHA 1990
Flashpoint	60°C (closed cup) 62°C (closed cup) 69°C (open cup) 74°C (open cup)	Merck 1989 HSDB 1997 OSHA 1990 Marsden and Mann 1963
Flammability	May be ignited by heat, sparks or open flame	HSDB 1997
Explosive limits	1.1% (lower); 10.1% (upper)	OSHA 1990

a. All references are as cited in ATSDR 1998
ASTER: Assessment Tools for the Evaluation of Risk
ATSDR: Agency for Toxic Substances and Disease Registry
BCF: bioconcentration factor
C: degrees Celsius
EGBE: ethylene glycol monobutyl ether
HSDB: Hazardous Substance Data Bank
Koc: organic carbon partition coefficient
Kow: octanol-water partition coefficient
OSHA: Occupational Safety and Health Administration

Table 3-2. Aquatic Ecotoxicity Data for EGBE

Scientific Name	Common Name	Effect	Endpoint	Duration	EGBE Concentration (mg/L)	Toxicity Review Source					Citation
						WHO 1998; 2005	Staples et al. 1998	Devillers et al. 2002	EC and HC 2002	INERIS 2005	
ACUTE EXPOSURES											
Fish											
Fundulus heteroclitus	mummichog	mortality	LC50	96 hr	6.7				x	x	Biospherics 1981 [A]
Cyprinodon variegatus	sheepshead minnow	mortality	LC50	96 hr	116			x		x	MBA 1984 [A]
Cyprinodon variegatus	sheepshead minnow	mortality	LC50	72 hr	121			x			MBA 1984
Cyprinodon variegatus	sheepshead minnow	mortality	LC50	48 hr	126			x			MBA 1984
Cyprinodon variegatus	sheepshead minnow	mortality	LC50	24 hr	149	x		x			OECD 1997
Lepomis macrochirus	bluegill	mortality	LC50	96 hr	127				x	x	CIBA-GEIGY 1976 [A]
Lepomis macrochirus	bluegill	mortality	LC50	96 hr	1490			x		x	Neely 1984
Lepomis macrochirus	bluegill	mortality	LC50	24 hr	2950	x	x	x			Dawson et al. 1977 [A]
Lepomis macrochirus	bluegill	mortality	LC50	96 hr	2950			x		x	Neely 1984
Leuciscus idus melanotus	golden ide	mortality	LC00	48 hr	1170			x		x	Junke and Ludemann 1978
Leuciscus idus melanotus	golden ide	mortality	LC00	48 hr	1350			x		x	Junke and Ludemann 1978
Leuciscus idus melanotus	golden ide	mortality	LC50	48 hr	1395			x		x	Junke and Ludemann 1978
Leuciscus idus melanotus	golden ide	mortality	LC100	48 hr	1490			x		x	Junke and Ludemann 1978
Leuciscus idus melanotus	golden ide	mortality	LC50	48 hr	1575	x		x		x	Junke and Ludemann 1978
Leuciscus idus melanotus	golden ide	mortality	LC100	48 hr	1620			x		x	Junke and Ludemann 1978
Leuciscus idus melanotus	golden ide	mortality	LC50	48 hr	1880	x	x				CMA 1994 [A]
Menidia beryllina	inland silverside	mortality	LC50	96 hr	1250	x	x	x		x	Dawson et al. 1977
Carassius auratus	goldfish	mortality	LC50	24 hr	1650	x	x				Verschueren 1983
Carassius auratus	goldfish	mortality	LC50	24 hr	1700	x	x	x		x	Birdie 1979
Oncorhynchus mykiss	rainbow trout	mortality	LC50	96 hr	1700	x					Environment Canada 1997
Oncorhynchus mykiss	rainbow trout	mortality	LC50	96 hr	>1000			x		x	Devillers et al. 2002
Pimephales promelas	fathead minnow	mortality	LC50	96 hr	2137	x	x			x	Dow 1979
Notropus atherinoides	emerald shiner	mortality	LC50	72 hr	>500	x	x				Dill 1995
Invertebrates											
Palaemonetes pugio	grass shrimp	mortality	LC50	96 hr	5.4	x			x	x	Biospherics 1981 [A]
Crassostrea virginica	oyster	mortality	LC50	96 hr	89	x			x	x	EPA 1984
Crassostrea virginica	oyster	mortality	LC50	72 hr	114			x			MBA 1984
Crassostrea virginica	oyster	mortality	LC50	48 hr	160			x			MBA 1984
Crassostrea virginica	oyster	mortality	LC50	24 hr	181			x			MBA 1984
Penaeus setiferus	white shrimp	mortality	LC50	96 hr	117					x	Welchem Inc. 1984 [A]
Penaeus setiferus	white shrimp	mortality	LC50	96 hr	130	x					OECD 1997

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Table 3-2. Aquatic Ecotoxicity Data for EGBE

Scientific Name	Common Name	Effect	Endpoint	Duration	EGBE Concentration (mg/L)	Toxicity Review Source					Citation
						WHO 1998; 2005	Staples et al. 1998	Devillers et al. 2002	EC and HC 2002	INERIS 2005	
Penaeus setiferus	white shrimp	mortality	LC50	72 hr	147			x			MBA 1984
Penaeus setiferus	white shrimp	mortality	LC50	48 hr	173			x			MBA 1984
Crangon crangon	brown shrimp	mortality	LC50	96 hr	550	x	x				Verschueren 1983
Crangon crangon	brown shrimp	mortality	LC50	48 hr	600	x	x				Verschueren 1983
Crangon crangon	brown shrimp	mortality	LC50	96 hr	698					x	Blackman 1974 [A]
Hydra vulgaris	coelenterate	mortality	LC50	72 hr	690			x		x	Bowden et al. 1995
Daphnia magna	water flea	mortality	LC50	48 hr	835	x	x			x	Dow 1979
Daphnia magna	water flea	mortality	LC00	24 hr	1140			x		x	Bringmann and Kuhn 1977
Daphnia magna	water flea	mortality	EC00	24 hr	1283			x		x	Bringmann and Kuhn 1982
Daphnia magna	water flea	immobilization	EC50	48 hr	1600			x		x	Devillers et al. 2002
Daphnia magna	water flea	mortality	LC50	24 hr	1698	x	x	x		x	Bringmann and Kuhn 1982
Daphnia magna	water flea	mortality	LC50	24 hr	1720	x	x	x		x	Bringmann and Kuhn 1977
Daphnia magna	water flea	mortality	LC100	24 hr	2500			x		x	Bringmann and Kuhn 1977
Daphnia magna	water flea	mortality	EC100	24 hr	2500			x		x	Bringmann and Kuhn 1982
Daphnia magna	water flea	mortality	LC50	24 hr	5000	x	x			x	CMA 1994 [A]
Artemia salina	brine shrimp	mortality	LC50	24 hr	1000	x	x				Price et al. 1974
CHRONIC/INTERMEDIATE EXPOSURES											
Amphibian											
Xenopus laevis	African clawed frog	mortality	LOEC	12 d	2000			x			Devillers et al. 2002
Fish											
Brachydanio rerio	zebrafish	mortality	LOEC	21 d	>100					x	European Union 2005
Poecilia reticulata	guppy	mortality	LC50	7 day	982	x	x	x		x	Koenemann 1981
Invertebrates											
Brachionus calyciflorus	rotifer	reproduction	EC10	48 hr	7.2			x		x	Devillers et al. 2002
Brachionus calyciflorus	rotifer	reproduction	EC20	48 hr	14.3			x		x	Devillers et al. 2002
Brachionus calyciflorus	rotifer	reproduction	EC50	48 hr	164			x		x	Devillers et al. 2002
Daphnia magna	water flea	reproduction	NOEC	21 d	100			x		x	Devillers et al. 2002
Daphnia magna	water flea	reproduction	EC10	21 d	134					x	European Union 2005
Daphnia magna	water flea	reproduction	EC20	21 d	175					x	European Union 2005
Daphnia magna	water flea	reproduction	EC50	21 d	297					x	European Union 2005
Ceriodaphnia dubia	water flea	reproduction	EC10	7 d	134.9			x		x	Devillers et al. 2003
Crassostrea gigas	Japanese oyster	development	NOEC	24 hr	100			x			Devillers et al. 2002
Crassostrea gigas	Japanese oyster	development	LOEC	24 hr	1000			x			Devillers et al. 2002

Table 3-2. Aquatic Ecotoxicity Data for EGBE

Scientific Name	Common Name	Effect	Endpoint	Duration	EGBE Concentration (mg/L)	Toxicity Review Source					Citation
						WHO 1998; 2005	Staples et al. 1998	Devillers et al. 2002	EC and HC 2002	INERIS 2005	
Algae, Bacteria, Protozoans											
Microcystis aeruginosa	cyanobacterium	growth	LOEC	8 day	35	x	x	x	x	x	Bringmann and Kuhn 1980a
Entosiphon sulcatum	protozoan	growth	LOEC	72 hr	91	x	x	x		x	Bringmann and Kuhn 1980a
Selenastrum capricornutum	green alga	growth	NOEC	7 day	125	x	x			x	Dow 1988
Selenastrum capricornutum	green alga	growth	LOEC	7 day	250		x			x	Dow 1988
Selenastrum capricornutum	green alga	growth	EC50	7 day	>1000	x	x			x	Dow 1988
Uronema parduczi	protozoan	growth	EC05	48 hr	463	x	x	x		x	Bringmann and Kuhn 1980b
Pseudomonas putida	bacterium	growth	LOEC	16 hr	700	x	x	x		x	Bringmann and Kuhn 1980a
Scenedesmus quadricaudata	green alga	growth	LOEC	7 day	900	x	x	x		x	Bringmann and Kuhn 1980a
Chilomonas parmecium	protozoan	growth	EC05	48 hr	911	x	x	x		x	Bringmann and Kuhn 1980b
Pseudokirchneriella subcapitata	algae	growth (biomass	NOEC	72 hr	88.2			x			Devillers et al. 2002
Pseudokirchneriella subcapitata	algae	growth (rate)	NOEC	72 hr	286			x		x	Devillers et al. 2002
Pseudokirchneriella subcapitata	algae	growth	EC50	72 hr	944			x			Devillers et al. 2002
Pseudokirchneriella subcapitata	algae	growth	EC50	72 hr	1840			x			Devillers et al. 2002
Pseudokirchneriella subcapitata	algae	growth	EC50	24 hr	4183						Escher et al. 2008

A. Ecotoxicity values did not meet data quality requirements for inclusion in other risk assessments (INERIS 2005)
EC: Environment Canada
EC00: effect concentration for 0 percent of organisms tested
EC05: effect concentration for 5 percent of organisms tested
EC10: effect concentration for 10 percent of organisms tested
EC100: effect concentration for 100 percent of organisms tested
EC20: effect concentration for 20 percent of organisms tested
EC50: median effect concentration
EGBE: ethylene glycol monobutyl ether
HC: Health Canada
INERIS: National Institute for Industrial Environment and Risks (France)
LC00: lethal concentration for 0 percent of organisms tested
LC100: lethal concentration for 100 percent of organisms tested
LC50: median lethal concentration
LOEC: lowest observed effect concentration
NOEC: no observed effect concentration
WHO: World Health Organization

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Table 5-1. Comparison of Glycol Ether TRI-Reported Releases from 1993 through 2011

Information	1993[a]	2003	2004	2005	2006	2008	2009	2010	2011	% Change (1993-2011)
Number of Facilities Reporting GE Emissions to Any Media	2,251	1,913	1,850	1,793	1,740	1,579	1,478	1,510	1,492	-34%
Number of Facilities Reporting Non-zero GE Emissions to Any Media	2,036	1,459	1,423	1,372	1,247	1,198	1,109	1,149	1,099	-46%
Total GE Releases (All Facilities) (tpy)	24,106	12,463	11,774	10,924	10,148	8,353	7,015	7,434	7,229	-70%
Maximum GE Release per Facility (tpy)	375	196	347	495	396	393	293	365	361	-4%
95th Percentile Release per Facility (tpy)	57	44	39	35	36	29	31	29	27	-53%
50th Percentile Release per Facility (tpy)	1.9	1.4	1.2	1.0	1.3	0.9	0.7	0.6	0.5	-73%
Average Release per Facility (tpy)	12	8.5	8.3	8.0	8.1	7.0	6.3	6.5	6.0	-49%
% Releases to Air (All Facilities)	97%	94%	93%	89%	90%	87%	90%	88%	87%	-10%
Average % Released to Air (by Facility)	92%	89%	89%	89%	89%	87%	88%	88%	88%	-4%
Total GE Releases to Air (All Facilities) (tpy)	23,448	11,699	10,942	9,699	9,101	7,282	6,285	6,541	6,304	-73%
Maximum GE Release to Air per Facility (tpy)	375	196	176	187	179	167	172	189	173	-54%
95th Percentile Release to Air per Facility (tpy)	56	41	37	35	35	28	31	28	21	-63%
50th Percentile Release to Air per Facility (tpy)	1.5	0.86	0.75	0.75	0.88	0.55	0.49	0.43	0.13	-91%
Average Release to Air per Facility (tpy)	12	8.0	7.7	7.2	7.4	6.2	5.8	5.8	5.2	-55%

Source: www.epa.gov/tri
a. 1993 TRI data are included because they were the basis for the Hazardous Air Pollutants petition (CMA 1997)
GE: Certain Glycol Ethers
tpy: tons per year
TRI: Toxic Release Inventory

Table 6-1. Screening Table Showing Threshold Emissions (tpy) for the Reference Concentration of 1.6 mg/m^3

Source	Release Height	Receptor Distance					
Type	(m)	10 m	30 m	50 m	100 m	200 m	500 m
Area (10 m)	0	1.7	5.3	9.8	24.7	69.0	289
Area (20 m)	0	3.1	8.7	15.0	33.5	83.8	317
Area (30 m)	0	4.6	12.2	20.2	42.8	99.4	349.3
Point	0	0.3	2.0	4.9[a]	16.5	55.0	263
Point	2	8.6	11.3	11.9	22.0	60.6	268
Point	5	16.6	21.4	30.9	58.8	108.1	309
Point	10	57.8	65.6	75.8[b]	117.6	223	556
Point	20	232	354	354	421	656	1,509
Point	35	708	708	1,416	1,441	1,782	3,628
Point	50	1,441	1,455	1,441	3,412	3,783	6,324

a. Preliminary emission rate used in the Step A screening (Table 6-2)
b. Preliminary emission rate used in the Step A screening of the cluster analysis
m: meter(s)
tpy: tons per year

$Q_{threshold} = RfC / [P/Q]_{Tier\ 1}$

WHERE:

$Q_{threshold}$ = threshold emissions (tpy)

RfC = Reference Concentration (expressed in μg/m^3), and

$[P/Q]_{Tier\ 1}$ = normalized ambient concentration in Tier 1 (USEPA 1992c) lookup table (μg×m^{-3}/tpy)

Table 6-2. Number of Facilities with Total TRI-Reported Air Emissions of Certain Glycol Ethers Relative to 4.9 tpy (Step A)

Classification	No. Facilities (2009)	No. Facilities (2010)	No. Facilities (2011)
Less than 4.9 tpy	824	850	823
Equal to or Greater than 4.9 tpy	260	273	276
Total	1,084	1,123	1,099
Percent of Total Less than 4.9 tpy	76%	76%	75%

tpy: tons per year
Emissions Data Source: Toxics Release Inventory (TRI)

Table 6-3. Number of Facilities with Total Air Emissions of Certain Glycol Ethers Greater than Site-Specific Screening Values (Step B)

Classification	2009			2010			2011		
	Number of Facilities Screened	Number Screened Out[a]	Number Retained	Number of Facilities Screened	Number Screened Out	Number Retained	Number of Facilities Screened	Number Screened Out	Number Retained
Complete Site-Specific Data Received	35	21	14	34	20	14	31	18	13
Partial Site-Specific Data Received	4	4	0	4	3	1	4	3	1
Default Assumptions Used	221	220	1	235	235	0	241	241	0
Total	**260**	**245**	**15**	**273**	**258**	**15**	**276**	**262**	**14**

a. All facilities retained for additional screening following Step A in any of the 3 years were subjected to Step B screening.
Note that one facility retained from the 2009 TRI (Aurora Casket) was not subjected to additional Tier 1 screening because it is no longer operational.
Emissions Data Source: Toxics Release Inventory (TRI)
Note: Site-specific data employed:
1) Minimum stack release height (meters)
2) Minimum distance to property fenceline (meters)
3) Percent of certain glycol ethers released as ethylene glycol monobutyl ether (EGBE)

Table 6-4. Long-Term (Chronic Exposure) Tier 1 Modeling Results

Site Name	Source Type	2009 TRI		2010 TRI		2011 TRI	
		Maximum Annual Tier I EGBE Conc. (µg/m^3)	Long-Term HQ (combined)	Maximum Annual Tier I EGBE Conc. (µg/m^3)	Long-Term HQ (combined)	Maximum Annual Tier I EGBE Conc. (µg/m^3)	Long-Term HQ (combined)
[redacted]	Point	3654.7	**3**	3176.1	**2**	3553.4	**3**
	Volume	589.5		512.3		573.2	
	Point	104.4	0.4	87.5	0.4	74.7	0.4
	Volume	498.5		535.1		623.5	
	Point	2852.4	**2**	3056.1	**2**	2954.3	**2**
	Volume	651.8		688.0		675.9	
	Point	1753.1	**2**	1665.4	**2**	1598.8	**2**
	Volume	1526.5		1450.2		1392.2	
	Point	2885.0	**2**	3158.4	**3**	2214.1	**2**
	Volume	971.0		1070.7		882.0	
	Point	2268.3	**2**	2275.3	**2**	2099.0	**2**
	Volume	521.7		523.3		482.6	
	Point	1049.7	1	1364.6	1	1469.6	1
	Volume	718.4		413.1		431.0	
	Point	2743.0	**2**	2743.0	**2**	2848.5	**2**
	Volume	884.5		902.5		920.6	
	Point	1329.8	1	1354.2	1	1298.8	1
	Volume	451.3		463.9		440.1	
	Point	47.4	0.5	46.0	0.5	49.8	0.6
	Volume	823.6		799.2		865.6	
	Point	1833.0	**2**	1919.7	**2**	1998.5	**2**
	Volume	725.5		761.0		789.3	
	Point	1342.4	1	1395.9	1	691.5	0.6
	Volume	515.3		536.8		246.4	
	Point	1253.3	1	1171.5	1	1185.5	1
	Volume	608.1		568.4		575.2	
	Point	2068.4	**2**	1953.6	**2**	1950.4	1
	Volume	475.7		449.3		448.6	
	Point	1177.4	1	1336.4	1	1100.4	1
	Volume	579.7		659.1		542.7	

Hazard quotient (HQ) equals the sum of the maximum annual average concentration for fugitive/volume source emissions and point source emissions, at or beyond the fe
EGBE: ethylene glycol monobutyl ether
HQ: hazard quotient
RfC: reference concentration
TRI: Toxics Release Inventory
µg/m^3: micrograms per cubic meter
Bold text indicates an HQ greater than 1

Table 6-5. Long-Term (Chronic Exposure) Tier 2 Modeling Results (2009, 2010, and 2011 TRI Data)

Facility Name	City	State	Zip Code	2009 TRI		2010 TRI		2011 TRI	
				Maximum Predicted Annual Concentration (mg/m^3)[a]	Chronic HQ (combined fugitive and point)	Maximum Predicted Annual Concentration (mg/m^3)[a]	Chronic HQ (combined fugitive and point)	Maximum Predicted Annual Concentration (mg/m^3)[a]	Chronic HQ (combined fugitive and point)
[redacted]	Lawrence	MA	01843	1.20	0.7	1.04	0.6	1.16	0.7
	Williamsburg	VA	23185	0.54	0.3	0.58	0.4	0.56	0.4
	Weirton	WV	26062	0.28	0.2	0.26	0.2	0.25	0.2
	Winston-Salem	NC	27107	0.36	0.2	0.40	0.2	0.29	0.2
	Bishopville	SC	29010	0.89	0.6	0.89	0.6	0.83	0.5
	Columbus	OH	43213	0.46	0.3	0.56	0.3	0.60	0.4
	Findlay	OH	45840	0.28	0.2	0.28	0.2	0.29	0.2
	La Porte	IN	46350	0.25	0.2	0.25	0.2	0.24	0.1
	Owatonna	MN	55060	0.30	0.2	0.32	0.2	0.33	0.2
	Chicago	IL	60609	0.57	0.4	0.59	0.4	0.29	0.2
	Bradley	IL	60915	0.28	0.2	0.26	0.2	0.27	0.2
	Kent	WA	98032	1.08	0.7	1.02	0.6	1.02	0.6
	Olympia	WA	98501	0.47	0.3	0.54	0.3	0.44	0.3

*: Rexam Chicago facility was screened out from further analysis for the 2011 data following Step B.

a. Concentrations include point and volume/fugitive source emissions. For point sources, the result for the individual stack at the facility with the maximum predicted concentration is shown at that

HQ: hazard quotient. Maximum Predicted Annual Concentrations/RfC

mg/m^3: milligrams per cubic meter

RfC: Reference concentration (1.6 mg/m^3)

TRI: Toxics Release Inventory

Table 6-6. ZIP Codes with More than One Facility Reporting Air Emissions of Certain Glycol Ethers to the TRI in 2009 through 2011

ZIP	City	State	Number of Facilities			Total Reported Emissions (tpy)		
			2009	2010	2011	2009	2010	2011
00985	Carolina	Puerto Rico	2	2	2	30.2	27.7	24.3
01843	Lawrence	Massachusetts	2	2	NA	72.2	62.7	NA
01950	Newburyport	Massachusetts	NA	NA	2	NA	NA	0.1
02021	Canton	Massachusetts	2	2	2	0.4	0.4	0.4
07001	Avenel	New Jersey	2	2	2	1.2	1.3	1.2
07036	Linden	New Jersey	2	NA	NA	0.0	NA	NA
07105	Newark	New Jersey	NA	NA	2	NA	NA	0.3
12866	Saratoga Springs	New York	2	NA	2	24.2	NA	23.1
16148	Hermitage	Pennsylvania	NA	2	2	NA	2.3	2.4
16323	Franklin	Pennsylvania	2	2	2	11.4	11.9	8.7
17331	Hanover	Pennsylvania	2	2	2	37.4	37.7	33.3
17402	York	Pennsylvania	NA	2	2	NA	1.2	1.1
17601	Lancaster	Pennsylvania	2	2	2	12.8	11.5	17.0
17603	Lancaster	Pennsylvania	2	NA	NA	1.7	NA	NA
19067	Morrisville	Pennsylvania	2	NA	2	0.4	NA	1.3
19605	Reading	Pennsylvania	2	2	2	0.3	0.3	0.3
19904	Dover	Delaware	2	2	2	6.5	4.0	2.6
26062	Weirton	West Virginia	5	5	5	149.5	132.2	110.1
27261	High Point	North Carolina	3	2	NA	0.8	0.3	NA
27320	Reidsville	North Carolina	2	2	2	77.1	94.6	102.1
27409	Greensboro	North Carolina	2	2	2	0.1	0.2	0.1
27703	Durham	North Carolina	2	2	2	5.6	6.6	0.2
28273	Charlotte	North Carolina	4	3	5	2.3	2.7	3.0
29605	Greenville	South Carolina	NA	NA	2	NA	NA	0.4
29644	Fountain Inn	South Carolina	2	2	2	0.2	0.1	0.1
29730	Rock Hill	South Carolina	2	2	2	0.3	0.1	0.2
30043	Lawrenceville	Georgia	2	2	2	0.9	2.3	2.7
30062	Marietta	Georgia	2	2	2	0.4	0.4	0.5
30253	Mc Donough	Georgia	2	3	4	8.8	20.5	20.5
30260	Morrow	Georgia	2	2	2	0.4	0.4	0.4
32254	Jacksonville	Florida	NA	2	2	NA	35.0	25.6
32837	Orlando	Florida	NA	2	2	NA	2.0	1.6
33760	Clearwater	Florida	2	2	NA	0.5	0.4	NA
35064	Fairfield	Alabama	2	2	2	3.7	3.6	2.7
35234	Birmingham	Alabama	2	2	NA	11.6	10.3	NA
35401	Tuscaloosa	Alabama	3	3	NA	0.8	0.9	NA
37355	Manchester	Tennessee	NA	2	2	NA	20.6	34.6
38024	Dyersburg	Tennessee	2	2	NA	6.4	1.5	NA
38109	Memphis	Tennessee	NA	3	2	NA	0.1	0.0
38113	Memphis	Tennessee	3	3	2	7.1	3.4	1.8
38118	Memphis	Tennessee	2	NA	NA	0.0	NA	NA
38606	Batesville	Mississippi	2	2	2	29.5	25.7	26.0
38654	Olive Branch	Mississippi	3	NA	NA	92.2	NA	NA
39272	Jackson	Mississippi	2	2	2	18.7	15.0	15.4
40210	Louisville	Kentucky	2	2	4	1.7	1.9	4.1
42101	Bowling Green	Kentucky	2	2	2	1.0	1.1	1.2
43015	Delaware	Ohio	2	2	2	0.1	0.1	0.1
43207	Columbus	Ohio	2	2	2	0.1	0.1	0.1
43537	Maumee	Ohio	2	2	2	0.8	1.0	1.0
43607	Toledo	Ohio	2	2	2	11.3	17.2	16.8
43612	Toledo	Ohio	3	3	3	12.5	15.4	29.3

Table 6-6. ZIP Codes with More than One Facility Reporting Air Emissions of Certain Glycol Ethers to the TRI in 2009 through 2011

ZIP	City	State	Number of Facilities			Total Reported Emissions (tpy)		
			2009	2010	2011	2009	2010	2011
43615	Toledo	Ohio	2	2	2	1.1	1.0	1.2
44062	Middlefield	Ohio	NA	2	NA	NA	0.2	NA
44077	Painesville	Ohio	2	2	2	0.3	0.8	1.1
44087	Twinsburg	Ohio	2	2	2	0.3	0.3	0.3
44109	Cleveland	Ohio	2	2	2	0.1	0.1	0.3
44483	Warren	Ohio	2	2	2	21.7	19.4	22.3
45036	Lebanon	Ohio	NA	2	NA	NA	3.8	NA
45365	Sidney	Ohio	2	2	2	15.8	17.7	24.0
45840	Findlay	Ohio	2	2	2	177.3	177.4	182.0
46135	Greencastle	Indiana	2	NA	2	3.2	NA	6.9
46225	Indianapolis	Indiana	2	2	NA	0.0	0.1	NA
46320	Hammond	Indiana	2	2	2	6.0	6.3	5.9
46350	La Porte	Indiana	2	2	2	72.0	76.1	72.4
46540	Middlebury	Indiana	NA	2	2	NA	4.0	6.1
46705	Ashley	Indiana	NA	2	NA	NA	10.1	NA
46721	Butler	Indiana	2	2	NA	31.0	29.8	NA
47331	Connersville	Indiana	2	2	2	0.1	0.1	0.1
47905	Lafayette	Indiana	3	3	3	23.3	37.7	32.3
47933	Crawfordsville	Indiana	2	2	2	23.7	26.1	28.2
48091	Warren	Michigan	3	3	3	7.0	6.2	9.4
48121	Dearborn	Michigan	3	3	3	88.8	66.5	66.2
48174	Romulus	Michigan	NA	2	2	NA	0.2	0.2
48184	Wayne	Michigan	2	3	2	8.6	11.6	6.2
48192	Wyandotte	Michigan	2	2	2	2.4	3.1	3.1
48211	Detroit	Michigan	2	2	2	4.1	3.6	2.8
48220	Ferndale	Michigan	2	2	2	0.0	0.0	0.1
48312	Sterling Heights	Michigan	2	2	2	2.2	1.7	5.0
48341	Pontiac	Michigan	2	NA	NA	3.5	NA	NA
48359	Lake Orion	Michigan	NA	NA	2	NA	NA	4.0
53014	Chilton	Wisconsin	NA	NA	2	NA	NA	11.5
53027	Hartford	Wisconsin	2	2	2	23.2	21.7	20.6
53051	Menomonee Falls	Wisconsin	3	4	4	5.8	5.5	6.1
53066	Oconomowoc	Wisconsin	NA	NA	2	NA	NA	7.1
53095	West Bend	Wisconsin	2	2	2	0.3	0.3	0.2
53154	Oak Creek	Wisconsin	2	3	3	15.9	46.0	54.2
53177	Sturtevant	Wisconsin	2	2	3	0.5	0.5	0.8
53223	Milwaukee	Wisconsin	2	2	NA	0.4	0.3	NA
53224	Milwaukee	Wisconsin	3	3	3	51.7	47.4	44.4
53913	Baraboo	Wisconsin	NA	NA	2	NA	NA	30.1
54143	Marinette	Wisconsin	2	NA	NA	3.2	NA	NA
54220	Manitowoc	Wisconsin	NA	NA	2	NA	NA	2.6
60007	Elk Grove Village	Illinois	6	6	6	8.4	12.3	9.9
60090	Wheeling	Illinois	2	2	2	0.2	0.2	0.2
60174	Saint Charles	Illinois	2	2	2	2.4	1.4	1.3
60178	Sycamore	Illinois	NA	2	2	NA	10.6	7.4
60410	Channahon	Illinois	2	NA	NA	0.0	NA	NA
60411	Chicago Heights	Illinois	2	2	2	31.5	37.6	36.2
60426	Harvey	Illinois	2	2	2	16.2	25.9	7.2
60439	Lemont	Illinois	2	2	2	0.1	0.1	0.1
60455	Bridgeview	Illinois	2	2	2	8.4	9.5	8.5
60501	Bedford Park	Illinois	2	NA	NA	0.5	NA	NA

Table 6-6. ZIP Codes with More than One Facility Reporting Air Emissions of Certain Glycol Ethers to the TRI in 2009 through 2011

ZIP	City	State	Number of Facilities			Total Reported Emissions (tpy)		
			2009	2010	2011	2009	2010	2011
60510	Batavia	Illinois	3	3	3	0.8	1.1	2.2
60517	Woodridge	Illinois	2	NA	NA	0.0	NA	NA
60608	Chicago	Illinois	2	2	2	9.9	14.4	3.4
60609	Chicago	Illinois	2	2	2	91.1	111.1	67.1
60623	Chicago	Illinois	3	3	3	24.7	48.0	46.1
60632	Chicago	Illinois	NA	2	2	NA	6.6	8.9
60633	Chicago	Illinois	2	2	2	1.1	1.6	1.2
60803	Alsip	Illinois	NA	NA	2	NA	NA	19.0
61104	Rockford	Illinois	2	NA	NA	1.2	NA	NA
61265	Moline	Illinois	2	2	2	1.7	1.6	1.6
62040	Granite City	Illinois	NA	2	2	NA	6.0	5.8
62201	Sauget	Illinois	NA	2	2	NA	0.0	0.0
63043	Maryland Heights	Missouri	2	NA	NA	2.1	NA	NA
63077	Saint Clair	Missouri	2	2	2	0.3	0.7	0.1
63111	Saint Louis	Missouri	2	2	NA	0.2	0.2	NA
63147	Saint Louis	Missouri	2	2	2	0.3	0.3	0.3
64116	North Kansas City	Missouri	3	3	3	4.8	2.9	2.9
65708	Monett	Missouri	NA	2	NA	NA	11.2	NA
65712	Mount Vernon	Missouri	2	2	NA	12.8	11.7	NA
66106	Kansas City	Kansas	2	2	2	0.2	0.2	0.2
67219	Wichita	Kansas	NA	2	2	NA	6.1	5.9
68701	Norfolk	Nebraska	2	2	2	11.5	10.4	10.4
70560	New Iberia	Louisiana	NA	2	2	NA	1.6	1.9
70765	Plaquemine	Louisiana	2	2	NA	0.6	1.9	NA
70776	Saint Gabriel	Louisiana	2	NA	NA	0.5	NA	NA
70805	Baton Rouge	Louisiana	2	2	2	0.4	0.8	0.1
72315	Blytheville	Arizona	NA	NA	2	NA	NA	12.0
72764	Springdale	Arizona	NA	NA	2	NA	NA	12.1
72764	Springdale	Arkansas	2	2	NA	12.9	10.0	NA
73036	El Reno	Oklahoma	NA	2	2	NA	7.8	7.7
74063	Sand Springs	Oklahoma	NA	2	2	NA	0.2	0.1
74075	Stillwater	Oklahoma	2	2	2	4.9	2.3	3.5
74601	Ponca City	Oklahoma	2	2	NA	24.0	20.6	NA
75006	Carrollton	Texas	2	3	3	3.2	2.3	2.3
75041	Garland	Texas	3	3	4	0.2	0.2	0.2
75149	Mesquite	Texas	NA	NA	2	NA	NA	2.0
75165	Waxahachie	Texas	4	2	NA	0.7	0.1	NA
75501	Texarkana	Texas	2	NA	NA	0.6	NA	NA
75604	Longview	Texas	NA	NA	2	NA	NA	52.5
75662	Kilgore	Texas	NA	2	2	NA	0.1	0.1
75901	Lufkin	Texas	2	2	2	2.2	2.3	1.8
76011	Arlington	Texas	2	2	2	4.7	1.5	3.4
76063	Mansfield	Texas	NA	NA	2	NA	NA	0.6
77041	Houston	Texas	2	2	2	1.8	1.3	1.4
77051	Houston	Texas	2	2	2	1.1	1.0	0.8
77303	Conroe	Texas	2	2	3	18.9	18.8	49.7
77478	Sugar Land	Texas	NA	NA	2	NA	NA	31.5
77507	Pasadena	Texas	5	5	5	8.8	10.5	8.3
77571	La Porte	Texas	2	2	NA	4.8	2.1	NA
77630	Orange	Texas	NA	2	2	NA	0.3	0.3
77651	Port Neches	Texas	NA	2	2	NA	0.3	0.2

Table 6-6. ZIP Codes with More than One Facility Reporting Air Emissions of Certain Glycol Ethers to the TRI in 2009 through 2011

ZIP	City	State	Number of Facilities			Total Reported Emissions (tpy)		
			2009	2010	2011	2009	2010	2011
80216	Denver	Colorado	2	2	NA	0.0	0.0	NA
80550	Windsor	Colorado	2	2	2	57.5	55.0	54.3
85043	Phoenix	Arizona	2	NA	NA	39.8	NA	NA
90670	Santa Fe Springs	California	5	5	5	0.8	0.8	0.7
90810	Carson	California	2	2	2	0.3	0.4	0.4
91311	Chatsworth	California	3	3	3	54.6	44.4	29.0
91730	Rancho Cucamonga	California	2	3	3	0.4	1.4	1.3
92335	Fontana	California	2	2	2	2.0	1.0	0.4
92704	Santa Ana	California	2	NA	NA	0.0	NA	NA
93308	Bakersfield	California	NA	2	NA	NA	0.0	NA
94533	Fairfield	California	4	4	4	45.7	29.0	30.8
95824	Sacramento	California	NA	NA	2	NA	NA	5.2
97203	Portland	Oregon	2	2	2	3.5	4.1	3.2
97210	Portland	Oregon	NA	2	NA	NA	0.1	NA
98108	Seattle	Washington	2	2	2	3.0	0.2	0.2

tpy: tons per year
NA: no releases reported
TRI: toxics release inventory

Table 6-7. ZIP Codes and Facilities Identified for Dispersion Modeling Following Step B Screening

Facility	City	State	ZIP	Total Air (tpy) 2009 TRI	2010 TRI	2011 TRI
[redacted]	Chicago	IL	60609	26	43	34
[redacted]	Chicago	IL	60609	65	68	33
Cumulative Zip Code Emissions				**91**	**111**	67
[redacted]	Findlay	OH	45840	23	22	22
[redacted]	Findlay	OH	45840	155	155	161
Cumulative Zip Code Emissions				**177**	**177**	**182**
[redacted]	La Porte	IN	46350	5	8	7
[redacted]	La Porte	IN	46350	67	68	65
Cumulative Zip Code Emissions				72	**76**	72
[redacted]	Weirton	WV	26062	2	2	0.4
[redacted]	Weirton	WV	26062	37	23	13
[redacted]	Weirton	WV	26062	101	96	92
[redacted]	Weirton	WV	26062	6	7	3
[redacted]	Weirton	WV	26062	4	4	2
Cumulative Zip Code Emissions				**149**	**132**	**109**
[redacted]	Reidsville	NC	27320	77	95	102
[redacted]	Reidsville	NC	27320	0.05	0.05	0.05
Cumulative Zip Code Emissions[b]				77	**95**	**102**

[redacted] WV closed in September 2011 and has not reopened.

b. Zip code included because although 1 facility accounted for more than 90% of emissions, the conservative screening level was within 10% of the RfC.

Note: TRI Data are based on reported emissions of Certain Glycol Ethers, assuming that those are 100% ethylene glycol monobutyl ether.

Gray shading indicates zip codes that screened out from further analysis based on this screening. Cumulative

RfC: reference concentration (1.6 mg/m^3)

tpy: tons per year

TRI: Toxic Release Inventory

Table 6-8. Results of Chronic Tier 2 & 3 Modeling for Facility Clusters

Zip Codes	T2 AERMOD Modeling Result (Screening Met Data)		T3 AERMOD Modeling (Site-Specific Met Data)	
	Chronic Exposure (mg/m^3)	Chronic MOE[a]	Chronic Exposure (mg/m^3)	Chronic MOE[a]
2009				
Chicago, IL 60609	0.91	Out	0.11	15
Findlay, OH 45840	0.45	Out	--	--
La Porte, IN 46350	0.26	Out	--	--
Weirton, WV 26062	0.41	Out	0.16	10
Reidsville, NC 27320	0.57	Out	--	--
2010				
Chicago, IL 60609	1.16	Out	0.18	9
Findlay, OH 45840	0.45	Out	--	--
La Porte, IN 46350	0.27	Out	--	--
Weirton, WV 26062	0.32	Out	0.16	10
Reidsville, NC 27320	0.70	Out	--	--
2011				
Chicago, IL 60609	0.74	Out	0.14	11
Findlay, OH 45840	0.45	Out	--	--
La Porte, IN 46350	0.26	Out	--	--
Weirton, WV 26062	0.26	Out	0.15	10
Reidsville, NC 27320	0.74	Out	--	--

Basis: 2009, 2010, and 2011 TRI data

a. Chronic exposure results are compared to the Reference Concentration (RfC) of 1.6 mg/m^3. "Out" indicates the facility was screened out (concentration does not exceed the RfC) and "Retain" indicates the facility was not screened out.

b. The chronic MOE is determined by dividing the RfC by the estimated exposure concentration. It represents the factor by which the estimated exposure would have to increase to equal the RfC.

--: Zip code not subjected to sensitivity analysis using Tier 3 modeling.

mg/m^3: milligrams per cubic meter

MOE: margin of exposure

Table 6-9. Uncertainty Analysis
Long-Term (Chronic Exposure) Tier 3 Modeling for Selected Facilities (2009, 2010, and 2011 TRI Data)

Facility Name	City	State	Zip Code	2009 TRI		2010 TRI		2011 TRI	
				AERMOD Maximum Predicted Annual Average Concentration ($\mu g/m^3$)	Chronic HQ (combined fugitive and point)	AERMOD Maximum Predicted Annual Average Concentration ($\mu g/m^3$)	Chronic HQ (combined fugitive and point)	AERMOD Maximum Predicted Annual Average Concentration ($\mu g/m^3$)	Chronic HQ (combined fugitive and point)
[redacted]	Lawrence	MA	01843	261.9	0.2	228.7	0.1	255.9	0.2
	Kent	WA	98032	269.4	0.2	253.4	0.2	253.0	0.2
	Bishopville	SC	29010	153.1	0.1	149.4	0.09	137.8	0.09
	Weirton	WV	26062	158.1	0.1	158.1	0.10	151.8	0.09
	Winston Salem	NC	27107	157.4	0.1	172.8	0.11	128.4	0.08
	Chicago	IL	60609	85.3	0.05	87.7	0.05	43.0	0.03

HQ: hazard quotient. Maximum Predicted Annual Concentrations/RfC
$\mu g/m^3$: micrograms per cubic meter
RfC: Reference concentration (1,600 $\mu g/m^3$)
TRI: Toxics Release Inventory
Modeling results based on 2009, 2010 and 2011 TRI data

Table 6-10. Comparison of Concentrations Using the Tiered Modeling Approach

Facility Name	2011 Tiered Modeling Results (mg/m^3)					Change in Maximum Impact				
	Step A Impact[a]	Step B Impact[b]	Tier 1 Impact	Tier 2 Impact	Tier 3 Impact	Step A to Step B	Step B to Tier 1	Tier 1 to Tier 2	Tier 2 to Tier 3	Step A to Tier 3
[redacted]	22.8	4.19	4.13	1.16	0.26	-82%	-2%	-72%	-78.0%	-98.9%
	15.7	1.90	0.70	0.08	-	-88%	-63%	-89%	--	--
	56.2	3.93	3.63	0.56	-	-93%	-8%	-84%	--	--
	30.0	6.01	2.99	0.25	0.15	-80%	-50%	-92%	-40.1%	-99.5%
	44.3	3.10	3.10	0.29	0.13	-93%	0%	-91%	-55.7%	-99.7%
	29.0	3.81	2.58	0.83	0.14	-87%	-32%	-68%	-83.3%	-99.5%
	26.7	2.18	1.90	0.60	-	-92%	-13%	-68%	--	--
	52.2	3.77	3.77	0.29	-	-93%	0%	-92%	--	--
	21.3	1.79	1.74	0.24	-	-92%	-3%	-86%	--	--
	8.4	3.11	0.92	0.14	-	-63%	-71%	-85%	--	--
	41.5	3.14	2.79	0.33	-	-92%	-11%	-88%	--	--
	10.8	1.47	0.94	0.29	0.043	-86%	-36.3%	-69%	-85.2%	-99.6%
	21.1	3.01	1.76	0.27	-	-86%	-41%	-85%	--	--
	27.0	3.54	2.40	1.02	0.25	-87%	-32%	-57%	-75.2%	-99.1%
	20.8	1.71	1.64	0.44	-	-92%	-4%	-73%	--	--

Note: The 2011 TRI data are shown here for illustrative purposes.

The percent changes in predicated concentrations are similar using 2009 and 2010 TRI data.

a. Step A impacts calculated based on Tier 1 lookup table assuming all air emissions are from point sourece, stack height is 0 m, receptor distance is 10 m, and all Certain Glycol Ether emissions are EGBE.
m: meter
mg/m^3: milligrams per cubic meter
TRI: Toxics Release Inventory

Table 6-11. Total TRI Air Emissions (Fugitive and Point-Source Air) by Year for Selected Facilities

Facility and City	TRI Total Air Emissions (tpy)												Factor by Which Max 2000-2011 Emissions Exceed Recent TRI Emissions			Max Tier 3 Impacts (mg/m3)[a]
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2009	2010	2011	
[redacted]	**127.7**	125.2	125.1	124.4	105.4	124.2	103.6	76.4	70.9	70.0	76.5	82.0	1.8	1.7	1.6	--
	174.5	170.5	167.0	130.5	118.5	130.0	130.0	154.0	153.5	154.5	155.0	160.5	1.1	1.1	1.1	--
	205.0	189.0	178.5	171.0	164.5	144.5	143.5	179.5	167.0	167.0	178.5	173.0	1.2	1.1	1.2	--
	79.5	85.5	85.5	89.5	82.4	**98.4**	96.0	78.6	68.0	68.6	64.1	64.8	1.4	1.5	1.5	--
	98.0	86.0	89.4	80.0	55.3	18.7	25.5	24.9	23.5	24.5	23.8	25.8	4.0	4.1	3.8	--
	89.5	**105.5**	103.2	91.5	91.5	96.0	91.8	56.4	74.4	72.2	62.7	70.2	1.5	1.7	1.5	0.262
	65.0	75.5	73.5	61.5	40.0	57.8	39.3	33.9	34.2	68.4	**77.7**	64.0	1.1	1.0	1.2	--
	25.0	41.5	31.5	**107.0**	103.9	75.9	91.1	101.1	106.2	101.1	96.1	92.2	1.1	1.1	1.2	0.158
	75.5	78.0	99.5	77.0	80.5	108.2	80.4	59.0	105.0	117.1	122.6	**127.6**	1.1	1.0	1.0	--
	95.8	**108.8**	108.3	104.9	97.6	89.8	102.0	90.0	103.0	96.5	96.8	89.3	1.1	1.1	1.2	0.153
	76.5	73.8	72.0	70.4	76.2	70.3	71.1	68.5	68.4	65.4	68.0	33.2	1.2	1.1	2.3	0.088
	81.0	**125.2**	80.4	53.7	48.4	68.0	89.0	92.3	61.5	88.0	83.1	82.9	1.4	1.5	1.5	0.269
	136.6	164.3	169.8	185.1	84.8	123.8	179.0	172.4	147.5	172.2	**188.8**	136.2	1.1	1.0	1.4	0.330
	81.2	72.5	56.0	65.0	62.0	58.0	63.5	65.8	61.5	67.0	68.4	65.4	1.2	1.2	1.2	--
	11.1	10.0	4.8	7.7	7.7	2.5	NR	NR	7.4	40.4	42.4	**48.3**	1.2	1.1	1.0	--

Note:
All emissions are for Certain Glycol Ethers as reported in the TRI
Bold indicates the year with the maximum reported Certain Glycol Ether emissions in the TRI from 2000-2011.
a. Maximum long-term Tier 3 impact from 2009, 2010, and 2011 (Table 6-8)
Max: Maximum
NR: not reported
TRI: Toxics Release Inventory
tpy: tons per year
--: Tier 3 modeling of facility emissions not conducted in this petition.

Table 6-12. Short-Term (Acute Exposure) Tier 1 Modeling Results

Site Name	Source Type	2009 TRI		2010 TRI		2011 TRI	
		Maximum 1-Hour Average Tier I EGBE Conc. (µg/m^3)	Short-Term HQ (combined)	Maximum 1-Hour Average Tier I EGBE Conc. (µg/m^3)	Short-Term HQ (combined)	Maximum 1-Hour Average Tier I EGBE Conc. (µg/m^3)	Short-Term HQ (combined)
[redacted]	Point	1674648.6	**18**	1455360.1	**15**	1628244.9	**17**
	Volume	25839.6		22455.8		25123.6	
	Point	4575.2	0.3	3835.5	0.3	3274.4	0.3
	Volume	21848.5		23455.4		27327.9	
	Point	1614548.3	**17**	1729873.2	**18**	1672210.7	**18**
	Volume	28567.5		30154.6		29625.6	
	Point	153263.2	**2**	145599.8	**2**	139775.7	**2**
	Volume	66907.0		63561.5		61019.1	
	Point	126797.7	**2**	138811.6	**2**	97310.1	1
	Volume	42558.5		46926.7		38656.2	
	Point	781664.4	**8**	784081.0	**8**	723321.2	**8**
	Volume	22865.5		22936.6		21153.3	
	Point	516703.7	**6**	671714.9	**7**	723385.2	**8**
	Volume	31488.0		18105.6		18892.8	
	Point	602446.2	**7**	602446.2	**7**	625617.2	**7**
	Volume	38766.6		39557.8		40348.9	
	Point	625779.2	**7**	637261.3	**7**	611214.0	**7**
	Volume	19778.9		20332.7		19289.9	
	Point	2071.7	0.4	2010.6	0.4	2177.7	0.4
	Volume	36099.6		35030.0		37941.4	
	Point	373793.1	**4**	391475.5	**4**	407543.5	**5**
	Volume	31796.9		33353.0		34594.6	
	Point	487099.1	**5**	506509.5	**5**	250922.0	**3**
	Volume	22587.1		23527.5		10798.1	
	Point	364345.2	**4**	340549.6	**4**	344624.2	**4**
	Volume	26654.8		24914.5		25212.3	
	Point	884003.8	**9**	834954.6	**9**	833594.9	**9**
	Volume	20850.7		19693.1		19661.5	
	Point	185857.0	**2**	210964.4	**2**	173700.7	**2**
	Volume	25408.8		28888.5		23785.3	

Hazard quotient (HQ) equals the sum of the maximum annual average concentration for fugitive/volume source emissions and point source emissions, at or beyond the fe
EGBE: ethylene glycol monobutyl ether
HQ: hazard quotient
RfC: reference concentration
TRI: Toxics Release Inventory
µg/m^3: micrograms per cubic meter

Table 6-13. Results of Acute Tier 2 & 3 Modeling for Facility Clusters

Zip Code and Facilities	T2 AERMOD Modeling Result (Screening Met Data)		T3 AERMOD Modeling (Site-Specific Met Data)	
	Acute Exposure (mg/m^3)	Acute MOE[a]	Acute Exposure (mg/m^3)	Acute MOE[a]
2009				
Chicago, IL 60609	39.7	Out	14.0	7
Findlay, OH 45840	19.7	Out	--	--
La Porte, IN 46350	11.4	Out	--	--
Weirton, WV 26062	18.4	Out	8.25	12
Reidsville, NC 27320	24.9	Out	--	--
2010				
Chicago, IL 60609	50.9	Out	23.5	4
Findlay, OH 45840	19.6	Out	--	--
La Porte, IN 46350	12.0	Out	--	--
Weirton, WV 26062	16.0	Out	7.84	12
Reidsville, NC 27320	30.6	Out	--	--
2011				
Chicago, IL 60609	32.4	Out	18.5	5
Findlay, OH 45840	19.7	Out	--	--
La Porte, IN 46350	11.4	Out	--	--
Weirton, WV 26062	13.5	Out	7.52	13
Reidsville, NC 27320	32.6	Out	--	--

Basis: 2009, 2010, and 2011 TRI data

a. Acute exposure results are compared to the no observed adverse effects level (NOAEL) of 97 mg/m^3. "Out" indicates the facility was screened out (concentration does not exceed the NOAEL) and "Retain" indicates the facility was not screened out.

b. The acute MOE is determined by dividing the NOAEL by the estimated exposure concentration. It represents the factor by which the estimated exposure would have to increase to equal the NOAEL.

-- : Zip code not subjected to sensitivity analysis using Tier 3 modeling.

mg/m^3: milligrams per cubic meter

MOE: margin of exposure

Table 6-14. Results of Short-Term Tier 2 & 3 Modeling and Acute MOE Analysis for Selected High Emitting Facilities

Facility	City	State	Zip	2009				2010				2011			
				Tier 2		Tier 3		Tier 2		Tier 3		Tier 2		Tier 3	
				Maximum 1-Hr Concentration (mg/m^3)[a]	Acute MOE[b]	Maximum 1-Hr Concentration (mg/m^3)[a]	Acute MOE[b]	Maximum 1-Hr Concentration (mg/m^3)[a]	Acute MOE[b]	Maximum 1-Hr Concentration (mg/m^3)[a]	Acute MOE[b]	Maximum 1-Hr Concentration (mg/m^3)[a]	Acute MOE[b]	Maximum 1-Hr Concentration (mg/m^3)[a]	Acute MOE[b]
[redacted]	Columbus	OH	43213	19.99	4.9	--	--	24.42	4.0	--	--	26.26	3.7	--	--
	Findlay	OH	45840	12.10	8.0	--	--	12.19	8.0	--	--	12.58	7.7	--	--
	Williamsburg	VA	23185	23.80	4.1	--	--	25.47	3.8	--	--	24.65	3.9	--	--
	Bradley	IL	60915	12.39	7.8	--	--	11.58	8.4	--	--	11.72	8.3	--	--
	Olympia	WA	98501	20.76	4.7	--	--	23.56	4.1	--	--	19.40	5.0	--	--
	Lawrence	MA	01843	52.41	1.9	15.24	6.4	45.54	2.1	13.24	7.3	50.95	1.9	14.82	6.5
	Weirton	WV	26062	12.16	8.0	8.24	12	11.55	8.4	7.83	12	11.09	8.7	7.52	13
	Owatonna	MN	55060	13.23	7.3	--	--	13.86	7.0	--	--	14.42	6.7	--	--
	Bishopville	SC	29010	39.05	2.5	9.06	11	39.17	2.5	9.09	11	36.13	2.7	8.38	12
	Chicago	IL	60609	24.75	3.9	4.16	23	25.74	3.8	4.33	22	12.69	7.6	2.12	46
	Kent	WA	98032	47.46	2.0	7.66	13	44.83	2.2	7.23	13	44.76	2.2	7.22	13
	Winston Salem	NC	27107	15.36	6.3	16.71	5.8	16.85	5.8	18.31	5.3	12.32	7.9	13.126	7.4
	LaPorte	IN	46350	10.76	9.0	--	--	10.97	8.8	--	--	10.51	9.2	--	--

Basis: 2009, 2010, and 2011 TRI data

a. Concentrations are the sum of the predicted maximum 1-hour concentration for (i) fugitive/volume source emissions and (ii) point source emissions, at or beyond the fence line.

b. To calculate the MOE, the no observed adverse effect level (NOAEL) for irritation in humans of 97 mg/m^3 is divided by the concentration from combined fugitive/volume and point source emissions.

--: Facility not subjected to sensitivity analysis using Tier 3 modeling.

mg/m^3: milligrams per cubic meter

MOE: margin of exposure

Table 7-1. Hazards from Surface Water Exposure to EGBE
Residential Scenario: Ingestion of EGBE in Drinking Water

Chemical	Cw Conc. in Water (mg/L)	IR Ingestion Rate (L/day)	EF Exposure Frequency (days/year)	ED Exposure Duration (years)	Ao Oral Abs. Factor (unitless)	BW Body Weight (kg)	AT Averaging Time (days)	ADI Average Daily Intake (mg/kg-day)	RfD Reference Dose (mg/kg-day)	HQ Hazard Quotient (unitless)
Hypothetical adolescent and adult (12+ years)										
EGBE	0.00020	2	350	18	1.0	70	6,570	0.00001	0.1	0.00005
Hypothetical child (6-12 years)										
EGBE	0.00020	2	350	7	1.0	30	2,555	0.00001	0.1	0.0001
Hypothetical young child (1-5 years)										
EGBE	0.00020	1	350	5	1.0	15	1,825	0.00001	0.1	0.0001

ADI = Cw x IR x EF x ED x Ao x (1/BW) x (1/AT)
HQ = ADI/RfD
EGBE: ethylene glycol monobutyl ether

Table 7-2. Hazards from Surface Water Exposure to EGBE
Residential Scenario: Dermal Contact with EGBE While Bathing and Showering

Chemical	DAevent Absorbed Dose (mg/cm²-event)	SA Skin Surface Area Exposed (cm^2)	EV Event Frequency (events/day)	EF Exposure Frequency (days/year)	ED Exposure Duration (years)	BW Body Weight (kg)	AT Averaging Time (days)	ADI Average Daily Intake (mg/kg-day)	RfD Reference Dose (mg/kg-day)	HQ Hazard Quotient (unitless)
Hypothetical adolescent and adult (12+ years)										
EGBE	3.6E-10	23,000	1	350	18	70	6,570	0.0000001	0.1	0.000001
Hypothetical child (6-12 years)										
EGBE	3.6E-10	12,914	1	350	7	30	2,555	0.0000001	0.1	0.000001
Hypothetical young child (1-5 years)										
EGBE	3.6E-10	7,446	1	350	5	15	1,825	0.0000002	0.1	0.000002

$ADI = DA_{event} \times SA \times EV \times EF \times ED \times (1/BW) \times (1/AT)$

HQ = ADI/RfD

EGBE: ethylene glycol monobutyl ether

Table 7-3. Hazards from Surface Water Exposure to EGBE
Recreational Scenario: Incidental Ingestion of EGBE in Surface Water While Swimming

Hypothetical adolescent and adult (12+ years)

Chemical	**Cw** Conc. in Water (mg/L)	**IR** Ingestion Rate (L/day)	**EF** Exposure Frequency (days/year)	**ED** Exposure Duration (years)	**Ao** Oral Abs. Factor (unitless)	**BW** Body Weight (kg)	**AT** Averaging Time (days)	**ADI** Average Daily Intake (mg/kg-day)	**RfD** Reference Dose (mg/kg-day)	**HQ** Hazard Quotient (unitless)
EGBE	0.00020	0.13	36	18	1.0	70	6,570	0.00000004	0.1	0.0000004

Hypothetical child (6-12 years)

Chemical	**Cw** Conc. in Water (mg/L)	**IR** Ingestion Rate (L/day)	**EF** Exposure Frequency (days/year)	**ED** Exposure Duration (years)	**Ao** Oral Abs. Factor (unitless)	**BW** Body Weight (kg)	**AT** Averaging Time (days)	**ADI** Average Daily Intake (mg/kg-day)	**RfD** Reference Dose (mg/kg-day)	**HQ** Hazard Quotient (unitless)
EGBE	0.00020	0.13	108	7	1.0	30	2,555	0.0000003	0.1	0.000003

Hypothetical young child (1-5 years)

Chemical	**Cw** Conc. in Water (mg/L)	**IR** Ingestion Rate (L/day)	**EF** Exposure Frequency (days/year)	**ED** Exposure Duration (years)	**Ao** Oral Abs. Factor (unitless)	**BW** Body Weight (kg)	**AT** Averaging Time (days)	**ADI** Average Daily Intake (mg/kg-day)	**RfD** Reference Dose (mg/kg-day)	Hazard (unitless)
EGBE	0.00020	0.13	36	5	1.0	15	1,825	0.0000002	0.1	0.0000017

ADI = Cw x IR x EF x ED x Ao x (1/BW) x (1/AT)
HQ = ADI/RfD
EGBE: ethylene glycol monobutyl ether

Table 7-4. Hazards from Surface Water Exposure to EGBE
Recreational Scenario: Dermal Contact with EGBE in Surface Water While Swimming

Hypothetical adolescent and adult (12+ years)

Chemical	**DAevent** Absorbed Dose (mg/cm²-event)	**SA** Skin Surface Area Exposed (cm^2)	**EV** Event Frequency (events/day)	**EF** Exposure Frequency (days/year)	**ED** Exposure Duration (years)	**BW** Body Weight (kg)	**AT** Averaging Time (days)	**ADI** Average Daily Intake (mg/kg-day)	**RfD** Reference Dose (mg/kg-day)	**HQ** Hazard Quotient (unitless)
EGBE	3.6E-10	23,000	3	36	18	70	6,570	3.5E-08	0.1	0.0000003

Hypothetical child (6-12 years)

Chemical	**DAevent** Absorbed Dose (mg/cm²-event)	**SA** Skin Surface Area Exposed (cm^2)	**EV** Event Frequency (events/day)	**EF** Exposure Frequency (days/year)	**ED** Exposure Duration (years)	**BW** Body Weight (kg)	**AT** Averaging Time (days)	**ADI** Average Daily Intake (mg/kg-day)	**RfD** Reference Dose (mg/kg-day)	**HQ** Hazard Quotient (unitless)
EGBE	3.6E-10	12,914	3	108	7	30	2,555	1.4E-07	0.1	0.0000014

Hypothetical young child (1-5 years)

Chemical	**DAevent** Absorbed Dose (mg/cm²-event)	**SA** Skin Surface Area Exposed (cm^2)	**EV** Event Frequency (events/day)	**EF** Exposure Frequency (days/year)	**ED** Exposure Duration (years)	**BW** Body Weight (kg)	**AT** Averaging Time (days)	**ADI** Average Daily Intake (mg/kg-day)	**RfD** Reference Dose (mg/kg-day)	Hazard (unitless)
EGBE	3.6E-10	7,446	3	36	5	15	1,825	5.3E-08	0.1	0.0000005

$ADI = DA_{event} \times SA \times EV \times EF \times ED \times (1/BW) \times (1/AT)$

HQ = ADI/RfD

EGBE: ethylene glycol monobutyl ether

Table 7-5. Summary of Hazards from Surface Water Exposures to EGBE

Scenario	Age Group	Pathway Ingestion	Pathway Dermal Contact	Hazard Quotient
Residential				
	Adolescent and adult (12+ years)	0.00005	0.000001	0.0001
	Child (6-12 years)	0.0001	0.000001	0.0001
	Young Child (1-5 years)	0.0001	0.000002	0.0001
	30-year lifetime	0.0003	0.000004	0.0003
Recreational				
	Adolescent and adult (12+ years)	0.0000004	0.0000003	0.000001
	Child (6-12 years)	0.000003	0.000001	0.00000
	Young Child (1-5 years)	0.000002	0.0000005	0.000002
	30-year lifetime	0.00000	0.000002	0.00001

Note: Hazard quotients less than 1 indicate that average daily intake is less than the reference dose and that negligible health effects are anticipated.

EGBE: ethylene glycol monobutyl ether

Table 7-6. Comparison of Hazards from Surface Water Exposures Predicted in HAPs Petition and This Petition

	HAPs Petition	This Petition
Maximum Exposed Individual	**Resident**	**Resident**
Concentration of EGBE in Water (mg/L)	0.13	0.00020
Predicted Ingestion Dose (mg/kg BW-day)	0.02	0.00001
Predicted Dermal Dose (mg/kg BW-day)	0.00004	0.0000002
Cumulative Predicted Dose (mg/kg BW-day)	0.02	0.00001
Reference Dose (mg/kg BW-day)	3	0.1
Maximum Hazard Quotient	0.007	0.0001

EGBE: ethylene glycol monobutyl ether
mg/L: milligrams per liter
mg/kg BW-day: milligrams per kilogram body weight per day

Table 8-1. EGBE Emissions Rates Used in Level III Mackay Distribution Model (kg/hr)

Receiving Media	CMA 1997 [a]	Updated Analysis with 2009 TRI data[b]	Updated Analysis with 2010 TRI data[b]	Updated Analysis with 2011 TRI data[bc]
Air	1,047	651	679	653
Soil	18	1.2	0.8	1.0
Water	292	3	3	5

a. CMA (1997) assumed 50 percent of Certain Glycol Ethers emitted was EGBE, based on 1996 TRI data.
b. These analyses assume 100 percent of Certain Glycol Ethers emitted were EGBE.
c. The emissions rates for 2011 are based on the preliminary 2011 TRI data, as acquired on September 12, 2012.
Air releases consisted of reported releases to "On-site Fugitive Air" and "On-site Point Source Air"
Soil releases consisted of reported releases to onsite and offsite "Land Treatment" and "Other Land Disposal"
Water releases consisted of reported releases to "On-site Surface Water Discharges."
EGBE: ethylene glycol monobutyl ether
kg/hr: kilograms per hour
TRI: Toxics Release Inventory

Table 8-2. Modeled EGBE Exposure Concentrations Used in This and Previous Ecological Risk Assessments

Environmental Media	CMA 1997 [a]	Cadmus 2000b Tier 1 [b]	Cadmus 2000a Tier 2 [c]	Updated Analysis 2009 TRI [d]	Updated Analysis 2010 TRI [d]	Updated Analysis 2011 TRI [de]	Units	Percent of Total EGBE (2011 TRI)[f]
Air	6.20E-05	3.27E-01	3.27E-01	3.82E-05	3.98E-05	3.83E-05	mg/m^3	2
Surface water	1.40E-03	3.84E+02	3.64E+00	1.90E-04	1.98E-04	1.93E-04	mg/L	18
Soil	1.30E-02	1.86E+01	7.00E-02	6.26E-03	6.53E-03	6.28E-03	mg/kg	80

a. The Level III Mackay model was used to determine equilibrium concentrations of EGBE in model environment receiving all national EGBE emissions from the 1996 TRI and assuming that 50 percent of all Certain Glycol Ethers are EGBE.

b. The Level I Mackay model was used to determine the equilibrium distribution of EGBE in the model environment (Cadmus 2000b). Concentrations were then scaled to the predicted worst-case fenceline concentration, based on CMA (1997) (Confidential Facility 25).

c. EQC Level III was used to determine the equilibrium distribution of EGBE in the model environment (Cadmus 2000a). Concentrations were scaled to same fenceline concentration as in Cadmus (2000b).

d. EQC Level III was used to determine the equilibrium concentrations of EGBE in model environment receiving all national emissions of Certain Glycol Ethers from TRI, assuming that all Certain Glycol Ethers are EGBE.

e. The emissions rates for 2011 are based on the preliminary 2011 TRI data, as acquired on September 12, 2012.

f. Percent of the total EGBE in each pool at equilibrium. Based on the modeled environment in EQC.

EGBE: ethylene glycol monobutyl ether

TRI: Toxics Release Inventory

mg/m^3: milligrams per cubic meter

mg/L: milligrams per liter

mg/kg: milligrams per kilogram

Table 8-3. EQC Level III Input Parameter Values

EGBE-Specific Input Parameters	Value	Units	Source
Molecular weight	118.17	g/mol	Merck 1989
Melting point	-75	°C	ASTER 1995
Water solubility[a]	5.67E+06	g/m^3	Calculated
Henry's law constant	2.11E-03	$Pa\text{-}m^3/mol$	Howard 1993, HSDB 1997
Vapor pressure[a]	101.32	Pa	HSDB 1997
Log K_{ow}	0.83	unitless	HSDB 1997
Reaction half lives			
Air	16	hr	PBT Profiler Ver. 1.301
Water	209	hr	PBT Profiler Ver. 1.301
Soil	408	hr	PBT Profiler Ver. 1.301
Sediment	1872	hr	PBT Profiler Ver. 1.301
EQC Model Parameters	**Value**	**Units**	
Total surface area	100,000	km^2	
Land surface area	90,000	km^2	
Water surface area	10,000	km^2	
Atmosphere depth	1,000	m	
Water depth	20	m	
Soil depth	0.2	m	
Sediment depth	0.05	m	
Organic carbon content			
Suspended solids	20%	unitless	
Soil	2%	unitless	
Sediment	4%	unitless	

a. values apply to the chemical at 20°C
EGBE: ethylene glycol monobutyl ether
EQC: Equilibrium Criteria Model
g/m^3: grams per cubic meter
g/mol: grams per mole
km^2: square kilometers
m: meter
$Pa\text{-}m^3/mol$: Pascal cubic meters per mole

Table 8-4. Exposure Assumptions for Small Mammals

Variable	Definition	Value	Units	Source
C_a	Concentration of EGBE in air	3.98E-05	mg/m^3	Table 8-2[a]
IR_a	Inhalation rate	1.2	m^3/kg BW-day	EPA 1993a
C_w	Concentration of EGBE in water	1.98E-04	mg/L	Table 8-2[a]
IR_w	Water ingestion rate	0.21	kg/kg BW-day	EPA 1993a
IR_{diet}	Food ingestion rate	0.35	kg/kg BW-day	EPA 1993a
C_i	Concentration of EGBE			
	Soil (C_s)	6.53E-03	mg/kg	Table 8-2[a]
	Plants (C_p)	8.4E-02	mg/kg	$C_p = B_v \times C_s$
P_i	Proportion of Diet			
	Soil (P_s)	0.02	unitless	Cadmus 2000a
	Plants (P_p)	0.98	unitless	Cadmus 2000a
TDI	Total Daily Intake	0.029	mg/kg BW-day	Calculated[b]

a. Based on 2010 Toxics Release Inventory data
b. where:

$$TDI = (C_a \times IR_a \times 3) + (C_w \times IR_w) + IR_{diet} \times \sum_{i=1}^{N} (C_i \times P_i)$$

EGBE: ethylene glycol monobutyl ether
mg/m^3: milligrams p
m^3/kg BW-day: cubic meter per kilogram body weight per day
mg/L: milligrams per liter
kg/kg BW-day: kilograms per kilogram body weight per day
mg/kg: milligrams per kilogram
mg/kg BW-day: milligrams per kilogram body weight per day

Table 8-5. Chronic Species Sensitivity Distribution Calculations for EGBE

Group	Species	Endpoint [a]	Duration	LC50 (mg/L)	LC50 (log)	Calculated Distribution: Calc CV (log) [b]	Calculated Distribution: Calc CV (mg/L) [b]	Rank among all CVs	Percent Protected
Fish	mummichog	LC50	96 hr	6.7	0.826	-0.159	0.7	1	99.3
Fish	sheepshead minnow	LC50	96 hr	116	2.064	0.761	5.8	3	90.6
Fish	bluegill	LC50	96 hr	127	2.104	0.790	6.2	4	86.3
Fish	emerald shiner	LC50	72 hr	500	2.699	1.232	17.1	8	76.3
Fish	rainbow trout	LC50	96 hr	1000	3.000	1.456	28.6	9	71.9
Fish	inland silverside	LC50	96 hr	1250	3.097	1.528	33.7	10	69.8
Fish	golden ide	LC50	48 hr	1395	3.145	1.563	36.6	12	61.2
Fish	bluegill	LC50	96 hr	1490	3.173	1.584	38.4	13	59.7
Fish	golden ide	LC50	48 hr	1575	3.197	1.602	40.0	14	58.3
Fish	goldfish	LC50	24 hr	1650	3.217	1.617	41.4	15	56.8
Fish	rainbow trout	LC50	96 hr	1700	3.230	1.627	42.4	16	54.7
Fish	goldfish	LC50	24 hr	1700	3.230	1.627	42.4	16	54.7
Fish	golden ide	LC50	48 hr	1880	3.274	1.659	45.6	18	50.4
Fish	fathead minnow	LC50	96 hr	2137	3.330	1.701	50.2	20	46.8
Fish	bluegill	LC50	96 hr	2950	3.470	1.805	63.8	23	36.0
		Mean vertebrate (weighted)		524.3	2.720	1.247	17.7		
		Standard deviation (weighted)		6.2	0.794	0.59	3.9		
Invertebrate	grass shrimp	LC50	96 hr	5.4	0.732	0.093	1.2	2	95.0
Invertebrate	oyster	LC50	96 hr	89	1.949	1.052	11.3	5	84.9
Invertebrate	white shrimp	LC50	96 hr	117	2.068	1.146	14.0	6	80.6
Invertebrate	white shrimp	LC50	96 hr	130	2.114	1.182	15.2	7	78.4
Invertebrate	brown shrimp	LC50	96 hr	550	2.740	1.676	47.4	19	48.9
Invertebrate	coelenterate	LC50	72 hr	690	2.839	1.753	56.6	21	42.4
Invertebrate	brown shrimp	LC50	96 hr	698	2.844	1.757	57.2	22	38.1
Invertebrate	water flea	LC50	48 hr	835	2.922	1.818	65.8	24	34.5
Invertebrate	water flea	EC50	48 hr	1600	3.204	2.041	109.9	26	28.1
		Mean invertebrate acute (weighted)		175.6	2.244	1.285	19.3		
		Standard deviation (weighted)		6.7	0.825	0.65	4.5		
Algae/microbes	cyanobacterium	LOEC	8 day	na	na	1.544	35	11	65.5
Algae/microbes	protozoan	LOEC	72 hr	na	na	1.959	91	25	32.4
Algae/microbes	green alga	LOEC	7 day	na	na	2.398	250	27	25.9
Algae/microbes	algae	NOEC	72 hr	na	na	2.456	286	28	21.6
Algae/microbes	protozoan	EC05	48 hr	na	na	2.666	463	29	17.3
Algae/microbes	bacterium	LOEC	16 hr	na	na	2.845	700	30	12.9
Algae/microbes	green alga	LOEC	7 day	na	na	2.954	900	31	8.6
Algae/microbes	protozoan	EC05	48 hr	na	na	2.960	911	32	4.3

a. All algae endpoints are growth
b. Algae/microbe chronic values are as reported in the literature; they are not calculated
CV: chronic value
EC05: concentration at which 5% of the population was affected
EC50: median effect concentration
EGBE: ethylene glycol monobutyl ether
LC50: median lethal concentration
LOEC: lowest observed effect concentration
mg/L: milligrams of EGBE per liter of water
na: not available/applicable
NOEC: no observed effect concentration

Table 9-1. Key Findings of the Qualitative Hazard Evaluation

Toxicity Endpoint	Summary Evaluation and Principal Reference
1. Acute Toxicity	Primary acute effects in humans are eye and nasal irritation at levels >500 mg/m^3 (Carpenter 1956); no irritation was found at current occupational exposure limits - 97 mg/m^3 (Johansen 1986). Facility fenceline and environmental concentrations are far lower.
2. Chronic Toxicity	Releases of EGBE "may not reasonably be anticipated to cause any adverse effects to human health" (EPA, 69 FR 69322).
a. Carcinogenicity	• "Limited" evidence of carcinogenicity in animals; the human carcinogenic potential of EGBE cannot be determined (IARC 2006). • Because nonlinear, nongenotoxic modes of action are likely responsible for the tumors observed in rodent studies, the IRIS RfD and RfC are adequately protective of any possible carcinogenic effects in humans. (EPA Cancer Evaluation [EPA 2005a])
b. Mutagenicity	Not expected to be mutagenic or clastogenic. (EPA 2010)
c. Developmental Toxicity	A "minimal" LOAEL for developmental effects = 700 mg/kg-day based on a very slight decrease in pup weight. (EPA 2010)
d. Reproductive Toxicity	700 and 1,300 mg/kg-day are considered to be NOAEL and LOAEL, respectively, for both maternal and reproductive effects. (EPA 2010)
e. Immunotoxicity	Not immunotoxic. (IRIS)
f. Other Chronic Toxicity	Continuous inhalation exposure to an EGBE-saturated atmosphere expected to result in maximum blood concentrations of EGBE's toxic metabolite (BAA) well below the level needed to produce hemolysis in humans. (Udden 2002, EPA 2010)
3. Environmental Toxicity	EGBE causes only "very minor" effects that "are unlikely to be ecologically significant" (EPA 2003 [68 Fed. Reg. 65657])
a. Persistence	• Readily biodegradable (ATSDR 1998) • Half-life = 1-4 weeks in water and soil
b. Bioaccumulation	• Bioconcentration factor = 3 (HSDB 1997) • Octanol-water partition coefficient (Log K_{ow}) = 0.8
c. Terrestrial Mammals and Birds	No Data. [Section 3.3, below]

Table 9-1. Key Findings of the Qualitative Hazard Evaluation

Toxicity Endpoint	Summary Evaluation and Principal Reference
d. Acute Aquatic Toxicity	• Most sensitive credible LC_{50} = 89 mg/L (Section 3.3, below) • Most LC_{50} values > 1000 mg/L
e. Chronic Aquatic Toxicity	• Most sensitive EC_{50} = 164 mg/L (Section 3.3, below) • Most sensitive LOAEL = 7.2 mg/L • Most LOAELs > 100 mg/L

EGBE: ethylene glycol monobutyl ether
EPA: U.S. Environmental Protection Agency
LOAEL: lowest observed adverse effect level
mg/kg: milligrams per kilogram
mg/kg-day: milligrams per kilogram body weight per day
mg/L: milligrams per liter
mg/m^3: milligrams per cubic meter
NOAEL: no observed adverse effect level
RfC: reference concentration
RfD: reference dose

Table 9-2. Key Findings of the Exposure and Risk Assessments

	HAPs Petition (1993 TRI Release Data)	This Petition (2009-2011 TRI Release Data)
1. Human Inhalation Exposures		
a. Chronic		
Maximum Annual Average Concentration (MAAC)	0.327 mg/m^3, based on Tier 3 (ISCST3) air dispersion modeling for the maximum impact facility.	All facilities screened out prior to chronic Tier 2 and 3 analyses. For subset of facilities that screened out in Tier 2, Tier 3 modeling was conducted to test the conservatism of this assessment found a predicted MAAC using Tier 3 (AERMOD) of 0.27 mg/m^3 based on 2009, 2010, and 2011 data.
RfC	13 mg/m^3	1.6 mg/m^3
Hazard Quotient (chronic)	0.02	≤ 0.2
b. Acute		
Maximum Hourly Average Concentration (MHAC)	n/a	For a subset of the highest emitting facilities, tiered modeling of acute exposures found a predicted MHAC using Tier 3 (AERMOD) of 3.9 mg/m3 based on the 2009, 2010, and 2011 data.
NOAEL (Irritation Based on Human Data)	n/a	97 mg/m^3
Margin of Exposure	n/a	> 25
2. Human Dermal and Ingestion Exposures		
Maximum Exposure	0.02 mg/kg BW-day	0.00001 mg/kg BW-day
RfD	3 mg/kg BW-day	0.1 mg/kg BW-day
Hazard Quotient	0.007	0.0001
3. Ecological Risk		
a. Small Mammals	(from Cadmus 2000a)	
Maximum Exposure	2.15 mg/kg BW-day	0.029 mg/kg BW-day
Toxicity Reference Value	20 mg/kg BW-day	20 mg/kg BW-day
Hazard Quotient	0.11	0.001
b. Aquatic Organisms	(from Cadmus 2000a)	
Maximum Exposure	3.64 mg/L	0.0002 mg/L
Toxicity Reference Value	9.1 mg/L	8.7 mg/L
Hazard Quotient	0.4	0.00002

mg/kg BW-day: milligrams per kilogram body weight per day
mg/L: milligrams per liter
mg/m^3: milligrams per cubic meter
RfC: IRIS reference concentration
RfD: IRIS reference dose
TRV: toxicity reference value

Table 9-3. Sources of Uncertainty and Conservatism

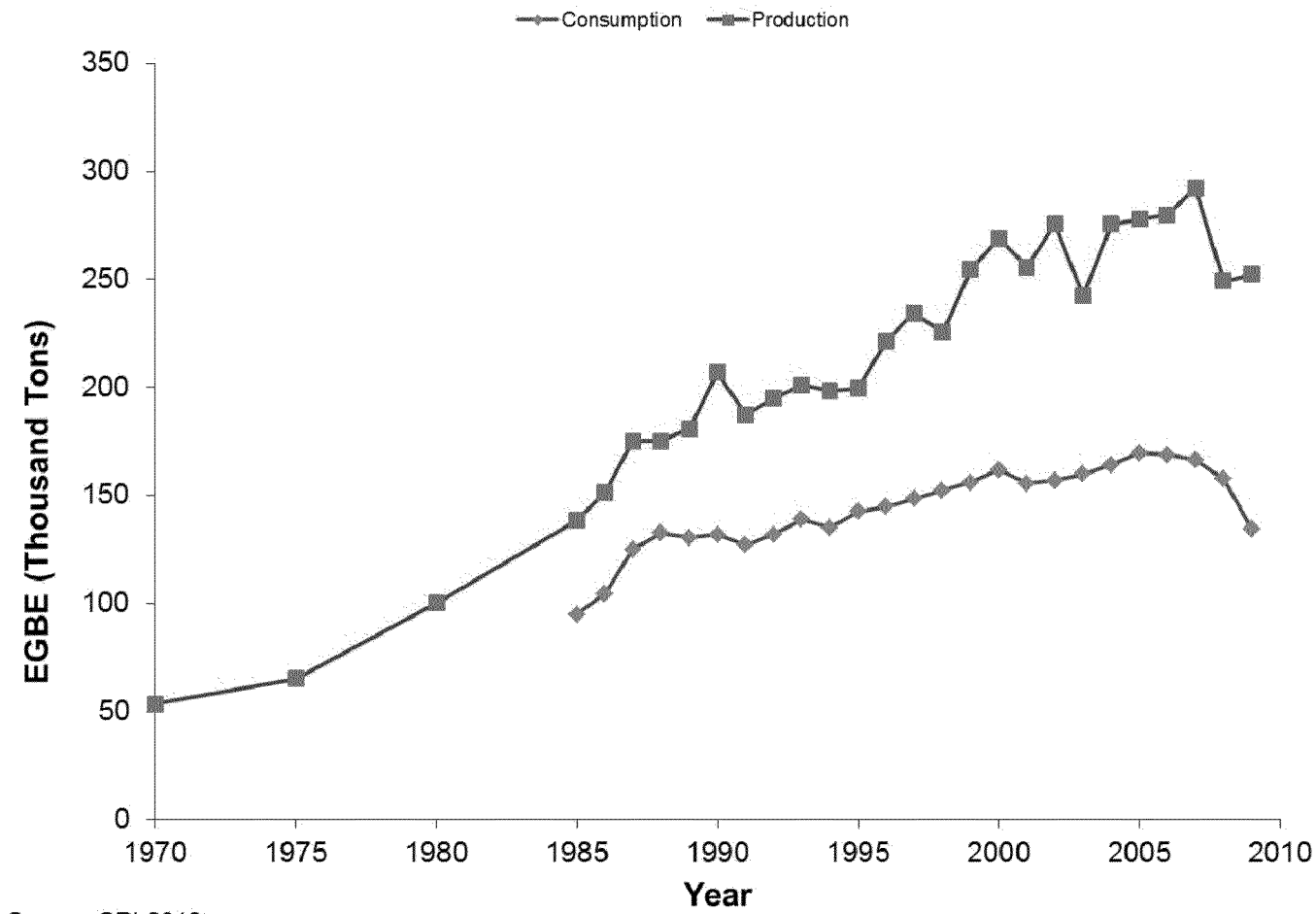
Section	Source of Uncertainty	Likely Effect on Outcome
3.0 Hazard Assessment		
	Humans are at least 100 times less sensitive than rats to hemolytic effects of EGBE. While a stand default interspecies UFs of 10 was not used - RfD uses UF of 1 and RfC uses UF of 3 – the actual interspecies factor is approximately 0.01.	RfD may be 100-fold overly conservative. RfC may be 300-fold overly conservative. Thus, HQs may be overestimated by a factor of 100 to 300.
	Intraspecies UF of 10 is probably overly conservative. A number of studies have found no evidence of increased susceptibility to hemolysis among sensitive subpopulations.	RfD and RfC may be overstated by an additional factor of 3 to 10.
	IARC (2006) concluded that the carcinogenicity of EGBE to humans cannot be determined and EPA (2010) concluded that carcinogenic effects from EGBE are not likely to occur in humans in the absence of critical noncancer effects.	EPA (2005) concluded that the RfD and RfC are adequately protective of carcinogenic effects in humans, if any. Thus, question of carcinogenicity does not affect petition outcome.
5.0 Emissions Inventory		
	TRI only lists releases of Certain Glycol Ethers. In the absence of specific data for EGBE releases, assumed all Certain Glycol Ethers releases were EGBE.	Because EGBE represents 52% of market share of ethylene glycol ethers (SRI 2010), actual releases of EGBE may be overestimated 2-fold, on average.
	TRI data are self-reported using a variety of methods. Individual facility data vary considerably in certainty.	Actual releases of Certain Glycol Ethers by facilities may be greater than or less than those reported on TRI. No evidence of systematic under-reporting.
6.0 Screening of Airborne Concentrations		
	a. <u>Chronic</u>	
	Step A assumed 100% of reported releases to air were exhausted through a single point 0 m high and 50 m from fence line. Resultant threshold rate (4.9 tpy) more conservative than that associated with 2 m high emission point located 10 m from fenceline (8.6 tpy), which encompasses virtually all facilities in inventory for which stack configuration data are available.	Maximum annual average concentrations predicted under Step A were up to 250-fold higher than those predicted using Tier 3 dispersion modeling. Thus, HQs predicted using Step A overestimated by 85-250 times.
	Tier 2 employed site-specific data on emission rates, stack and fugitive source physical parameters, and property boundaries. The maximum MAAC under Tier 2 was 1.2 mg/m^3, as compared to maximum MAAC under Tier 3 of 0.3 mg/m^3. Tier 2 results differed from Tier 3 results for the same facilities by factors of 1.2 to 6.7.	HQs predicted using Tier 2 overestimated by 2 times or more.
	Modeled maximum annual average concentration is highly conservative estimate of exposure over a lifetime.	Per EPA, actual maximum annual average concentrations are 2-fold lower than modeled values. Comparison of an annual average concentration to an RfC designed to be protective over a lifetime substantially overstates risk by an unknown margin.
	DEGREE OF CONSERVATISM ASSOCIATED WITH CHRONIC HUMAN INHALATION HAZARDS	(50 to 100) x (3 to 10) x 2 x (2 to 85) x ? = ***<u>600 to 170,000 or more</u>***
	b. <u>Acute</u>	
	The acute MOE based on the NOAEL of 97 mg/m^3 and the estimated reasonable worst-case estimated MHAC is approximately 18 mg/m^3. Because the NOAEL is derived from human data, per EPA TRI precedents MOEs >10 "indicate a low level of concern" for acute effects associated with EGBE facility releases.	An MOE above 5 is protective because EPA AEGL guidance calls for an interspecies uncertainty factor from 3-10 for non-systemic irritation effects, and an appropriate time-adjustment would support a 1-hr NOAEL of 137 mg/m^3.

Table 9-3. Sources of Uncertainty and Conservatism

Section	Source of Uncertainty	Likely Effect on Outcome
7.0 Surface Water Exposures and Risks		
	Exposure point concentrations in surface water calculated by assuming that 100% of U.S. releases of Certain Glycol Ethers to all media are EGBE and are concentrated into an area the size of the state of Ohio.	Because EGBE represents 52% of consumption of ethylene glycol ethers (SRI 2010), actual releases of EGBE may be overestimated 2-fold, on average. Because 100,000 km^2 represents 1.3% of total land area of U.S., actual concentrations of EGBE may be overestimated 77-fold.
	Exposure assumptions (350 day/yr, 70 years, all water contacted contains EGBE)	Actual exposure intensity likely to be considerably lower, but degree of conservatism cannot be quantified.
	DEGREE OF CONSERVATISM ASSOCIATED WITH HUMAN DERMAL AND INGESTION HAZARDS	(50 to 100) x (3 to 10) x 2 x 77 x ? = ***23,100 to 154,000 or more***
8.0 Ecological Risk Assessment		
	Exposure point concentrations in surface water calculated by assuming that 100% of U.S. releases of Certain Glycol Ethers to all media are EGBE and are concentrated into an area the size of the state of Ohio.	Actual releases of EGBE may be overestimated 2-fold, on average, and actual concentrations of EGBE may be overestimated 77-fold.
	Conservative exposure assumptions for small mammals (inhalation rate, ingestion rate, bioaccumulation factor) consistent with Cadmus (2000a)	Actual exposure intensity likely to be considerably lower, but degree of conservatism cannot be quantified.
	TRV for aquatic organisms based on most sensitive species tested, which may not be representative of aquatic community present in most U.S. water bodies	Although actual sensitivity of other aquatic organisms to EGBE may be considerably lower, degree of conservatism cannot be quantified.
	TRV for small mammals is based on same underlying data used to derive RfD. Thus, small mammal TRV shares same uncertainties as listed above with respect to Section 3.0.	TRV may be 50 to 1,000-fold overly conservative due to UFs.
	HQs focused on what EPA calls "very minor" effects on individual organisms, rather than effects that are likely to be ecologically significant.	Although individual organisms are likely to be substantially more sensitive than populations, communities, or ecosystems, degree of conservatism cannot be quantified.
	DEGREE OF CONSERVATISM ASSOCIATED WITH RISKS TO AQUATIC ORGANISMS	2 x 77 x ? = ***154 or more***
	DEGREE OF CONSERVATISM ASSOCIATED WITH RISKS TO SMALL MAMMALS	2 x 77 x (50 to 1,000) x ? = ***7,700 to 154,000 or more***

EGBE: ethylene glycol monobutyl ether
FR: Federal Register
HQ: hazard quotient
IRIS: Integrated Risk Information Service
km^2: square kilometer
m: meter
mg/m^3: milligrams per cubic meter
RfC: reference concentration
RfD: reference dose
tpy: tons per year
TRI: Toxics Release Inventory
TRV: toxicity reference value
UF: uncertainty factor
EPA: U.S. Environmental Protection Agency

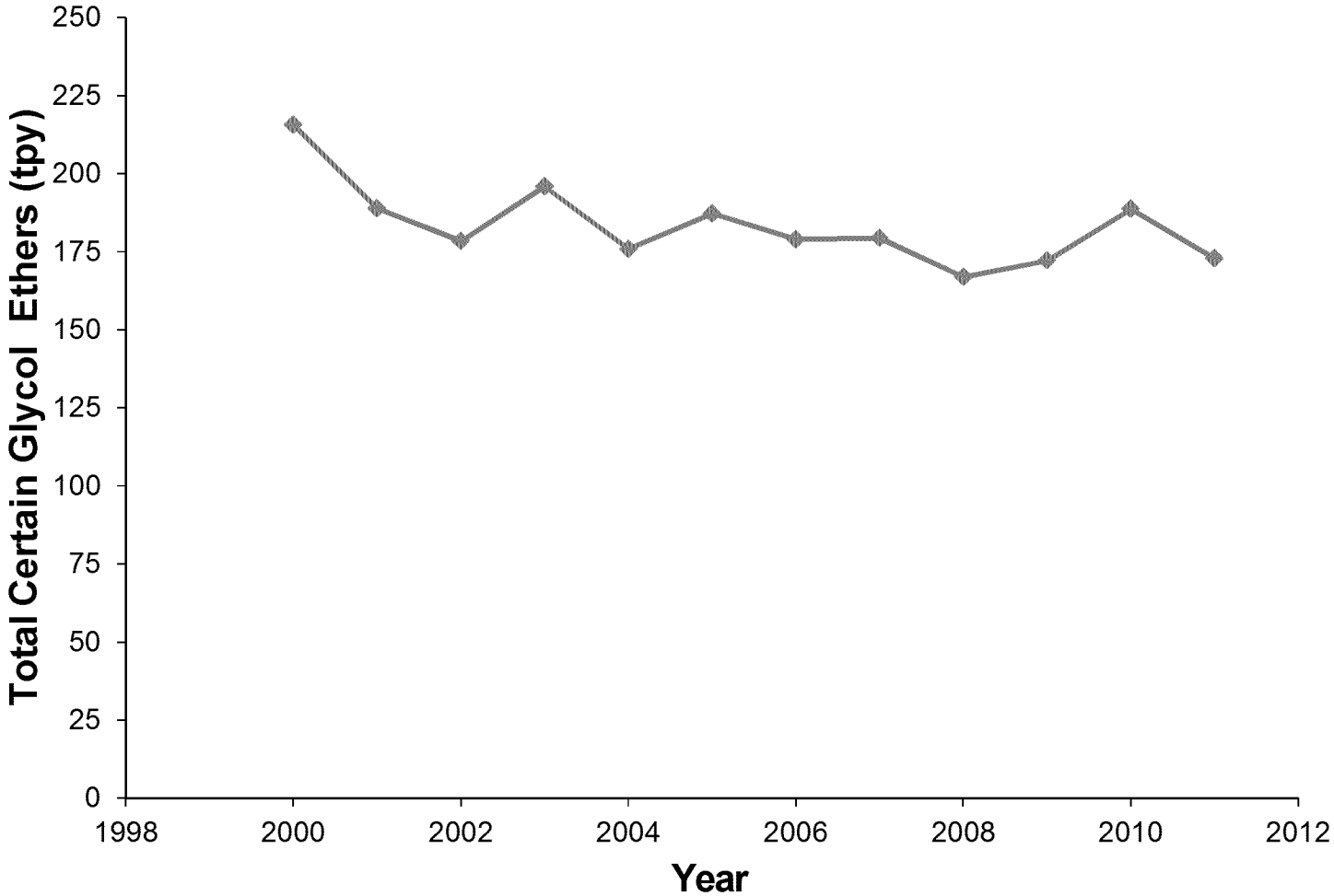
FIGURES



Source: SRI 2010

Annual Production and Consumption of EGBE in the United States (1970-2009)

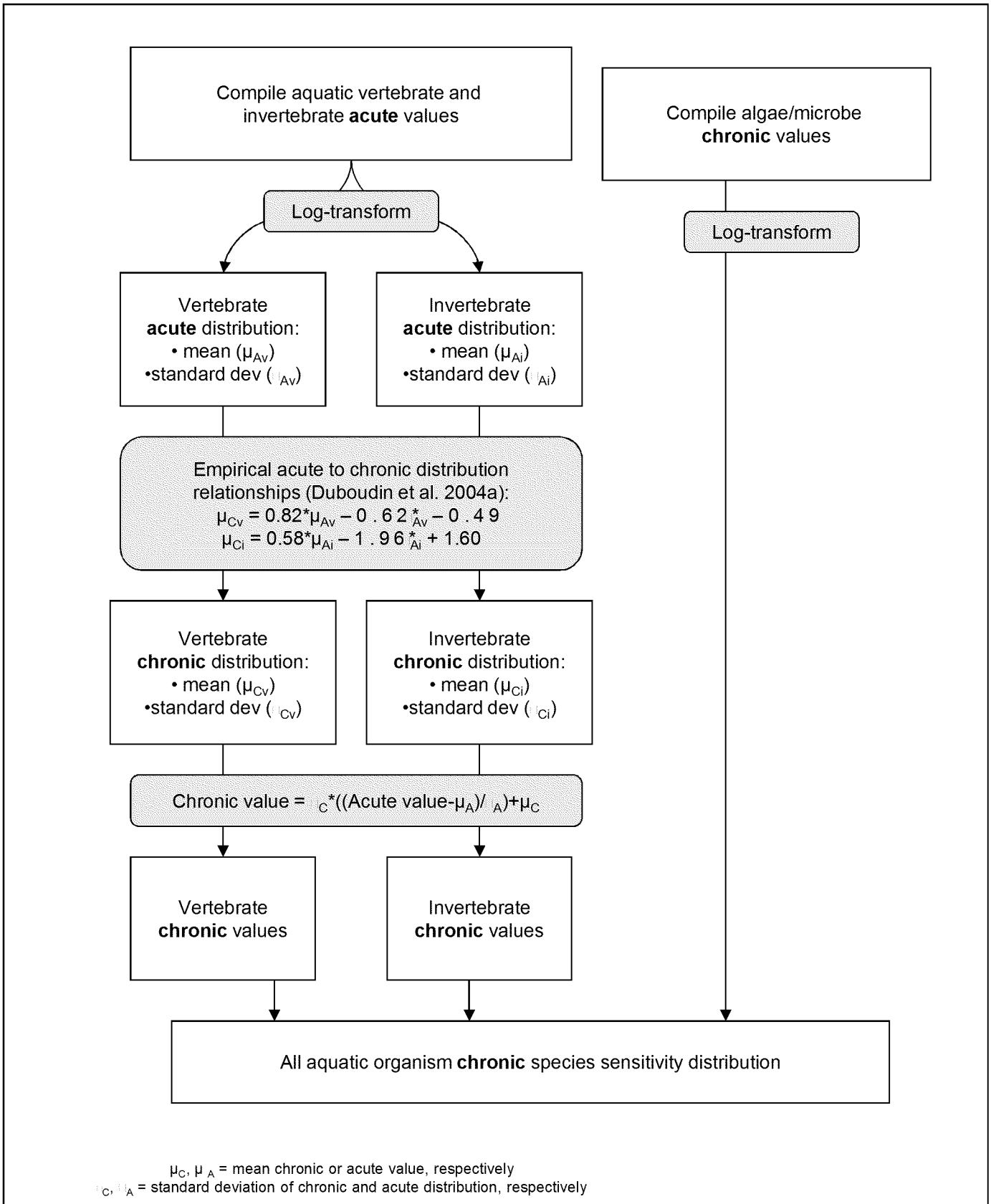
Figure 2-1



Source: Toxics Release Inventory
tpy: tons per year

Maximum Individual Facility Annual Certain Glycol Ether Releases to Air (2000 – 2011)

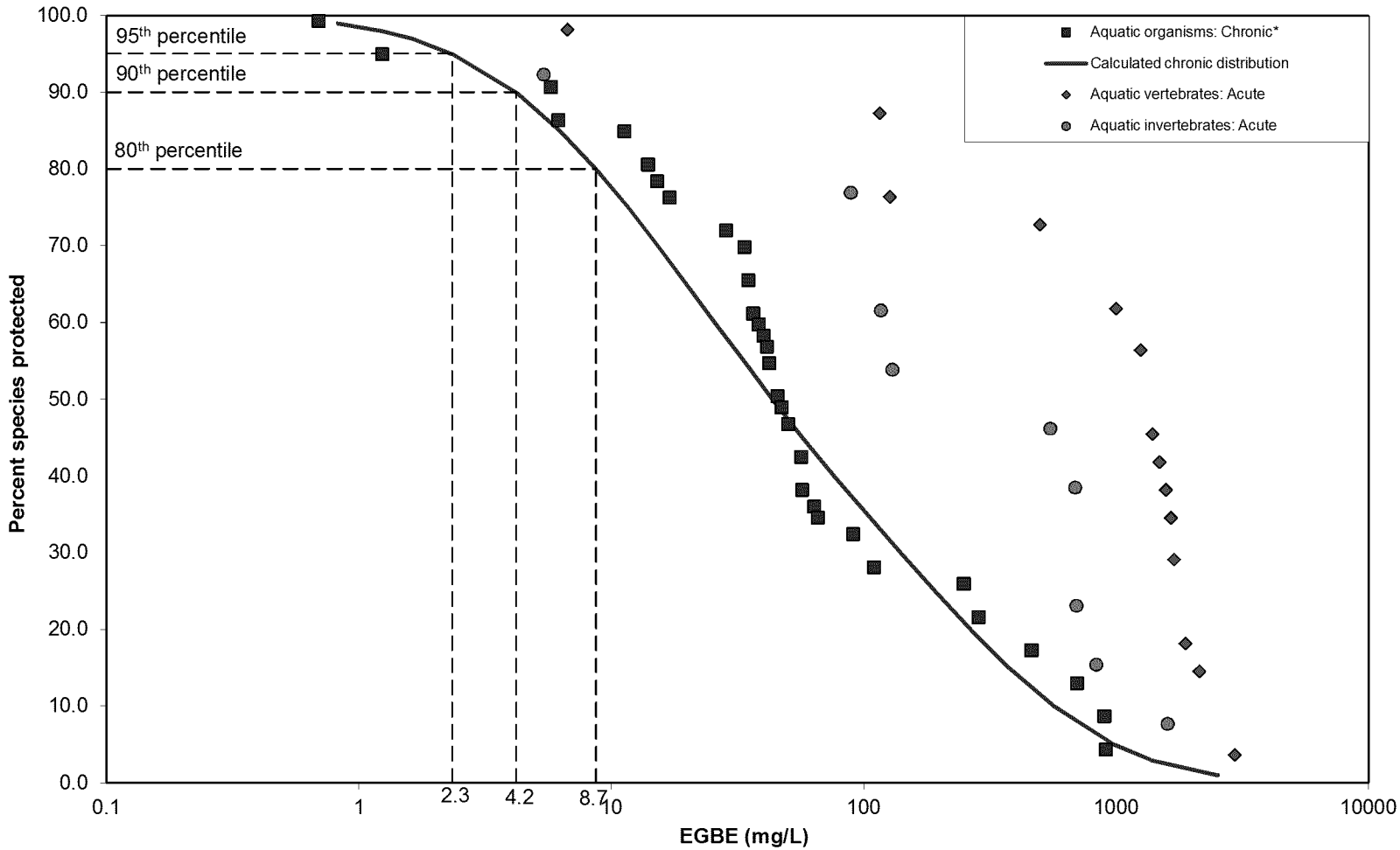
Figure 5-1



μ_C, μ_A = mean chronic or acute value, respectively
σ_C, σ_A = standard deviation of chronic and acute distribution, respectively

Aquatic Organism Species Sensitivity Distribution Approach

Figure 8-1



* Includes observed chronic values for algae and microbes and calculated chronic values for vertebrates and invertebrates (Duboudin et al. 2004a)

Aquatic Organism Species Sensitivity Distributions for EGBE

Figure 8-2

APPENDIX A

Toxicity Values in Laboratory Mammals

APPENDIX A-1

Toxicity Values in Laboratory Mammals from ATSDR 1998

Table 2-1. Levels of Significant Exposure to 2-Butoxyethanol - Inhalation

Key to[a] figure	Species/ (strain)	Exposure/ duration/ frequency	System	NOAEL (ppm)	LOAEL Less serious (ppm)	LOAEL Serious (ppm)	Reference
ACUTE EXPOSURE							
Death							
1	Rat (NS)	1-6 d 2-9 hr/d				375 (death of 11/13 males and 23/23 females after 7 hrs)	Carpenter et al. 1956
2	Rat (Sherman)	3 d 7 hr/d				432 F (15/15 died)	Carpenter et al. 1956
3	Rat (Fischer- 344)	4 hr				486 M (LC_{50}) 450 F (LC_{50})	Dodd et al. 1983
4	Rat (Sprague-Dawley)	1 d 6.5 -7hr				250 F (2/3 died)	Nelson et al. 1984
5	Rat (Fischer- 344)	6 hr				438 M (2/4 died)	Sabourin et al. 1992a
6	Mouse (Swiss)	7 hr				700 (LC_{50})	Werner et al. 1943a
7	Rabbit (albino)	1-2d 7 hr/d				400-411 M (25-100% death)	Dow 1986
8	Rabbit (New Zealand)	Gd 6-18 6 hr/d				200 F (4/24 died)	Tyl et al. 1984
Systemic							
9	Human	4-8 hr	Resp	98	113 (nasal irritation, slight increase in nasal mucus discharge)		Carpenter et al. 1956
			Cardio	195 M			
			Gastro		98 F (emesis)		
			Hemato	195			
			Ocular	98	113 (ocular irritation)		
10	Human	2 hr	Resp	20 M			Johanson et al. 1986a
			Cardio	20 M			

Table 2-1. Levels of Significant Exposure to 2-Butoxyethanol - Inhalation (continued)

Key to figure[a]	Species/ (strain)	Exposure/ duration/ frequency	System	NOAEL (ppm)	LOAEL Less serious (ppm)	LOAEL Serious (ppm)	Reference
11	Rat (NS)	2-8 hr	Hemato			432 F (hemolysis in 2 hrs; hemoglobinuria in 3 hrs; hemin crystals in urine in 4 hrs)	Carpenter et al. 1956
			Renal		432 F (slight cloudy swelling of convoluted tubules in 2 hrs)		
12	Rat (NS)	9 d 7 hr/d	Hemato			200 F (50% decrease in erythrocyte count and 25% decrease in HGB level)	Carpenter et al. 1956
13	Rat (NS)	4 hr	Hemato	32 F	62 F (significant osmotic fragility of RBCs)		Carpenter et al. 1956
14	Rat (Fischer- 344)	4 hr	Resp	523	867 (rapid and shallow breathing)		Dodd et al. 1983
			Renal	202		523 (red discharge around urogenital area and bladder [hematuria]; enlarged kidneys)	

Table 2-1. Levels of Significant Exposure to 2-Butoxyethanol - Inhalation (continued)

Key to[a] figure	Species/ (strain)	Exposure/ duration/ frequency	System	NOAEL (ppm)	LOAEL Less serious (ppm)	LOAEL Serious (ppm)	Reference
15	Rat (Fischer- 344)	9 d 5 d/wk 6 hr/d	Resp	86 M	245 M (audible respiration and nasal discharge)		Dodd et al. 1983
				245 F			
			Hemato	20		86 M (HGB decreased 5%, significant increases in MCV of 11%)	
						86 F (HGB decreased 8%, MCHC decreased 18%, significant increases in MCV of 17%)	
			Hepatic	86 M	245 M (increased liver weights of about 5.4%)		
				20 F	86 F (increased liver weights of about 4.5%)		
			Renal	86	245 (transient red-stained urine [hematuria])		
			Ocular	245			
			Bd Wt	86 M	245 M (13% decrease in body weight gain)		
				20 F	86 F (10% decrease in body weight gain)		
16	Rat (Alpk/Ap)	3 hr	Renal			800 M (hematuria)	Doe 1984
17	Rat (Sprague-Dawley)	4 d 7 hr/d	Bd Wt	57-58 M			Dow 1972
18	Rat (Sprague-Dawley)	Gd 7-15 7 hr/d	Renal		150 F (slight hematuria)		Nelson et al. 1984
19	Rat (Sprague-Dawley)	1 d 6.5 -7 hr	Renal			250 F (hematuria)	Nelson et al. 1984
			Dermal		250 F (necrotic tail tip)		

Table 2-1. Levels of Significant Exposure to 2-Butoxyethanol - Inhalation (continued)

Key to figure[a]	Species/ (strain)	Exposure/ duration/ frequency	System	NOAEL (ppm)	LOAEL Less serious (ppm)	LOAEL Serious (ppm)	Reference
20	Rat (Fischer- 344)	6 hr	Hemato			438 M (hemoglobinuria)	Sabourin et al. 1992a
21	Rat (Fischer- 344)	Gd 6-15 6 hr/d	Resp	50 F	100 F (perinasal encrustation)		Tyl et al. 1984
			Hemato	50[b] F		100 F (reduced RBC and MCHC; increased MCH and MCV)	
			Hepatic	200 F			
			Renal	50 F		100 F (hematuria)	
			Dermal	100 F	200 F (necrosis of the tail tip, stained fur)		
			Ocular		25 F (periocular wetness)		
			Bd Wt	50 F		100 F (29% decrease in body weight gain)	
			Other	50 F	100 F (13% reduction in food consumption)		
				100 F	200 F (14% reduction in water consumption)		
22	Mouse (NS)	7 hr	Hemato		100 (increased osmotic fragility)		Carpenter et al. 1956
23	Mouse (Swiss-Webster)	10 min	Resp		153M (20% decrease in respiratory rate)		Kane et al. 1980
24	Gn Pig (NS)	8 hr	Hemato	665 M			Carpenter et al. 1956
25	Rabbit (NS)	7 hr	Hemato		125 (increased osmotic fragility of RBCs)		Carpenter et al. 1956

Table 2-1. Levels of Significant Exposure to 2-Butoxyethanol - Inhalation (continued)

Key to figure[a]	Species/ (strain)	Exposure/ duration/ frequency	System	NOAEL (ppm)	LOAEL Less serious (ppm)	LOAEL Serious (ppm)	Reference
26	Rabbit (albino)	1-2d 7 hr/d	Resp			400-411 M (congestion of lungs and turbinates, nasal discharge)	Dow 1986
			Gastro			400-411 M (hemorrhagic gastric ulcers)	
			Hepatic		400-411 M (mottled livers in surviving animals)		
			Renal			400-411 M (darkened kidneys in surviving animals, hematuria)	
			Ocular		400-411 M (ocular discharge, yellowing of sclerae)		
27	Rabbit (New Zealand)	Gd 6-18 6 hr/d	Resp	100 F	200 F (perinasal wetness and discharge)		Tyl et al. 1984
			Hemato	50 F	100 F (increased hemoglobin and hematocrit)		
			Hepatic	200 F			
			Renal	50 F		100 F (hematuria)	
			Dermal	100 F	200 F (stained fur)		
			Ocular	50 F	100 F (periocular wetness)		
			Bd Wt	100 F	200 F (9.7% reduction in maternal body weight)		
Immunological/Lymphoreticular							
28	Rat (Fischer- 344)	Gd 6-15 6 hr/d		100 F	200 F (20-24% increase in absolute and relative maternal spleen weights)		Tyl et al. 1984
Neurological							
29	Human	4-8 hr			98 (headache)		Carpenter et al. 1956
				98	113 M (disagreeable metallic taste)		
30	Rat (Fischer- 344)	4 hr		202		523 (loss of coordination)	Dodd et al. 1983

Table 2-1. Levels of Significant Exposure to 2-Butoxyethanol - Inhalation (continued)

Key to figure[a]	Species/ (strain)	Exposure/ duration/ frequency	System	NOAEL (ppm)	LOAEL: Less serious (ppm)	LOAEL: Serious (ppm)	Reference
31	Dog (Beagle)	1-5 d 7 hr/d			400-411 M (salivation)		Dow 1986
32	Rabbit (albino)	1-2 d 7 hr/d				400-411 M (poor coordination of extremities and loss of equilibrium)	Dow 1986
	Reproductive						
33	Rat (Fischer- 344)	Gd 6-15 6 hr/d		100 F		200 F (50% decrease in viable implants & in live fetuses per litter; 8-fold increase in nonviable implants; reduced maternal gravid uterine weight)	Tyl et al. 1984
34	Rabbit (New Zealand)	Gd 6-18 6 hr/d		100		200 F (14% decrease in total implants; 20% decrease in viable implants)	Tyl et al. 1984
	Developmental						
35	Rat (Sprague-Dawley)	Gd 7-15 7 hr/d		200			Nelson et al. 1984
36	Rat (Fischer- 344)	Gd 6-15 6 hr/d		50	100 (retarded skeletal ossification)		Tyl et al. 1984
37	Rabbit (New Zealand)	Gd 6-18 6 hr/d		100	200 (22% reduction in gravid uterine weight, reduced ossification in fetuses)		Tyl et al. 1984
	INTERMEDIATE EXPOSURE						
	Death						
38	Rat (Sherman)	30 d 5 d/wk 7 hr/d				432 M (12/15 died) 314 F (15/15 died)	Carpenter et al. 1956
39	Mouse (C3H)	30 d				376 M (2/10 died)	Carpenter et al. 1956

Table 2-1. Levels of Significant Exposure to 2-Butoxyethanol - Inhalation (continued)

Key to[a] figure	Species/ (strain)	Exposure/ duration/ frequency	System	NOAEL (ppm)	LOAEL: Less serious (ppm)	LOAEL: Serious (ppm)	Reference
40	Gn Pig (NS)	30 d 5 d/wk 7 hr/d				376 M (1/10 died)	Carpenter et al. 1956
	Systemic						
41	Rat (Sherman)	30 d 5 d/wk 7 hr/d	Resp	203		432 M 314 F (congestion & hemorrhage of the lungs)	Carpenter et al. 1956
			Gastro	203		432 M 314 F (congestion of the abdominal viscera)	
			Hemato		54 (erythrocyte fragility)	203 (hemoglobinuria)	
			Hepatic	54	107 (unspecified increase in liver weight)		
			Renal	54	107 (unspecified increase in kidney weight)		
			Bd Wt	203			
42	Rat (Fischer- 344)	13 wk 5 d/wk 6 hr/d	Resp	77			Dodd et al. 1983
			Cardio	77			
			Hemato	25[c]		77 (5%-13% decrease in RBC, in both sexes; 4% decrease in HGB; 11% increase in MCH, females)	
			Musc/skel	77			
			Hepatic	77			
			Renal	77			
			Endocr	77			
			Bd Wt	77			
43	Mouse (C3H)	30-90 d 7 hr/d	Hemato		100 M (increased erythrocyte osmotic fragility)		Carpenter et al. 1956
			Hepatic	100 M	200 M (unspecified increase ($p<0.05$) in liver weights)		
			Renal	400 M			
			Bd Wt	200 M	400 M (unspecified decrease ($p<0.05$) in body weights)		

Table 2-1. Levels of Significant Exposure to 2-Butoxyethanol - Inhalation (continued)

Key to[a] figure	Species/ (strain)	Exposure/ duration/ frequency	System	NOAEL (ppm)	LOAEL Less serious (ppm)	LOAEL Serious (ppm)	Reference
44	Gn Pig (NS)	30 d 5 d/wk 7 hr/d	Resp	203 M	376 M (lung congestion)		Carpenter et al. 1956
			Hemato	494 M			
			Hepatic	494 M			
			Renal	107 M	203 M (unspecified increase (p<0.05) in kidney weight)		
			Bd Wt	495 M			
45	Dog (Hybrid)	31 d	Resp		200 (slight capillary engorgement or breakdown in the lungs)		Carpenter et al. 1956
			Hemato			200 M (increased osmotic fragility of RBCs and 100% increased leukocyte counts)	
					200 F (RBC osmotic fragility increased slightly; slight decrease in RBC count and hemoglobin level)		
			Ocular	200			
46	Dog (Terrier)	90 d	Hemato		100 (decreased hematocrit in male, transitory doubling of the leukocyte count midway into the 90-day exposure in both sexes)		Carpenter et al. 1956

Table 2-1. Levels of Significant Exposure to 2-Butoxyethanol - Inhalation (continued)

Key to[a] figure	Species/ (strain)	Exposure/ duration/ frequency	System	NOAEL (ppm)	LOAEL Less serious (ppm)	LOAEL Serious (ppm)	Reference
47	Dog (NS)	12 wk 5 d/wk 7 hr/d	Resp		415 (slightly increased nasal secretions)		Werner et al. 1943b
			Cardio	415			
			Gastro	415			
			Hemato		415 (decreased Hgb, hematocrit; hypochromia, polychromatophilia, and microcytosis)		
			Hepatic	415			
			Renal	415			
			Ocular		415 (slight increased secretions in the eyes)		
Immunological/Lymphoreticular							
48	Rat (Fischer- 344)	13 wk 5 d/wk 6 hr/d		77			Dodd et al. 1983
Neurological							
49	Rat (Fischer- 344)	13 wk 5 d/wk 6 hr/d		77			Dodd et al. 1983
Reproductive							
50	Rat (Fischer- 344)	13 wk 5 d/wk 6 hr/d		77 M			Dodd et al. 1983
CHRONIC EXPOSURE							
Systemic							
51	Human	1-6 yr	Hemato	0.6[d] M			Haufroid et al. 1997
			Hepatic	0.75 M			
			Renal	0.75 M			

Table 2-1. Levels of Significant Exposure to 2-Butoxyethanol - Inhalation (continued)

Key to[a] figure	Species/ (strain)	Exposure/ duration/ frequency	System	NOAEL (ppm)	LOAEL: Less serious (ppm)	LOAEL: Serious (ppm)	Reference

[a]The number corresponds to entries in Figure 2-1. Differences in levels of health effects and cancer effects between males and females are not indicated in Figure 2-1. Where such differences exist, only the levels of effect for the most sensitive gender are presented.

[b]Used to derive an acute inhalation minimal risk level (MRL) of 6.0 ppm. Concentration converted to an equivalent concentration in humans, and divided by an uncertainty factor of 9 (3 for extrapolation from animals to humans and 3 for human variability). For further details, see MRL worksheets in Appendix A.

[c]Used to derive an intermediate inhalation MRL of 3.0 ppm. Concentration converted to an equivalent concentration in humans, and divided by an uncertainty factor of 9 (3 for extrapolation from animals to humans and 3 for human variability). For further details, see MRL worksheets in Appendix A.

[d]Used to derive a chronic inhalation MRL of 0.2 ppm. Concentration divided by an uncertainty factor of 3 for human variability. Hematocrit significantly [p=0.03] decreased to 43.9%, MCHC significantly [p=0.02] increased to 33.6 g/dL. Changes in hematocrit and MCHC were within the range of normal clinical values and therefore were considered NOAELs. These effects were consistent with hemolysis seen in animal studies and may be an early indicator of potential adverse effects in humans. For further details, see MRL worksheets in Appendix A.

Bd Wt = body weight; Cardio = cardiovascular; d = day(s); Endocr = endocrine; F = female; Gastro = gastrointestinal; Gd = gestational day; Gn Pig = guinea pig; Hemato = hematological; HGB = hemoglobin; hr = hour(s); LC_{50} = lethal concentration; 50% kill; LOAEL = lowest-observable-adverse-effect level; M = male; MCH = mean corpuscular hemoglobin; MCHC = mean corpuscular concentration; MCV = mean corpuscular volume; min = minute(s); Musc/skel = musculoskeletal; NOAEL = no-observable-adverse-effect level; NS = not specified; RBC = red blood cell; Resp = respiratory; wk = week(s).

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
ACUTE EXPOSURE							
Death							
1	Rat (Wistar, Sherman, Carworth-Wistar)	once (G)				530-3000 (LD_{50})	Carpenter et al. 1956
2	Rat (NS)	NS (GW)				500 (death in 3/5 animals)	Dow 1959
3	Rat (Fischer- 344)	once (G)				2000 F (2/3 died)	Dow 1981
4	Rat (Crl:COBS CD (SD)BR)	13 d 5 d/wk (G)				443 M (death in 1/10)	Eastman Kodak 1983; Krasavage 1986
5	Rat (CD)	NS (G)				1746 M (LD_{50})	Eastman Kodak 1988
6	Rat (NS)	NS				1480 (LD_{50})	Nelson et al. 1984
7	Rat (Fischer- 344)	Gd 11-13 (GW)				150 F (1/9 died 24 hrs after exposure)	NTP 1989

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
8	Rat (Wistar)	once (G)				1590 M (LD_{50})	Olin 1976
9	Rat (Fischer- 344)	2 d (GW)				200 M (death in 1/6)	Smialowicz et al. 1992
10	Rat (Wistar)	once (GW)				1480 M (LD_{50})	Smyth et al. 1941
11	Rat (Wistar)	once (G)				2417 (LD_{50})	Union Carbide 1980b
12	Mouse (NS)	once				1230 M (LD_{50})	Carpenter et al. 1956
13	Mouse (Charles River, COBS, CD-1)	NS (G)				1519 M (LD_{50})	Eastman Kodak 1988
14	Mouse (CD-1)	Gd 6-13 (GW)				1180 F (death in 4/35 pregnant mice and 6/15 nonpregnant mice)	Hardin et al. 1987; Schuler et al. 1984
15	Mouse (Swiss CD-1)	2 wk (W)				12750 (death in 2/8 males, 5/8 females)	Heindel et al. 1990

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
16	Mouse (CD-1)	Gd 8-14 1x/d (G)				1500 F (death in 3/6)	Wier et al. 1987
17	Gn Pig (NS)	once (G)				1200 (LD_{50})	Carpenter et al. 1956
18	Gn Pig (Hartley)	once (GW)				1414 (LD_{50})	Shepard 1994b
19	Rabbit (NS)	once				320-370 M (LD_{50})	Carpenter et al. 1956
	Systemic						
20	Human	once (IN)	Resp			650 M (diffuse pulmonary edema)	Bauer et al. 1992
			Cardio			650 M (hypotension, tachycardia, sinusal rhythm)	
			Hemato			650 M (low prothrombin time, nonhemolytic anemia, thrombopenia)	
			Hepatic			650 M (abnormal liver function)	
			Renal		650M (slight albuminuria)		
			Metab			650 M (metabolic acidosis and hypoxemia with lactic acidosis)	

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
21	Human	once (IN)	Resp			391 F (obstructive respiration)	Gijsenbergh et al. 1989
			Cardio			391 F (low blood pressure)	
			Hemato			391 F (decreased hemoglobin from 11.9 to 8.9 g/dL)	
			Renal			391 F (hematuria)	
			Ocular			391 F (isocoric light reactive mydriasis)	
			Metab			391 F (marked metabolic acidosis)	
22	Human	2x	Hepatic		1006 M (increased serum ALT, AST, bilirubin; only after first exposure)		Gualtieri et al. 1995
			Metab			1006 M (significant acid-base disturbance)	
23	Human	once (IN)	Resp			467 F (poor ventilation)	Rambourg-Schepens et al. 1988
			Cardio	467 F			
			Hemato			467 F (hemoglobinuria, progressive erythropenia)	
			Hepatic	467 F			
			Renal			467 F (increased serum creatinine, oxaluria)	
			Metab			467 F (metabolic acidosis, hypokalaemia)	

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
24	Rat (Wistar, Sherman, Carworth-Wistar)	once (G)	Resp			530 (congested or hemorrhagic lungs)	Carpenter et al. 1956
			Hemato			3000 M (hemoglobinuria) 1500 F	
			Hepatic			530 (mottled livers)	
			Renal			530 (severely congested kidneys)	
			Dermal		530 (rough coat)		
25	Rat (Fischer- 344)	once (GW)	Hemato	8.6 M		126 M (hemolysis, hemoglobinuria)	Corley et al. 1994
26	Rat (NS)	NS (GW)	Renal	1000 F	2000 F (rapid, shallow breathing)		Dow 1959
			Resp	252		500 (hematuria)	
27	Rat (Fischer- 344)	once (G)	Dermal	500 F	1000 F (rough hair coats; necrosis of tail)		Dow 1981
			Ocular	1000 F	2000 F (palpebral closure)		
			Bd Wt	2000 F			
			Other		130 F (staining in perineal region)		
28	Rat (Fischer- 344)	once (GW)	Hemato			250 M (hemolysis)	Ghanayem and Sullivan 1993

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
29	Rat (Fischer- 344)	once (GW)	Hemato		32[b] M (hemoglobinuria)		Ghanayem et al. 1987a
			Hepatic	125 M		250 M (focal coagulative necrosis of hepatocytes, 1/6)	
			Renal			125 M (hemoglobin casts in proximal tubules)	
30	Rat (Fischer- 344)	once (GW)	Hemato			500 M (increase in free hemoglobin in the plasma, hemoglobinuria, hemolysis)	Ghanayem et al. 1987b
			Hepatic			500 M (coagulative necrosis and hemosiderin deposition in hepatocytes and Kupffer cells)	
			Renal			500 M (intracytoplasmic hemoglobin and hemoglobin casts in the proximal tubules)	
31	Rat (Fischer- 344)	once (GW)	Hemato			125 M (increase in free hemoglobin in the plasma, hemoglobinuria, hemolysis)	Ghanayem et al. 1987b
32	Rat (Fischer- 344)	once (GW)	Hemato			125 M (increased HCT, PCV, and MCV followed by decline with hemolysis)	Ghanayem et al. 1990b

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
33	Rat (Fischer- 344)	1-12 d 1x/d (GW)	Hemato			125 M (hemolytic anemia)	Ghanayem et al. 1992
			Hepatic		125M (time-dependent changes in liver weight: declined 10% on days 3 and 6, increased 5% on day 12)		
34	Rat (Fischer- 344)	4 d (GW)	Hemato			500 M (reduction of 23% in RBC, 11% in HGB, increase of 24% in MCV, 600% in reticulocyte counts and 16% in MCH; marrow hyperplasia)	Grant et al. 1985
			Hepatic		500M (15.8% increase in relative liver weights after day 1 recovery)		
			Renal	500 M	1000M (12.4% increase in relative kidney weight after day 1 recovery)		
			Bd Wt	500 M		1000 M (13.4% reduction in body weight gain after day 1 recovery and 26% reduction in body weight gain at day 4 recovery)	

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
35	Rat (Fischer- 344)	Gd 9-11 (GW)	Resp	300 F	600 F (dyspnea)		NTP 1989
			Hemato			150 F (increased reticulocytes, MCV, MCH and platelet count, decreased RBC, HGB, HCT, and MCHC)	
			Hepatic	150 F	300 F (27.1% decreased absolute liver weight [Gd 12])		
			Renal	300 F		600 F (urethral bleeding [hematuria])	
			Dermal	300 F	600 F (pale coloration, not further described)		
			Ocular	300 F	600 F (chromodacryorrhea)		
			Bd Wt			150 F (gestational weight gain decreased 34.7% [Gd 12])	
			Other		150 F (reduced food and water intake)		
				300 F	600 F (dehydration, cold to touch)		

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
36	Rat (Fischer- 344)	Gd 11-13 (GW)	Resp	300 F	600 F (dyspnea)		NTP 1989
			Hemato			150 F (increased reticulocytes, MCV, MCH and platelet count, decreased RBC, HGB, HCT and MCHC)	
			Hepatic	150 F	300 F (11.5% decreased absolute liver weight [Gd 14])		
			Renal	300 F		600 F (urethral bleeding [hematuria])	
			Dermal	300 F	600 F (pale coloration, not further described)		
			Ocular	300 F	600 F (chromodacryorrhea)		
			Bd Wt			150 F (gestational weight gain decreased 28.9% [Gd 14])	
			Other		150 F (reduced food and water intake)		
				300 F	600 F (dehydration, cold to touch)		

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
37	Rat (Fischer- 344)	Gd 9-11 (GW)	Hemato	30 F		100 F (reduced RBC, HCT and HGB, increased reticulocytes, WBC, platelet count, MCV and MCH)	NTP 1989
			Hepatic	100 F	200 F (decreased absolute maternal liver weights: 11.1% [Gd 20], 15.5% [Gd 12])		
			Renal	200 F			
			Bd Wt	100 F		200 F (gestational weight gain decreased 35.3% [Gd 20])	
			Other	100 F	200 F (decreased food and water intake)		
38	Rat (Fischer- 344)	Gd 11-13 (GW)	Hemato	30 F		100 F (reduced RBC, HCT and HGB, increased reticulocytes, WBC, platelet count, MCV and MCH)	NTP 1989
			Hepatic	100 F	300 F (decreased 11.8% [Gd 14] absolute maternal liver weights)		
			Renal	300 F			
			Bd Wt	100 F		300 F (gestational weight gain decreased 20.4 % [Gd 20])	
			Other	100 F	300 F (decreased food and water consumption)		

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
39	Rat (F344/N)	2 wk (W)	Resp	346 M 265 F			NTP 1993
			Cardio	346 M 265 F			
			Hepatic	346 M 265 F			
			Renal	346 M 265 F			
			Bd Wt	346 M 203 F		265 F (11% decreased final body weight, 32% decrease in body weight gain)	
			Other	174 M 102 F	242 M (14.1% decreased water consumption) 152 F (16.3% decreased water consumption)		
40	Rat (Wistar)	once (G)	Gastro	1310 M	2560M (very red small intestine)		Olin 1976
			Musc/skel	1310 M	2560M (flaccid)		
			Hepatic	670 M	1310M (very dark liver)		
			Renal	670 M	1310M (dark kidneys in 3/10, enlarged in 4/10)	2560 M (blood in bladder [hematuria])	
			Dermal	670 M	1310M (piloerection)		

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL: Less Serious (mg/kg/day)	LOAEL: Serious (mg/kg/day)	Reference
41	Rat (Wistar)	once (G)	Gastro	1127		2255 (distended stomach, liquid & gas-filled; blood in intestines)	Union Carbide 1980b
			Hepatic	1127	2255 (dark liver)		
			Renal	1127	2255 (red kidneys)		
			Endocr	1127	2255 (red adrenals)		
			Other		1127 (bloody saliva in 1 animal)		
42	Mouse (CD-1)	Gd 6-13 1x/d (GW)	Bd Wt			1180 F (80% decrease in body weight gain)	Hardin et al. 1987; Schuler et al. 1984
43	Mouse (Swiss CD-1)	2 wk (W)	Bd Wt	6375		12750 M (31% weight loss)	Heindel et al. 1990
			Other	637	1275 (unspecified decrease in fluid intake)		
44	Mouse (B6C3F1)	2 wk (W)	Resp	627 M 1364 F			NTP 1993
			Cardio	627 M 1364 F			
			Hepatic	627 M 1367 F			
			Renal	627 M 1364 F			
			Bd Wt	627 M 1364 F			
			Other	210 M	370 M (dehydration in 3/5) 150 F (26.5% decreased water consumption)		

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
45	Mouse (CD-1)	Gd 8-14 (G)	Resp	1000 F	1500 F (abnormal breathing)		Wier et al. 1987
			Bd Wt	1500 F	2000 F (unspecified decrease in maternal weight gain)		
46	Mouse (CD-1)	Gd 8-14 1x/d (G)	Bd Wt	650 F	1000 F (unspecified decrease in maternal weight gain)		Wier et al. 1987
47	Gn Pig (Hartley)	once (GW)	Hemato	250 M			Ghanayem and Sullivan 1993
48	Gn Pig (Hartley)	once (GW)	Gastro	500	1000 (moderate to mild necrosis and hemorrhage of the gastric mucosa in 1/5 males and 1/5 females)		Shepard 1994b
			Bd Wt	1000			
	Immunological/Lymphoreticular						
49	Rat (Fischer- 344)	once (GW)		63 M	125M (significant increase (110-150%) in relative spleen weight)		Ghanayem et al. 1987a
50	Rat (Fischer- 344)	once (GW)			500M (>220% increase in relative spleen weight due to trapped RBCs)		Ghanayem et al. 1987b

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
51	Rat (Fischer- 344)	once (GW)			125M (relative spleen weight 145-170% of control)		Ghanayem et al. 1987b
52	Rat (Fischer- 344)	1-12 d 1x/d (GW)			125M (increase of about 62% in spleen weight after 6 days, decline of about 45% during days 6-12)		Ghanayem et al. 1992
53	Rat (Fischer- 344)	4 d (GW)			500M (87% increase in relative spleen weight on day 1, extramedullary hematopoiesis)		Grant et al. 1985
54	Rat (Fischer- 344)	Gd 9-11 (GW)			150 F (increased absolute spleen weight [13.5% Gd 20; 54.8% Gd 12])		NTP 1989
55	Rat (Fischer- 344)	Gd 11-13 (GW)			150 F (increased absolute spleen weights [27.1% Gd 20; 67.7% Gd 14])		NTP 1989
56	Rat (Fischer- 344)	Gd 9-11 (GW)		30 F	100 F (increased absolute spleen weight [11.8% Gd 20; 43.9% Gd 12])		NTP 1989
57	Rat (Fischer- 344)	Gd 11-13 (GW)		30 F	100 F (increased absolute spleen weight [17.5% Gd 20; 44.4% Gd 14])		NTP 1989

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
58	Mouse (B6C3F1)	2 wk (W)		210 M 1364 F	370M (decreased 38.3% absolute thymus weight, 38.9% relative thymus weight)		NTP 1993
	Neurological						
59	Human	once (IN)				391 F (coma)	Gijsenbergh et al. 1989
60	Human	once (IN)				467 F (coma)	Rambourg-Schepens et al. 1988
61	Rat (Wistar, Sherman, Carworth-Wistar)	once				530 (sluggishness, prostration, narcosis)	Carpenter et al. 1956
62	Rat (NS)	NS (GW)			252 (drowsiness)		Dow 1959
63	Rat (Fischer- 344)	once (G)		1000 F	2000 F (lethargy)		Dow 1981
64	Rat (Crl:COBS CD (SD)BR)	1-3 d (G)		222 M	443M (lethargy after 1st dose)		Eastman Kodak 1983; Krasavage 1986

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
65	Rat (Fischer- 344)	Gd 9-11 (GW)		300 F	600 F (lethargy)		NTP 1989
66	Rat (Fischer- 344)	Gd 11-13 (GW)		300 F	600 F (lethargy)		NTP 1989
67	Rat (Wistar)	once (G)		670 M	1310 M (lethargy, piloerection)		Olin 1976
68	Rat (Sprague-Dawley)	once (GW)				500 F (ataxia, piloerection)	Sivarao and Mehendale 1995
69	Rat (Wistar)	once (G)		1127	2255 (sluggish, unsteady gait)		Union Carbide 1980b
70	Mouse (CD-1)	Gd 8-14 1x/d (G)		1000 F		1500 F (lethargy, failure to right)	Wier et al. 1987
71	Gn Pig (Hartley)	once (GW)			500 (slight weakness directly after dosing)	1000 (moderate to severe weakness and prostration directly after dosing)	Shepard 1994b

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
	Reproductive						
72	Rat (Fischer- 344)	once (GW)		500 M			Ghanayem et al. 1987a
73	Rat (Fischer- 344)	4 d (GW)		1000 M			Grant et al. 1985
74	Rat (Fischer- 344)	Gd 11-13 (GW)		300 F		600 F (vaginal bleeding)	NTP 1989
75	Rat (Fischer- 344)	Gd 9-11 (GW)		100 F		200 F (increased resorptions, implantation loss, vaginal bleeding)	NTP 1989
76	Rat (Fischer- 344)	Gd 11-13 (GW)		100 F		300 F (increased resorptions, implantation loss, vaginal bleeding)	NTP 1989
77	Rat (F344/N)	2 wk (W)		346 M			NTP 1993
78	Mouse (CD-1)	Gd 6-13 1x/d (GW)				1180 F (19% decrease in incidence of viable litters)	Hardin et al. 1987; Schuler et al. 1984

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
79	Mouse (CD-1)	Gd 8-14 (G)		650 F		1000 F (increased incidence of resorptions)	Wier et al. 1987
	Developmental						
80	Rat (Fischer- 344)	Gd 9-11 (GW)		150 F	300 F (decreased fetal weight)		NTP 1989
81	Rat (Fischer- 344)	Gd 11-13 (GW)		300 F	600 F (decreased fetal body weight, decreased gravid uterine weight)		NTP 1989
82	Rat (Fischer- 344)	Gd 9-11 (GW)		200			NTP 1989
83	Rat (Fischer- 344)	Gd 11-13 (GW)		300			NTP 1989
84	Mouse (CD-1)	Gd 8-14 1x/d (G)		650		1000 (cleft palate in 1/5 litters)	Wier et al. 1987

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
	INTERMEDIATE EXPOSURE						
	Death						
85	Rat (Crl:COBS CD (SD)BR)	23 d 5 d/wk (G)				885 M (death in 1/9)	Eastman Kodak 1983; Krasavage 1986
86	Mouse (Swiss CD-1)	21 wk (W)				1300 F (death in 6/20)	Heindel et al. 1990
87	Mouse (JCL-ICR)	5 wk 5 d/wk (GO or GW)				2000 M (5/5 dead)	Nagano et al. 1979, 1984
	Systemic						
88	Rat (Sherman)	90 d (F)	Resp	1540			Carpenter et al. 1956
			Hemato	1540			
			Hepatic	76	310 (unspecified increase in relative liver weight)		
			Renal	310	1540 (unspecified increase in relative kidney weight)		
			Bd Wt	310	1540 (unspecified decrease in body weight gain)		

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
89	Rat (Crl:COBS CD (SD)BR)	6 wk 5 d/wk (G)	Resp	885 M			Eastman Kodak 1983; Krasavage 1986
			Cardio	885 M			
			Gastro		222M (mild hyperkeratosis and acanthosis in stomach)		
			Hemato			222 M (12% decreased RBC count, 7% decreased HGB, 6% increased MCH, hemoglobinuria)	
			Hepatic	222 M	443M (focal hemosiderin deposition, 30% increase in serum alkaline phosphatase activity)		
			Renal	222 M	443M (focal hemosiderin deposition in the proximal convoluted tubules)		
			Endocr	885 M			
			Ocular	885 M			
			Bd Wt	443 M	885M (7-12% decreased body weight gain in the presence of reduced feed consumption)		
			Other	443 M	885M (12-31% reduced feed consumption during days 0-20)		

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
90	Rat (Sprague-Dawley)	21 d (W)	Hepatic	506 M 444 F			Exon et al. 1991
			Renal	506 M 444 F			
			Bd Wt	506 M 444 F			
			Other	180 M 204 F	506 M (12% decreased water consumption) 444 F (31% decreased water consumption)		

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
91	Rat (F344/N)	13 wk (W)	Resp	452 M 470 F			NTP 1993
			Cardio	452 M 470 F			
			Gastro	367 M 363 F	452 M (diarrhea) 470 F (diarrhea)		
			Hemato	129 M		281 M (decreased RBC, mild anemia) 82 F (decreased RBC, HCT, HGB)	
			Musc/skel	452 M 470 F			
			Hepatic		69[c] M 82 F (hepatocellular alteration-cells that stained eosinophilic and lacked cytoplasmic granularity)		
			Renal		69 M (moderate increase in blood urea nitrogen) 82 F (decreased urine volune, possibly due to dehydration)		
			Endocr	452 M 470 F			
			Dermal	452 M 470 F			
			Ocular	452 M 470 F			
			Bd Wt	281 M 304 F	367 M (mean body weight gains decreased 12.5%)	452 M (24% decrease in body weight gain) 363 F (12% decreased final body weight and 32.5% decrease in body weight gain)	
			Other	69 M 82 F	129 M (water consumption decreased 12.1%) 151 F (water consumption decreased 17.6%)		

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
92	Rat (F344/N)	60 d (W)	Bd Wt	234 M	443 M (13% decrease in mean body weight gain)		NTP 1993
93	Rat (DW albino)	91-93 d (F)	Resp	919 M 976 F			Weil 1963
			Cardio	919 M 976 F			
			Gastro	919 M 976 F			
			Hepatic	188 M 222 F	919 M (25% increase in relative liver weight) 976 F (27% increase in relative liver weight)		
			Renal	188 M 222 F	919 M (18% increase in relative kidney weight) 976 F (23% increase in relative kidney weight)		
			Endocr	919 M 976 F			
			Bd Wt	28 M 222 F	188 M (body weight 91-7% less than controls over the course of the study)	919 M (body weight gain 53% lower than controls) 976 F (body weight gain 45% lower than controls)	
			Other	28 M 222 F	188 M (food intake 18% lower than controls) 976 F (food intake 23% lower than controls)		

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
94	Mouse (Swiss CD-1)	25 wk (W)	Hepatic	1300			Heindel et al. 1990
			Renal		1300 (13-22% increase in kidney weight)		
			Bd Wt	1300 M			
					1300 F (10% decrease in terminal body weight)		
			Other		700 (unspecified low water consumption)		
95	Mouse (Swiss CD-1)	14 wk (W)	Hepatic		700 (6-9% increase in absolute liver weight)		Heindel et al. 1990
			Renal	700 M			
					700 F (22% increase in absolute kidney/adrenal weight)		
			Bd Wt	700			
96	Mouse (JCL-ICR)	5 wk 5 d/wk (G)	Hemato			500 M (decrease in RBC count)	Nagano et al. 1979, 1984

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
97	Mouse (B6C3F1)	13 wk (W)	Resp	694 M 1306 F			NTP 1993
			Cardio	694 M 1306 F			
			Gastro	694 M 1306 F			
			Musc/skel	694 M 1306 F			
			Hepatic	694 M 1306 F			
			Renal	694 M 1306 F			
			Endocr	694 M 1306 F			
			Dermal	694 M 1306 F			
			Ocular	694 M 1306 F			
			Bd Wt	223 M	553M (18.5% decreased body weight gain)		
				370 F		676 F (26.1% decreased mean body weight gain; 10% decreased mean final body weight)	
	Immunological/Lymphoreticular						
98	Rat (Crl:COBS CD (SD)BR)	6 wk 5 d/wk (G)		222 M	443M (enlarged, dark spleen in 3/9, 57% increase in spleen weight)		Eastman Kodak 1983; Krasavage 1986

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
99	Rat (Sprague-Dawley)	21 d (W)		506 M 444 F			Exon et al. 1991
100	Rat (F344/N)	13 wk (W)		69 M 82 F	129 M (increased hemosiderin 151 F pigmentation in spleen)		NTP 1993
101	Mouse (B6C3F1)	13 wk (W)		694 M 1306 F			NTP 1993
	Neurological						
102	Rat (Crl:COBS CD (SD)BR)	6 wk 5 d/wk (G)		222 M			Eastman Kodak 1983; Krasavage 1986
103	Rat (F344/N)	13 wk (W)		452 M 470 F			NTP 1993
104	Mouse (B6C3F1)	13 wk (W)		694 M 1306 F			NTP1993
	Reproductive						
105	Rat (Crl:COBS CD (SD)BR)	6 wk 5 d/wk (G)		885 M			Eastman Kodak 1983; Krasavage 1986

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
106	Rat (Sprague-Dawley)	21 d (W)		506 M			Exon et al. 1991
107	Rat (F344/N)	13 wk (W)		129 M 304 F	281 M (11.3% decreased sperm concentration) 363 F (altered estrous cycle)		NTP 1993
108	Rat (F344/N)	60 d (W)		443 M			NTP 1993
109	Mouse (Swiss CD-1)	21 wk (W)		700		1300 (21% decrease in litters/pair, 51% decrease in pups/litter)	Heindel et al. 1990
110	Mouse (Swiss CD-1)	25 wk (W)				1300 F (58% decrease in fertility, 66% decrease in live pups per litter; altered estrous cycle)	Heindel et al. 1990
111	Mouse (Swiss CD-1)	14 wk (W)		700			Heindel et al. 1990
112	Mouse (JCL-ICR)	5 wk 5 d/wk (G)		1000 M			Nagano et al. 1979, 1984

Table 2-3. Levels of Significant Exposure to 2-Butoxyethanol - Oral (continued)

Key to[a] figure	Species/ (Strain)	Exposure/ Duration/ Frequency (Specific Route)	System	NOAEL (mg/kg/day)	LOAEL Less Serious (mg/kg/day)	LOAEL Serious (mg/kg/day)	Reference
113	Mouse (B6C3F1)	13 wk (W)		694 M 1306 F			NTP 1993
	Developmental						
114	Mouse (Swiss CD-1)	21 wk (W)			700 (decrease in live pup weight)		Heindel et al. 1990
115	Mouse (Swiss CD-1)	14 wk (W)		700			Heindel et al. 1990

[a]The number corresponds to entries in Figure 2-3. Differences in levels of health effects and cancer effects between males and females are not indicated in Figure 2-3. Where such differences exist, only the levels of effect for the most sensitive gender are presented.

[b]Used to derive an acute oral minimal risk level (MRL) of 0.4 mg/kg/day; dose divided by an uncertainty factor of 90 (10 for use of a LOAEL, 3 for extrapolation from animals to humans, and 3 for human variability). For further details, see MRL worksheets in Appendix A.

[c]Used to derive an intermediate oral MRL of 0.07 mg/kg/day; dose divided by an uncertainty factor of 1,000 (10 for use of a LOAEL, 10 for extrapolation from animals to humans, and 10 for human variability). For further details, see MRL worksheets in Appendix A.

Bd Wt = body weight; Cardio = cardiovascular; d = day(s); Endocr = endocrine; F = female; (G) = gavage; Gastro = gastrointestinal; Gd = gestational day; Gn Pig = guinea pig; (GO) = gavage in oil; (GW) = gavage in water; HCT = hematocrit; Hemato = hematological; HGB = hemoglobin; (IN) = ingestion; LD_{50} = lethal dose, 50% kill; LOAEL = lowest-observable-adverse-effect level; M = male; MCH = mean corpuscular hemoglobin; MCHC = mean corpuscular hemoglobin concentration; MCV = mean corpuscular volume; Metab = metabolic; Musc/skel = musculoskeletal; NOAEL = no-observable-adverse-effect level; NS = not specified; PCV = packed cell volume; RBC = red blood cell; Resp = respiratory; (W) = water; WBC = white blood cell; wk = week(s); x = times.

Table 2-6. Levels of Significant Exposure to 2-Butoxyethanol - Dermal

Species/ (Strain)	Exposure/ Duration/ Frequency/ (Specific Route)	System	NOAEL	LOAEL Less Serious	LOAEL Serious	Reference
ACUTE EXPOSURE						
Death						
Rat (NS)	4 hr				2273 mg/kg F (LD_{50})	Carpenter and Condra 1961
Rat (Sprague-Dawley)	Gd 7-16 4x/d				1.4 mL/d F (death in 10/11)	Hardin et al. 1984
Gn Pig (NS)	once				2.0 mL (13/20 died within 1 week)	Wahlberg and Boman 1979
Rabbit (New Zealand)	24 hr				406-1804 mg/kg M (LD_{50})	Carpenter et al. 1956
Rabbit (NS)	24 h				220 mg/kg (LD_{50})	Dow 1959
Rabbit (New Zealand)	8 hr				72 mg/kg F (death in 2/6 on day 5) 99 mg/kg F (LD_{50})	Duprat and Gradiski 1979
Rabbit (NS)	NS				435 mg/kg (LD_{50})	Eastman Kodak 1988
Rabbit (New Zealand)	24 hr				2000 mg/kg (10/10 animals died)	Olin 1976
Rabbit (New Zealand)	24 hr				580 mg/kg (LD_{50})	Olin 1976

Table 2-6. Levels of Significant Exposure to 2-Butoxyethanol - Dermal (continued)

Species/ (Strain)	Exposure/ Duration/ Frequency/ (Specific Route)	System	NOAEL	LOAEL Less Serious	LOAEL Serious	Reference
Rabbit (New Zealand)	once 6 hr				638 M (LD_{50}) mg/kg	Union Carbide 1980a
					568 F (LD_{50}) mg/kg	
Systemic						
Human	4-8 hr	Ocular	98 ppm	113 ppm (ocular irritation)		Carpenter et al. 1956
Human	24-72 hr	Dermal	0.2 mL 10%			CMA 1992; Greenspan et al. 1995
Human	2 hr	Dermal		100% M (drying of the skin, reduction in skinfold thickness and volume of exposed fingers)		Johanson et al. 1988
Rat (Wistar)	once	Hemato	200 F mg/kg		260 F (hemolysis, hemoglobinuria) mg/kg	Bartnik et al. 1987
Rat (Sprague-Dawley)	Gd 7-16 4x/d	Hemato			1.4 mL/d F (burgundy-colored urine [hemoglobinuria])	Hardin et al. 1984
		Dermal		1.4 mL/d F (necrosis of tail; rough coat)		
Rat (Sprague-Dawley)	Gd 7-16 4x/d	Bd Wt		0.48 F mL/d (16% decrease in body weight gain days 5-12; 13% decrease in body weight gain days 5-17)		Hardin et al. 1984

Table 2-6. Levels of Significant Exposure to 2-Butoxyethanol - Dermal (continued)

Species/ (Strain)	Exposure/ Duration/ Frequency/ (Specific Route)	System	NOAEL	LOAEL Less Serious	LOAEL Serious	Reference
Rat (Fischer- 344)	Gd 6-15 6 hr/d	Ocular		25 ppm F (periocular wetness)		Tyl et al. 1984
Gn Pig (NS)	once	Bd Wt	0.5 mL			Wahlberg and Boman 1979
Rabbit (New Zealand)	24 hr	Hemato			406 M mg/kg (hemoglobinuria)	Carpenter et al. 1956
		Hepatic			406 M mg/kg (pale liver)	
		Renal			406 M mg/kg (congested kidneys)	
Rabbit (New Zealand)	3 min	Hemato		505 M mg/kg (increased erythrocyte osmotic fragility)		Carpenter et al. 1956
Rabbit (NS)	24 h	Dermal		200 mg/kg (moderate skin irritation)		Dow 1959
		Ocular			100% (moderate conjunctival irritation; corneal injury)	
		Bd Wt		200 mg/kg (slight initial weight loss)		

Table 2-6. Levels of Significant Exposure to 2-Butoxyethanol - Dermal (continued)

Species/ (Strain)	Exposure/ Duration/ Frequency/ (Specific Route)	System	NOAEL	LOAEL Less Serious	LOAEL Serious	Reference
Rabbit (New Zealand)	8 hr	Resp		72 mg/kg F (congestion, thickening of alveolar walls)		Duprat and Gradiski 1979
		Hemato			72 mg/kg F (hemoglobinuria)	
		Hepatic			72 mg/kg F (congestion in liver, necrosis and steatosis)	
		Renal			72 mg/kg F (enlarged kidneys with hemoglobinuric nephrosis and interstitial reaction)	
		Dermal		72 mg/kg F (necrosis of epidermis and dermis)		
		Other			72 mg/kg F (hypothermia)	
Rabbit (New Zealand)	once	Ocular		0.1 mL of 10% (mild eye irritation)	0.1 mL of 100% (severe eye irritation)	Kennah et al. 1989a
Rabbit (New Zealand)	24 hr	Gastro	500 mg/kg		1000 mg/kg (very dark areas in small intestine)	Olin 1976
		Musc/ske	500 mg/kg		1000 mg/kg (flaccid muscle tone)	
		Hepatic			250 mg/kg (discolored liver)	
		Renal	250 mg/kg		500 mg/kg (blood in urine and bladder [hematuria], discolored kidney)	
		Ocular	250 mg/kg		500 mg/kg (yellow cornea)	
Rabbit (New Zealand)	once or 4 hr	Dermal		0.5 mL (moderate skin irritation)		Rohm and Haas 1983
		Ocular			0.1 mL (severe eye irritation)	

Table 2-6. Levels of Significant Exposure to 2-Butoxyethanol - Dermal (continued)

Species/ (Strain)	Exposure/ Duration/ Frequency/ (Specific Route)	System	NOAEL	LOAEL Less Serious	LOAEL Serious	Reference
Rabbit (New Zealand)	Gd 6-18 6 hr/d	Ocular	50 ppm F	100 ppm F (periocular wetness)		Tyl et al. 1984
Rabbit (New Zealand)	11 d 9 x 1 mL/d 6 hr/d	Hemato	180 M mg/kg/d	361 M mg/kg/d (transient hemoglobinuria)		Union Carbide 1980a
			180 F mg/kg/d	361 F mg/kg/d (reduced mean erythrocyte counts, hemoglobin, MCHC; increased MCH)		
		Hepatic	361 mg/kg/d			
		Renal	90 F mg/kg/d		180 F mg/kg/d (blood in urine [hematuria])	
		Dermal		18 mg/kg/d (erythema)		
		Ocular	361 M mg/kg/d			
		Bd Wt	361 M mg/kg/d			
			180 F mg/kg/d		361 F mg/kg/d (121% decrease in weight gain on day 3)	

Table 2-6. Levels of Significant Exposure to 2-Butoxyethanol - Dermal (continued)

Species/ (Strain)	Exposure/ Duration/ Frequency/ (Specific Route)	System	NOAEL	LOAEL Less Serious		LOAEL Serious		Reference
Rabbit (New Zealand)	once 6 hr	Gastro	451 mg/kg	902 mg/kg	(reddened stomach; females: reddened intestines)			Union Carbide 1980a
		Hemato				451 F mg/kg	(hemoglobinuria)	
		Hepatic	451 mg/kg	902 mg/kg	(mottled with pocked surface)			
		Renal				451 mg/kg	(hematuria; enlarged, dark kidneys; male survivors had pocked surface)	
		Endocr		451 mg/kg	(reddened adrenals)			
		Dermal		451 mg/kg	(erythema; females: slight necrosis at application site)			
		Ocular	451 M mg/kg 902 F mg/kg			902 M mg/kg	(grey iris)	
		Other	451 mg/kg	902 mg/kg	(yellowed peritoneal fat)			
Rabbit (New Zealand)	11 d 9 x 1 mL/d 6 hr/d	Renal		271 mg/kg/d	(tubular vacuolization [4/6] degeneration [6/6] hyperplasia [3/6], glomerular adhesions [4/6], interstitial nephritis [3/6], hemoglobinuric nephrosis)			Union Carbide 1980a
		Dermal		271 mg/kg/d	(necrosis)			

Table 2-6. Levels of Significant Exposure to 2-Butoxyethanol - Dermal (continued)

Species/ (Strain)	Exposure/ Duration/ Frequency/ (Specific Route)	System	NOAEL	LOAEL Less Serious	LOAEL Serious	Reference
Rabbit (New Zealand)	24 hr	Resp			451 M mg/kg (orange-red lungs)	Union Carbide 1980b
		Gastro			451 M mg/kg (orange peritonea, intestines)	
		Hepatic			451 M mg/kg (orange-red liver)	
		Renal			451 M mg/kg (dark red kidneys, hematuria)	
		Dermal	451 M mg/kg	902 M mg/kg (erythema, necrosis)		
		Ocular	451 M mg/kg		902 M mg/kg (iritis in 2/4)	
Rabbit (NS)	once	Ocular	0.5 mL 5%	0.5 mL 15% (moderate corneal injury)		Union Carbide 1980b
Rabbit (New Zealand)	4 hr	Dermal		0.5 mL (irritant)		Zissu 1995
Rabbit (New Zealand)	24 hr	Dermal			0.5 mL (severe irritant)	Zissu 1995
Immunological/Lymphoreticular						
Human	24-72 hr		0.2 mL 10%			CMA 1992; Greenspan et al. 1995
Rabbit (New Zealand)	24 hr				406 M mg/kg (engorged spleen)	Carpenter et al. 1956

Table 2-6. Levels of Significant Exposure to 2-Butoxyethanol - Dermal (continued)

Species/ (Strain)	Exposure/ Duration/ Frequency/ (Specific Route)	System	NOAEL	LOAEL Less Serious	LOAEL Serious	Reference
Rabbit (New Zealand)	8 hr				72 mg/kg F (enlarged spleens filled with erythrocytes, white atrophic pulp)	Duprat and Gradiski 1979
Rabbit (New Zealand)	once 6 hr		902 M mg/kg			Union Carbide 1980a
			451 F mg/kg	902 F mg/kg (enlarged spleen)		
Rabbit (New Zealand)	once				451 M mg/kg (dark spleens)	Union Carbide 1980b
Neurological						
Rat (Sprague-Dawley)	Gd 7-16 4x/d				1.4 mL/d F (ataxia; moderate to marked inactivity)	Hardin et al. 1984
Rabbit (New Zealand)	8 hr				72 mg/kg F (prostration, narcosis prior to death)	Duprat and Gradiski 1979
Rabbit (New Zealand)	24 hr		1000 mg/kg		2000 mg/kg (anorexia, no spontaneous movement)	Olin 1976
Rabbit (New Zealand)	once 6 hr		902 M mg/kg			Union Carbide 1980a
			451 F mg/kg		902 F mg/kg (nystagmus, convulsions)	

Table 2-6. Levels of Significant Exposure to 2-Butoxyethanol - Dermal (continued)

Species/ (Strain)	Exposure/ Duration/ Frequency/ (Specific Route)	System	NOAEL	LOAEL Less Serious	LOAEL Serious	Reference
Developmental						
Rat (Sprague-Dawley)	Gd 7-16 4x/d		0.48 mL/d			Hardin et al. 1984
INTERMEDIATE EXPOSURE						
Systemic						
Rabbit (New Zealand)	90 d 5 d/wk 6 hr/d	Resp	150 mg/kg			CMA 1983
		Cardio	150 mg/kg			
		Gastro	150 mg/kg			
		Hemato	150 mg/kg			
		Musc/ske	150 mg/kg			
		Hepatic	150 mg/kg			
		Renal	150 mg/kg			
		Endocr	150 mg/kg			
		Dermal		10 mg/kg	(slight to moderate erythema and edema)	
		Ocular	150 mg/kg			
		Bd Wt	150 mg/kg			

Table 2-6. Levels of Significant Exposure to 2-Butoxyethanol - Dermal (continued)

Species/ (Strain)	Exposure/ Duration/ Frequency/ (Specific Route)	System	NOAEL	LOAEL Less Serious	LOAEL Serious	Reference
Immunological/Lymphoreticular						
Rabbit (New Zealand)	90 d 5 d/wk 6 hr/d		150 mg/kg			CMA 1983
Neurological						
Rabbit (New Zealand)	90 d 5 d/wk 6 hr/d		150 mg/kg			CMA 1983
Reproductive						
Rabbit (New Zealand)	90 d 5 d/wk 6 hr/d		50 mg/kg M	150 M mg/kg (5.2% increase in relative testes weight)		CMA 1983
			150 F mg/kg			

Bd Wt = body weight; d = day(s); Endocr = endocrine; F = female; Gastro = gastrointestinal; Gd = gestation day; Gn Pig = guinea pig; Hemato = hematological; hr = hour(s); LD_{50} = lethal dose, 50% kill; LOAEL = lowest-observable-adverse-effect level; M = male; MCH = mean corpuscular hemoglobin; MCHC = mean corpuscular hemoglobin concentration; min = minute(s); Musc/skel = musculoskeletal; NOAEL = no-observable-adverse-effect level; NS = not specified; Resp = respiratory; wk = week(s); x = times

APPENDIX A-2

Toxicity Values in Laboratory Mammals Published After 1998

Appendix A-2. Mammalian EGBE Toxicity Data Published Since 1998

Test Organism	Exposure Route	Exposure Duration	Effect Measurement	Endpoint	Effects Notes	EGBE Concentration	Units	Reference	Additional notes
ACUTE EXPOSURES									
BALB/c mice	Dermal	1 dose	Other sublethal	NOEC	Immune system response	1	mg/ear	Singh et al. 2002	Significant response depended on timing of dose relative to immune-system challenge with oxazalone.
BALB/c mice	Dermal	1 dose	Other sublethal	LOEC	Immune system response	4	mg/ear	Singh et al. 2002	Significant response depended on timing of dose relative to immune-system challenge with oxazalone.
BALB/c mice	Dermal	4 days	Other sublethal	LOAEL	Immune system response	500	mg/kg day	Singh et al. 2001	Possible T-cell immunity suppression, lowest concentration with significant difference from control
F344 rats	In vitro		Other sublethal	other	Hemolytic effects	11.8	mg/L	Udden 2002	Sub-hemolytic concentrations of 2-BAA for rats compared with human RBCs (100 times greater)
Syrian hamster	In vitro	<3 hrs	Other sublethal	other	Inhibition of pADPr synthesis	591	mg/L	Hoflack et al. 1997	Suspected precursor to genotoxicity in synergy with other compounds (methyl-methanesulfate)
Syrian hamster	In vitro	7 hr	Other sublethal	NOAEL	Cellular transformation induction	2364	mg/L	Park et al. 2002b	EGBE toxicity in liver may be from iron released by hemolysis
Opossum	In vitro	24 hr	Mortality	EC50	Cell viability	1000	mg/L	Dartsch et al. 1999	Toxic effects only observed with EGBE stored for 3 months and was due to 2-BAA (an EGBE degradate)
B6C3F1 mice	Inhalation	6 hr	Other sublethal	LOAEL	Forestomach lesions	250	ppm	Green et al. 2002	

Appendix A-2. Mammalian EGBE Toxicity Data Published Since 1998

Test Organism	Exposure Route	Exposure Duration	Effect Measurement	Endpoint	Effects Notes	EGBE Concentration	Units	Reference	Additional notes
guinea pig	Inhalation	1 hr	Mortality	NOEC		633	ppm	Gingell et al. 1998	Max vapor concentrations able to maintain. No mortalities/signs of toxicity for 14 days.
B6C3F1 mice	Injection	1 dose	Other sublethal	LOAEL	Forestomach lesions	10	mg/kg bw	Green et al. 2002	
guinea pig	Injection	1 dose	Mortality	NOAEL		2000	mg/kg bw	Gingell et al. 1998	LD50 test with no mortalities or other symptoms displayed after 14 days of monitoring
F344 rats	Oral - dw	2-4 days	Other sublethal	LOAEL	Histopathology	250	mg/kg bw-day	Nyska et al. 2003	Hemolysis and thrombosis
guinea pig	Oral - dw	1 dose	Mortality	LD50		1414	mg/kg bw	Gingell et al. 1998	
B6C3F1 mice	Oral - gavage	4 days	Other sublethal	LOAEL	Forestomach lesions	400	mg/kg bw-day	Poet et al. 2003	Minimal to mild forestomach epithelial hyperplasia. No stats presented.
B6C3F1 mice	Oral - gavage	4 days	Mortality	LOAEL		400	mg/kg bw-day	Poet et al. 2003	Mortality attributed to dosing method, not necessarily to actual EGBE dose
B6C3F1 mice	Oral - gavage	7 days	Other sublethal	LOAEL	Hepatic stress	450	mg/kg bw-day	Park et al. 2002a	Significant decrease in vitamin E, increase in oxidative DNA damage
B6C3F1 mice	Oral - gavage	1 dose	Other sublethal	other	EGBE metabolism and distribution	600	mg/kg bw	Deisinger et al. 2004	Mice monitored for 90 minutes, toxicity not reported or monitored for
F344 rats	Oral - gavage	1 dose	Other sublethal	LOAEL	Hemolytic effects	125	mg/kg bw	Udden 2000	Morphological changes in erythrocytes w/in 30 minutes of dose, persists > 4 hours

Appendix A-2. Mammalian EGBE Toxicity Data Published Since 1998

Test Organism	Exposure Route	Exposure Duration	Effect Measurement	Endpoint	Effects Notes	EGBE Concentration	Units	Reference	Additional notes
F344 rats	Oral - gavage	2-4 days	Other sublethal	LOEC	Increased adherence of RBCs to extracellular matrix	250	mg/kg bw-day	Koshkaryev et al. 2003	2, 3, and 4 doses tested. All showed a response. Greatest was in the 2 dose group.
F344 rats	Oral - gavage	1-3 days	Other sublethal	LOAEL	Acute regenerative hemolytic anemia	250	mg/kg bw-day	Ghanayem et al. 2001	Significant morphological changes in erythrocytes
F344 rats	Oral - gavage	1 dose	Other sublethal	LOAEL	Various hemotologic parameters	250	mg/kg bw	Ghanayem et al. 2000	Erythrocyte swelling, increase in MCV, increased spleen/body weight ratio
F344 rats	Oral - gavage	3 days	Other sublethal	LOAEL	Histopathology	250	mg/kg bw-day	Nyska et al. 1999a	Ocular thrombosis and retinal degeneration
Sprague Dawley rats	Oral - gavage	1-4 doses	Mortality	NOEC		500	mg/kg bw-day	Sawant et al. 1999	Dose concentration and timing varied, mortality rates depended on dose timing
Sprague Dawley rats	Oral - gavage	1-4 doses	Mortality	LOEC		1500	mg/kg bw-day	Sawant et al. 1999	Dose concentration and timing varied, mortality rates depended on dose timing
CHRONIC EXPOSURES									
B6C3F1 mice	Inhalation	14 wk	Other sublethal	LOEC	Hemolytic effects	31.2	ppm	NTP 2000	Significant changes in female hematology at all doses in both 14 wk/2 yr study. Min 2 yr dose = 62.5 ppm
B6C3F1 mice	Inhalation	2 years	Other sublethal	LOAEL	Hepatic lesions and forestomach effects	62.5	ppm	Boatman et al. 2004	Significant increase in cell pigmentation, ulcers, and eptithelial hyperplasia (Tables 1,2)

Appendix A-2. Mammalian EGBE Toxicity Data Published Since 1998

Test Organism	Exposure Route	Exposure Duration	Effect Measurement	Endpoint	Effects Notes	EGBE Concentration	Units	Reference	Additional notes
B6C3F1 mice	Inhalation	2 years	Mortality	NOEC		62.5	ppm	NTP 2000	Male mortality significantly affected, no change in female mortality in any dose (Table 15)
B6C3F1 mice	Inhalation	14 wk	Growth	NOEC		62.5	ppm	NTP 2000	No significant effects on body weight in 14 wk test (male or female)
B6C3F1 mice	Inhalation	2 years	Mortality	LOEC		125	ppm	NTP 2000	Significant increase in male mortality in 2 yr test (Table 15)
B6C3F1 mice	Inhalation	14 wk	Growth	LOEC		125	ppm	NTP 2000	Body weight gains for males significantly less than control in 14 wk study. Less obvious in 2 yr study.
B6C3F1 mice	Inhalation	18 mo	Mortality	NOEC	Elimination kinetics study, no mortality observed	250	ppm	Dill et al. 1998	Max blood concentration = 6.27 ug/g (males) and 12.96 ug/g (females)
F344 rats	Inhalation	2 years	Other sublethal	LOEC	Hemolytic effects (e.g., anemia)	31.2	ppm	NTP 2000	Significant changes in female hematology parameters at all doses (Table 3)
F344 rats	Inhalation	13 wks	Other sublethal	LOEC	Histopathology	32	ppm	Long et al. 2000, Nyska et al. 1999b	Histopathological effects observed in all groups tested (but not in controls)
F344 rats	Inhalation	2 years	Growth	NOEC		62.5	ppm	NTP 2000	No obvious difference in weights in males or females from controls (Tables 7,8)
F344 rats	Inhalation	18 mo	Mortality	NOEC	Elimination kinetics study, no mortality observed	125	ppm	Dill et al. 1998	Max blood concentration = 4.22 ug/g (males) and 3.16 ug/g (females)

Appendix A-2. Mammalian EGBE Toxicity Data Published Since 1998

Test Organism	Exposure Route	Exposure Duration	Effect Measurement	Endpoint	Effects Notes	EGBE Concentration	Units	Reference	Additional notes
F344 rats	Inhalation	13 wks	Immobilization	NOEC	Moribund	125	ppm	Long et al. 2000, Nyska et al. 1999b	No moribund individuals reported in any test groups below 125 ppm
F344 rats	Inhalation	2 years	Mortality	NOEC		125	ppm	NTP 2000	No mortality increase in 2 year test with 125 ppm as max concentration
F344 rats	Inhalation	2 years	Growth	LOEC		125	ppm	NTP 2000	Females in this dose tended to be smaller, no stats presented (Table 8)
F344 rats	Inhalation	13 wks	Immobilization	LOEC	Moribund	250	ppm	Long et al. 2000, Nyska et al. 1999b	1 of 10 individuals moribund before end of experiment, half of individuals from max group, no stats on mortality
F344 rats	Inhalation	2 years	Mortality	LOEC		250	ppm	NTP 2000	Moribund females (10%) during a 14 week exposure test
Swiss CD-1 mice	Oral - dw	2 generations	M, R, G	NOEC	Slight reproductive effects in 2nd generation	5000	mg/L	Lamb et al 1997	Concentrations tested: 0.5%, 1%, and 2% of drinking water
Swiss CD-1 mice	Oral - dw	2 generations	M, R, G	LOEC	Statistically significant effects	10000	mg/L	Lamb et al 1997	Concentrations tested: 0.5%, 1%, and 2% of drinking water
B6C3F1 mice	Oral - gavage	≤ 90 days	Other sublethal	LOAEL	Hemolytic and hepatic effects	225	mg/kg bw	Siesky et al. 2002	Increased hemolysis, hepatic effects, possible DNA synthesis effects. No mortality at any dose
B6C3F1 mice	Oral - gavage	≤ 90 days	Mortality	NOAEL		900	mg/kg bw	Siesky et al. 2002	No mortality reported at any doses after 90 days
F344 rats	Oral - gavage	≤ 90 days	Other sublethal	LOAEL	Hemolytic and hepatic effects	225	mg/kg bw	Siesky et al. 2002	Increased hemolysis, hepatic effects, possible DNA synthesis effects. No mortality at any dose

Appendix A-2. Mammalian EGBE Toxicity Data Published Since 1998

Test Organism	Exposure Route	Exposure Duration	Effect Measurement	Endpoint	Effects Notes	EGBE Concentration	Units	Reference	Additional notes
F344 rats	Oral - gavage	≤ 90 days	Mortality	NOAEL		450	mg/kg bw	Siesky et al. 2002	No mortality reported at any doses after 90 days

2-BAA: 2-butoxyacetaldehyde
DNA: deoxyribonucleic acid
Dw: drinking water
EC50: median effect concentration
LD50: median lethal dose
LOAEL: lowest observed adverse effect level
LOEC: lowest observed effect concentration
M, R, G: mortality, growth, reproduction
MCV: mean corpuscular volume
NOAEL: no observed adverse effect level
NOEC: no observed effect concentration
NTP: National Toxicology Program
pADPr: poly adenosine diphosphate-ribose
RBC: red blood cells

APPENDIX B

Emissions Inventory

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
EQ DETROIT INC	1923 FREDERICK	DETROIT	Michigan	48211	0	2.8215	2.8215	0	0	290.634	293.4555
REXAM BEVERAGE CAN CO RE: WINSTON SALEM PLANT	4000 OLD MILWAUKEE LN	WINSTON-SALEM	North Carolina	27107	28.312	143.9285	172.2405	0	0	0	172.2405
BALL METAL BEVERAGE CONTAINER CORP	8935 POCAHONTAS TRAIL JAMES RI	WILLIAMSBURG	Virginia	23185	27	140	167	0	0	0	167
BALL METAL BEVERAGE CONTAINER CORP	12340 TOWNSHIP RD 99 E	FINDLAY	Ohio	45840	24.5	130	154.5	0	0	0	154.5
SANYO SOLAR (USA) LLC	970 E 236TH ST	CARSON	California	90745	0.0005	8.4815	8.482	0	0	135.175	143.657
REXAM BEVERAGE CAN CO RE: FREMONT PLANT	2145 CEDAR	FREMONT	Ohio	43420	17.873	102.208	120.081	0	0	0	120.081
CROWN FOOD PACKAGING	2929 W BRIDGE ST	OWATONNA	Minnesota	55060	29.3115	87.749	117.0605	0	0	0	117.0605
AURORA CASKET CO INC	10944 MARSH RD	AURORA	Indiana	47001	0.0025	107.624	107.6265	0	0	0	107.6265
CROWN CORK & SEAL CO (USA) INC CROWN CLOSURE DIV	3011 BIRCH DR	WEIRTON	West Virginia	26062	37.8575	63.288	101.1455	0	0	0	101.1455
REXAM BEVERAGE CAN CO RE: BISHOPVILLE SC FACILITY	609 COUSAR ST	BISHOPVILLE	South Carolina	29010	14.4695	81.994	96.4635	0	0	0	96.4635
REXAM BEVERAGE CAN CO RE: EVA STREET ST PAUL MN	139 EVA ST	SAINT PAUL	Minnesota	55107	14.029	79.4975	93.5265	0	0	0	93.5265
FORD MOTOR CO DEARBORN TRUCK PLANT	3001 MILLER RD	DEARBORN	Michigan	48121	3.8	85	88.8	0	0	0	88.8
REXAM BEVERAGE CAN CO OLIVE BRANCH FACILITY	10800 MARINA DR	OLIVE BRANCH	Mississippi	38654	19.6495	68.4395	88.089	0	0	0	88.089
REXAM BEVERAGE CAN CO KENT WA FACILITY	1220 N SECOND AVE	KENT	Washington	98032	13.1945	74.7675	87.962	0	0	0	87.962
BALL METAL BEVERAGE CONTAINER CORP	1900 BARNES ST	REIDSVILLE	North Carolina	27320	12	65	77	0	0	0	77
CROWN BEVERAGE PACKAGING	GLEN & SHEPARD ST	LAWRENCE	Massachusetts	01843	18.0445	54.133	72.1775	0	0	0	72.1775
BMW MANUFACTURING CO LLC	1400 HWY 101 S	GREER	South Carolina	29651	3.543	67.089	70.632	0	0	0	70.632
BALL CONTAINER LLC COLUMBUS CAN PLANT	350 MCCORMICK BLVD	COLUMBUS	Ohio	43213	20	50	70	0	0	0	70
CROWN BEVERAGE PACKAGING	1035 E NORTH ST	BRADLEY	Illinois	60915	17.1385	51.416	68.5545	0	0	0	68.5545
CROWN BEVERAGE PACKAGING	1202 FONES RD	OLYMPIA	Washington	98501	17.083	51.3325	68.4155	0	0	0	68.4155
SILGAN CONTAINERS MANUFACTURING CORP	300 N FAIL RD	LA PORTE	Indiana	46350	12.5	54.5	67	0	0	0	67
REXAM BEVERAGE CAN CO LONGVIEW FACILITY	1001 FISHER RD	LONGVIEW	Texas	75604	17.6895	49.29	66.9795	0	0	0	66.9795
REXAM BEVERAGE CAN CO RE : CHICAGO PLANT	1101 W 43RD ST	CHICAGO	Illinois	60609	13.6425	51.733	65.3755	0	0	0	65.3755
METAL CONTAINER CORP - JACKSONVILLE CAN PLANT	1100 N ELLIS RD	JACKSONVILLE	Florida	32254	6.8885	54.5515	61.44	0	0	0	61.44
METAL CONTAINER CORPORTION - WINDSOR CAN PLANT	1201 METAL CONTAINER CT	WINDSOR	Colorado	80550	15.125	42.379	57.504	0	0	0	57.504
WHIRLPOOL CORP MARION D IVISION	1300 MARION-AGOSTA RD	MARION	Ohio	43302	0.05	55.751	55.801	0	0	0	55.801

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
REXAM BEVERAGE CAN CO CHATSWORTH FACILITY	20730 PRAIRIE ST	CHATSWORTH	California	91311	14.307	40.3275	54.6345	0	0	0	54.6345
SILGAN CONTAINERS MANUFACTURING CORP	1400 PLOVER RD PO BOX 97	PLOVER	Wisconsin	54467	10.75	40	50.75	0	0	0	50.75
BALL CONTAINER LLC ROME CAN PLANT	110 MCC DR	ROME	Georgia	30161	34.5	15	49.5	0	0	0	49.5
REXAM BEVERAGE CAN CO RE: WHITEHOUSE PLANT	10444 WATERVILLE	WHITEHOUSE	Ohio	43571	16.48	31.601	48.081	0	0	0	48.081
METAL CONTAINER CORP - NEWBURGH CAN PLANT	130 BREUNIG RD	NEW WINDSOR	New York	12553	12.0965	34.362	46.4585	0	0	0	46.4585
HONDA OF AMERICA MANUFACTURING INC	24000 HONDA PKY	MARYSVILLE	Ohio	43040	10.078	34.795	44.873	0	0	0.21	45.083
CROWN BEVERAGE PACKAGING	620 N 4TH ST	WORLAND	Wyoming	82401	11.1305	33.391	44.5215	0	0	0	44.5215
METAL CONTAINER CORP - ARNOLD CAN PLANT	42 TENBROOK INDUSTRIAL PARK	ARNOLD	Missouri	63010	17.1215	27.065	44.1865	0	0	0	44.1865
BALL METAL BEVERAGE CONTAINER CORP	8500 W TOWER AVE	MILWAUKEE	Wisconsin	53224	35.5	7	42.5	0	0	0	42.5
FORD MOTOR COMPANY--KANSAS CITY ASSEMBLY PLANT	8121 E US HWY 69	CLAYCOMO	Missouri	64119	2.25	39.5	41.75	0	0	0.0125	41.7625
RR DONNELLEY	2347 KRATZER RD	HARRISONBURG	Virginia	22802	36.14	4.277	40.417	0	0	0	40.417
REXAM BEVERAGE CAN CO PHOENIX FACILITY	211 N 51ST AVE	PHOENIX	Arizona	85043	5.2365	34.4115	39.648	0	0	0	39.648
ROCKY MOUNTAIN METAL CONTAINER	17755 W 32ND AVE	GOLDEN	Colorado	80401	30.5	6	36.5	0	0	2.4	38.9
CHRYSLER ST LOUIS NORTH ASSEMBLY PLANT	1050 DODGE DR	FENTON	Missouri	63026	5.5	32	37.5	0	0	0.0045	37.5045
NEW UNITED MOTOR MANUFACTURING INC	45500 FREMONT BLVD MAIL STOP 16	FREMONT	California	94538	29.686	7.438	37.124	0	0	0	37.124
BALL METAL FOOD CONTAINER CORP	3010 BIRCH DR	WEIRTON	West Virginia	26062	25.5	11.5	37	0	0	0	37
WHIRLPOOL CORP - CLYDE DIV	119 BIRDSEYE ST	CLYDE	Ohio	43410	1.0635	34.295	35.3585	0	0	1.0645	36.423
GM TRUCK GROUP FLINT ASSEMBLY PLANT VAN SLYKE COMPLEX	G-3100 VAN SLYKE RD	FLINT	Michigan	48551	0.29	35.5	35.79	0	0	0.23	36.02
BALL METAL BEVERAGE CONTAINER CORP	501 N SIXTH ST	MONTICELLO	Indiana	47960	26	10	36	0	0	0	36
CROWN BEVERAGE PACKAGING	2501 N FRAZIER ST	CONROE	Texas	77305	29.291	4.775	34.066	0	0	0	34.066
CROWN FOOD PACKAGING	8801 CITATION RD	BALTIMORE	Maryland	21221	8.4905	25.471	33.9615	0	0	0	33.9615
BALL METAL BEVERAGE CONTAINER CORP	500 CRENSHAW BLVD	TORRANCE	California	90503	31	2.65	33.65	0	0	0	33.65
REXAM BEVERAGE CAN CO RE:OKLAHOMA CITY PLANT	3400 S COUNCIL RD	OKLAHOMA CITY	Oklahoma	73179	5.032	28.5175	33.5495	0	0	0	33.5495
FORD MOTOR CO KENTUCKY TRUCK PLANT	3001 CHAMBERLAIN LN	LOUISVILLE	Kentucky	40241	0.9	32.5	33.4	0	0	0.13	33.53
NISSAN NA INC SMYRNA MANUFACTURING PLANT	983 NISSAN DR	SMYRNA	Tennessee	37167	1.379	31.939	33.318	0	0	0	33.318

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
METAL CONTAINER CORP - MIRA LOMA CAN PLANT	10980 INLAND AVE	MIRA LOMA	California	91752	29.0325	3.7525	32.785	0	0	0	32.785
GREIF PACKAGING LLC	7425 INDUSTRIAL RD	FLORENCE	Kentucky	41042	1.3765	26.154	27.5305	0	0	4.7335	32.264
CROWN BEVERAGE PACKAGING	12910 JESS PIRTLE BLVD	SUGAR LAND	Texas	77478	27.9735	4.196	32.1695	0	0	0	32.1695
BALL METAL BEVERAGE CONTAINER CORP	2400 HUNTINGTON DR	FAIRFIELD	California	94533	12.5	19	31.5	0	0	0	31.5
BALL METAL BEVERAGE CONTAINER CORP	4525 INDIANA ST	GOLDEN	Colorado	80403	21	10.5	31.5	0	0	0	31.5
CHICAGO HEIGHTS STEEL	211 E MAIN ST	CHICAGO HEIGHTS	Illinois	60411	6.2785	25.113	31.3915	0	0	0	31.3915
THERMA-TRU CORP	601 RE JONES RD	BUTLER	Indiana	46721	0	31.029	31.029	0	0	0	31.029
SENECA FOODS CORP	801 SAUK AVE	BARABOO	Wisconsin	53913	0	29.8385	29.8385	0	0	1.0045	30.843
CROWN BEVERAGE PACKAGING	380 CALLE FABRIL ST KM 126 PR-3, I	CAROLINA	Puerto Rico	00985	7.531	22.5935	30.1245		0	0	30.1245
HONDA OF AMERICA MANUFACTURING INC	11000 STATE RT 347	EAST LIBERTY	Ohio	43319	1.95	27.5	29.45	0	0	0.11	29.56
EFCO CORP	1000 COUNTY RD	MONETT	Missouri	65708	1.1695	28.0645	29.234	0	0	0	29.234
BALL METAL BEVERAGE CONTAINER CORP	4700 WHITEWAY DR	TAMPA	Florida	33617	11.5	15.5	27	0	0	0	27
NISSAN NORTH AMERICA INC CANTON MS	300 NISSAN DR	CANTON	Mississippi	39046	2.0275	24.5915	26.619	0	0	0	26.619
CHRYSLER JEFFERSON NORTH ASSEMBLY PLANT	2101 CONNOR AVE	DETROIT	Michigan	48215	6.5	20	26.5	0	0	0.002	26.502
FLINT HILLS RESOURCES LP - WEST PLANT	2825 SUNTIDE RD	CORPUS CHRISTI	Texas	78410	0.055	0	0.055	0	0	26.2985	26.3535
NYW REALTY LLC/ HANOVER	500 E MIDDLE ST	HANOVER	Pennsylvania	17331	0	25.986	25.986		0	0	25.986
EDSAL MANUFACTURING CO INC	4400 S PACKER	CHICAGO	Illinois	60609	0	25.7385	25.7385	0	0	0	25.7385
AVX CORP MYRTLE BEACH	801 17TH AVE S	MYRTLE BEACH	South Carolina	29577	7.2445	2.136	9.3805	0.0005	0	15.955	25.336
CROWN BEVERAGE PACKAGING	195 CROWN RD	BATESVILLE	Mississippi	38606	22.54	2.711	25.251	0	0	0	25.251
CROWN BEVERAGE PACKAGING	1501 ST JAMES ST	LA CROSSE	Wisconsin	54603	22.8145	1.711	24.5255	0	0	0	24.5255
SAPA EXTRUSIONS INC	2500 ALUMAX RD	YANKTON	South Dakota	57078	0	24.4475	24.4475	0	0	0	24.4475
MAGNA STEYR NORTH AMERICA	3800 STICKNEY AVE	TOLEDO	Ohio	43608	2.95	21	23.95	0	0	0	23.95
AIR SYSTEM COMPONENTS LP	900 DARR PARK DR	PONCA CITY	Oklahoma	74601	0.2435	23.6125	23.856	0	0	0	23.856
MOBIL CHEMICAL CO	41501 WOLVERINE RD	SHAWNEE	Oklahoma	74804	0.375	23	23.375	0	0	0.0025	23.3775
WHIRLPOOL CORP FINDLAY DIV	4901 N MAIN ST	FINDLAY	Ohio	45840	2.2845	20.562	22.8465	0	0	0	22.8465
S B FOOT TANNING CO	805 BENCH ST	RED WING	Minnesota	55066	0	22.8265	22.8265	0	0	0	22.8265
CROWN BEVERAGE PACKAGING	100 EVANS ROW	CHERAW	South Carolina	29520	19.606	2.5155	22.1215	0	0	0	22.1215
SUBARU OF INDIANA AUTOMOTIVE INC	5500 STATE RD 38E	LAFAYETTE	Indiana	47905	0.22	21.9	22.12	0	0	0	22.12
BATESVILLE MANUFACTURING INC	175 MONOGARD DR	MANCHESTER	Tennessee	37355	1.088	20.6735	21.7615	0	0	0.0075	21.769

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
MEMC PASADENA INC	3000 N S ST	PASADENA	Texas	77503	12.6555	8.0295	20.685	0	0	0.89	21.575
PPG INDUSTRIES OHIO INC - DELAWARE	760 PITTSBURGH DR	DELAWARE	Ohio	43015	0.057	0	0.057	0	0	19.714	19.771
BWAY CORP	1601 VALDOSTA HWY	HOMERVILLE	Georgia	31634	19.247	0.3615	19.6085	0	0	0	19.6085
BALL METAL BEVERAGE CONTAINER CORP	1001 N FM 3083 E	CONROE	Texas	77303	14	4.6	18.6	0	0	0	18.6
SPECTRUM METAL FINISHING	535 BEV RD	YOUNGSTOWN	Ohio	44512	0.37	18.05	18.42	0	0	0	18.42
DEXTER CHASSIS GROUP PLANT 55	501 S MILLER DR	WHITE PIGEON	Michigan	49099	0	18.265	18.265	0	0	0.0985	18.3635
ROLL COATER INC	1950 E MAIN ST	GREENFIELD	Indiana	46140	0.033	18.318	18.351	0	0	0	18.351
BALL METAL BEVERAGE CONTAINER CORP	11 ADAMS RD	SARATOGA SPRING	New York	12866	3.3	15	18.3	0	0	0	18.3
GM SPRING HILL MANUFACTURING	100 SATURN PKWY MAIL DROP 371-	SPRING HILL	Tennessee	37174	0.175	18	18.175	0	0	0	18.175
OLDCASTLE BUILDING ENVELOPE TEXAS FACILITY	803 AIRPORT RD	TERRELL	Texas	75160	2.7755	14.8745	17.65	0	0	0	17.65
UNION CARBIDE CORP SEADRIFT PLANT	7501 N HWY 185	SEADRIFT	Texas	77983	13.899	3.1365	17.0355	0	0	0.027	17.0625
HONDA MANUFACTURING OF ALABAMA LLC	1800 HONDA DR	LINCOLN	Alabama	35096	0.198	16.555	16.753	0	0	0	16.753
NUCOR VULCRAFT GROUP GRAPELAND DIV	175 COUNTY RD 2345	GRAPELAND	Texas	75844	0.15	16.287	16.437	0	0	0	16.437
PPG INDUSTRIES INC-OAK CREEK	10800 S 13TH ST	OAK CREEK	Wisconsin	53154	15.48	0.374	15.854	0	0	0.424	16.278
NORTH COAST CONTAINER CORP	8806 CRANE AVE	CLEVELAND	Ohio	44105	0	16.0815	16.0815	0	0	0	16.0815
TOYOTA MOTOR MANUFACTURING INDIANA INC	4000 TULIP TREE DR	PRINCETON	Indiana	47670	9.7535	6.3155	16.069	0	0	0	16.069
ALLIED TUBE & CONDUIT CORP	16100 S LATHROP AVE	HARVEY	Illinois	60426	10.022	5.9115	15.9335	0	0	0	15.9335
NOVELIS CORP	390 GRISWOLD ST NE	WARREN	Ohio	44483	4.657	11.265	15.922	0	0	0	15.922
METAL INDUSTRIES INC - BUSHNELL	400 W WALKER AVE	BUSHNELL	Florida	33513	0.0765	15.742	15.8185	0	0	0	15.8185
BOEING COMMERCIAL AIRPLANE GROUP - EVERETT	3003 W CASINO RD	EVERETT	Washington	98204	1.6	14	15.6	0	0.0075	0	15.6075
AIR SYSTEM COMPONENTS LP	3301 N MAIN ST	TARBORO	North Carolina	27886	0.155	14.7635	14.9185	0	0	0.2665	15.185
HAMMER PACKAGING CORP	200 LUCIUS GORDON DR	WEST HENRIETTA	New York	14586	0	15.118	15.118	0	0	0	15.118
S D WARREN CO	89 CUMBERLAND ST	WESTBROOK	Maine	04098	0.0015	15	15.0015	0.055	0	0	15.0565
SEIDEL TANNING CORP	1306 E MEINECKE AVE	MILWAUKEE	Wisconsin	53212	0	14.8525	14.8525	0	0	0	14.8525
HART & COOLEY INC	4910 MOORES MILL RD	HUNTSVILLE	Alabama	35811	0.852	13.4005	14.2525	0	0	0.598	14.8505
PELLA CORP	102 MAIN ST	PELLA	Iowa	50219	0.125	14.444	14.569	0	0	0	14.569
BALL CONTAINER LLC	105 E BLACKHAWK DR	FORT ATKINSON	Wisconsin	53538	3.55	11	14.55	0	0	0	14.55
ALCOA INC - WARRICK OPERATIONS	HWYS 66 & 61	NEWBURGH	Indiana	47629	0	14.5275	14.5275	0	0	0	14.5275
L A DARLING CO - PIGGOTT AR FACILITY	HWY 49 S	PIGGOTT	Arkansas	72454	0.167	14.203	14.37	0	0	0	14.37

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Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
MPM SILICONES LLC	3500 S STATE RT 2	FRIENDLY	West Virginia	26146	2.2045	0.005	2.2095	9.3265	0	2.805	14.341
PROFESSIONAL DISPOSABLES INTERNATIONAL INC	TWO NICE-PAK PARK	ORANGEBURG	New York	10962	0.043	0.133	0.176	0	0	14	14.176
JOHNSON WELDED PRODUCTS INC	625 S EDGEWOOD AVE	URBANA	Ohio	43078	0	14.069	14.069	0	0	0	14.069
REXAM BEVERAGE CAN CO FAIRFIELD PLANT	2433 CROCKER CIR	FAIRFIELD	California	94533	5.4755	8.5055	13.981	0	0	0	13.981
EASTMAN CHEMICAL CO TEXAS OPERATIONS	300 KODAK BLVD	LONGVIEW	Texas	75602	12	1.8	13.8	0	0.001	0	13.801
MUELLER CO	956 INDUSTRIAL BLVD	ALBERTVILLE	Alabama	35950	6.892	6.892	13.784	0	0	0	13.784
CROWN BEVERAGE PACKAGING	400 N WALNUT ST	CRAWFORDSVILLE	Indiana	47933	10.035	3.7435	13.7785	0	0	0	13.7785
ALSTOM POWER INC PLATE FORMED PRODUCTS DIV	911 W MAIN ST	CHATTANOOGA	Tennessee	37402	13.7535	0	13.7535	0	0	0	13.7535
PRECOAT METALS	1095 MENDELL DAVIS DR	JACKSON	Mississippi	39272	12.341	1.283	13.624	0	0	0	13.624
GENERAL MOTORS CORP LORDSTOWN COMPLEX	2300 HALLOCK-YOUNG RD	LORDSTOWN	Ohio	44481	12	0.22	12.22	0	0	1.15	13.37
KNAPHEIDE MANUFACTURING CO	1848 WESTPHALIA STRASSE	QUINCY	Illinois	62305	0.131	12.98	13.111		0	0	13.111
BEMIS MANUFACTURING CO PLANT B	300 MILL ST	SHEBOYGAN FALLS	Wisconsin	53085	0	13.105	13.105	0	0	0	13.105
BALL METAL BEVERAGE CONTAINER CORP	95 BALLARD RD	MIDDLETOWN	New York	10940	6	7	13	0	0	0	13
BALL METAL BEVERAGE CONTAINER CORP	6600 WILL ROGERS BLVD	FORT WORTH	Texas	76140	5.5	7.5	13	0	0	0	13
CAN CORP OF AMERICA INC	326 JUNE AVE	BLANDON	Pennsylvania	19510	3.168	9.601	12.769	0	0	0	12.769
SILGAN CONTAINERS MANUFACTURING CORP	305 W N ST	MOUNT VERNON	Missouri	65712	2.621	10.1265	12.7475	0	0	0	12.7475
BALL METAL BEVERAGE CONTAINER CORP	91-320 KOMOHANA ST	KAPOLEI	Hawaii	96707	2.2	10.5	12.7	0	0	0	12.7
AUTOALLIANCE INTERNATIONAL INC	1 INTERNATIONAL DR	FLAT ROCK	Michigan	48134	0.0025	12.5975	12.6	0	0	0	12.6
BEDFORD MATERIALS CO INC	7676 ALLEGHENY RD	MANNS CHOICE	Pennsylvania	15550	1.2505	11.3215	12.572	0	0	0	12.572
HUNTSMAN PETROCHEMICAL LLC PORT NECHES PERFORMANCE PRODUCTS	6001 HWY 366	PORT NECHES	Texas	77651	0.079	0	0.079	0	0	12.4175	12.4965
QUAD/GRAPHICS INC	1900 W SUMNER ST	HARTFORD	Wisconsin	53027	12	0.4	12.4	0	0	0	12.4
FORD LOUISVILLE ASSEMBLY	2000 FERN VALLEY RD	LOUISVILLE	Kentucky	40213	0.125	12	12.125	0	0	0.13	12.255
MERCEDES-BENZ US INTERNATIONAL INC	1 MERCEDES DR	VANCE	Alabama	35490	2.3115	9.8975	12.209	0	0	0	12.209
MODINE MANUFACTURING CO INC	551 TAPP RD	HARRODSBURG	Kentucky	40330	1.202	10.817	12.019	0	0	0	12.019
M&B HANGERS	1313 PKWY DR SE	LEEDS	Alabama	35094	2.399	9.596	11.995	0	0	0	11.995
CROWN FOOD PACKAGING	1650 BROADWAY	HANOVER	Pennsylvania	17331	2.852	8.5555	11.4075	0	0	0	11.4075
TOKICO (USA) INC	301 MAYDE RD	BEREA	Kentucky	40403	0.245	11.058	11.303	0	0	0.0005	11.3035
NUCOR CORP VULCRAFT/NUCOR COLD FINISH DIV	1601 W OMAHA AVE	NORFOLK	Nebraska	68701	0.8	10.5	11.3	0	0	0	11.3
AKZO NOBEL COATINGS INC	1629 VANDERBILT RD	BIRMINGHAM	Alabama	35234	11.1405	0.159	11.2995	0	0	0	11.2995

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MEADWESTVACO CONSUMER PACKAGING GROUP LLC	7411 OAKWOOD ST	MEBANE	North Carolina	27302	11.2585	0	11.2585	0	0	0	11.2585
CROWN FOOD PACKAGING	5201 ENTERPRISE BLVD	TOLEDO	Ohio	43612	2.806	8.409	11.215	0	0	0	11.215
AMERICAN TRIM LLC	1501 W MICHIGAN ST	SIDNEY	Ohio	45365	0	11.167	11.167	0	0	0	11.167
GEA BPO LLC	301 N CURRY PIKE	BLOOMINGTON	Indiana	47404	0	11.046	11.046	0	0	0	11.046
HEXION SPECIALTY CHEMICALS INC	2525 S COMBEE RD	LAKELAND	Florida	33801	9.3205	0.0195	9.34	0	0	1.686	11.026
GERSTENSLAGER CO	1425 E BOWMAN ST	WOOSTER	Ohio	44691	0.325	10.512	10.837	0	0	0.004	10.841
BROAN-NUTONE LLC	926 W STATE ST	HARTFORD	Wisconsin	53027	0.1135	10.6365	10.75	0	0	0	10.75
POWER PARTNERS INC	200 NEWTON BRIDGE RD	ATHENS	Georgia	30607	0	10.75	10.75	0	0	0	10.75
VESTAL MANUFACTURING ENTERPRISES INC	177 INDUSTRIAL PARK RD	SWEETWATER	Tennessee	37874	10.7105	0	10.7105	0	0	0	10.7105
FRANKLIN INVESTMENT CORP	600 ATLANTIC AVE	FRANKLIN	Pennsylvania	16323	10.7	0	10.7	0	0	0	10.7
TRI VULCRAFT OF NEW YORK INC	5362 RAILROAD ST	CHEMUNG	New York	14825	4.5235	5.7985	10.322	0	0	0.2615	10.5835
CECO DOOR PRODUCTS	9159 TELECOM DR	MILAN	Tennessee	38358	5.289	5.289	10.578	0	0	0	10.578
INGERSOLL-RAND CO STEELCRAFT DIV	9017 BLUE ASH RD	CINCINNATI	Ohio	45242	2.5475	7.9325	10.48	0	0	0	10.48
MEYER STEEL DRUM INC	2000 S KILBOURN AVE	CHICAGO	Illinois	60623	1.1265	9.112	10.2385	0	0	0	10.2385
BALL AEROSOL & SPECIALTY CONTAINER INC	1717 GIFFORD RD	ELGIN	Illinois	60120	1.65	8.5	10.15	0	0	0	10.15
CARDONE INDUSTRIES	5660 RISING SUN AVE	PHILADELPHIA	Pennsylvania	19120	1.987	8.1175	10.1045	0	0	0	10.1045
KAWNEER CO INC	600 KAWNEER DR	SPRINGDALE	Arkansas	72764	4.781	5.2985	10.0795	0	0	0	10.0795
MAYFLOWER VEHICLE SYSTEMS INC NORWALK FACILITY	55 N GARFIELD ST	NORWALK	Ohio	44857	0	10	10	0	0	0	10
YKK AP AMERICA INC	332 FIRETOWER RD	DUBLIN	Georgia	31021	9.541	0.351	9.892	0	0	0	9.892
RR DONNELLEY CRAWFORDSVILLE	1009 SLOAN ST	CRAWFORDSVILLE	Indiana	47933	5.107	4.785	9.892	0	0	0	9.892
BERENFIELD CONTAINERS SW LTD	3300 N HUTCHINSON ST	WHITE HALL	Arkansas	71602	0	9.8915	9.8915	0	0	0	9.8915
COOK COMPOSITES & POLYMERS CO	340 RAILROAD ST	SAUKVILLE	Wisconsin	53080	0.7885	0.0595	0.848	0	0	9.0035	9.8515
KEYMARK CORP OF FLORIDA	2540 KNIGHTS STATION RD	LAKELAND	Florida	33810	0.4925	9.355	9.8475	0	0	0	9.8475
LAKESIDE LITHOGRAPHY LLC	1600 S LAFLIN ST	CHICAGO	Illinois	60608	1	8.75	9.75	0	0	0	9.75
PENN COLOR INC	2755 BERGEY RD	HATFIELD	Pennsylvania	19440	0.2255	0.479	0.7045	0	0	9.0065	9.711
NUCOR VULCRAFT GROUP SAINT JOE DIV	6610 COUNTY RD 60	SAINT JOE	Indiana	46785	4.2105	1.6955	5.906	0	0	3.7695	9.6755
RINECO	1007 VULCAN RD- HASKELL	BENTON	Arkansas	72015	0.0495	0	0.0495	0	0	9.6	9.6495
ROYAL MOULDINGS LTD; MARION VIRGINIA	135 BEAR CREEK RD	MARION	Virginia	24354	0.3835	9.1695	9.553	0	0	0	9.553

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
HEWLETT-PACKARD CARIBE BV SITE	HWY 110 N KM 5.1	AGUADILLA	Puerto Rico	00605	0.125	9.405	9.53	0	0	0	9.53
3M CO - GUIN	6675 US HWY 43	GUIN	Alabama	35563	0.001	9.5	9.501	0	0	0	9.501
STANLEY WORKS HAND TOOLS DIV	600 MYRTLE ST	NEW BRITAIN	Connecticut	06052	0.946	8.514	9.46	0	0	0	9.46
CIRCLE GRAPHICS INC	120 9TH AVE	LONGMONT	Colorado	80501	3.05	1.9	4.95	0	0	4.5	9.45
NUCOR CORP VULCRAFT DIV	1501 W DARLINGTON ST	FLORENCE	South Carolina	29501	8.525	0.9115	9.4365	0	0	0	9.4365
EPCO EXTRUSION PAINTING CO	413 MCCLURG RD	BOARDMAN	Ohio	44512	0.8375	8.375	9.2125	0	0	0	9.2125
QUAD/GRAPHICS INC	N63 W23075 STATE HWY 74 ATTN: E	SUSSEX	Wisconsin	53089	8.275	0.925	9.2	0	0	0	9.2
HALLSTAR CO ESTER SOLUTIONS FACILITY	5851 W 73RD ST	BEDFORD PARK	Illinois	60638	1.134	0.1295	1.2635	0	0	7.931	9.1945
SILGAN CONTAINERS MANUFACTURING CORP	2115 SW LOWER LAKE RD	SAINT JOSEPH	Missouri	64504	6.299	2.891	9.19	0	0	0	9.19
KUBIN-NICHOLSON CORP	8448 N 87TH ST	MILWAUKEE	Wisconsin	53224	9.148	0	9.148	0	0	0	9.148
SILGAN CAN CO	2120 NC HWY N UNIT A	MAXTON	North Carolina	28364	2.965	6.16	9.125	0	0	0	9.125
SILGAN CAN CO	12-773 ST RT 110	NAPOLEON	Ohio	43545	2.438	6.571	9.009	0	0	0	9.009
SQUARE D CO	1601 MERCER RD	LEXINGTON	Kentucky	40511	0	9.0085	9.0085	0	0	0	9.0085
HESS PRINT SOLUTIONS	3765 SUNNYBROOK RD	BRIMFIELD	Ohio	44240	9	0	9	0	0	0	9
CROWN AEROSOL PACKAGING	3737 E EXCHANGE AVE	AURORA	Illinois	60504	7.8805	0.991	8.8715	0	0	0	8.8715
SILGAN CONTAINERS MANAUFACTURING CORP	520 W 2ND ST	OCONOMOWOC	Wisconsin	53066	1.75	7.05	8.8	0	0	0	8.8
GENERAL MOTORS LANSING DELTA TOWNSHIP	8175 MILLETT HWY	LANSING	Michigan	48917	0.23	8.5	8.73	0	0	0.0105	8.7405
TOPPAN INTERAMERICA INC	1131 HWY 155 S	MC DONOUGH	Georgia	30253	0	8.7	8.7	0	0	0	8.7
SILGAN WHITE CAP CORP	2201 W MARYLAND ST	EVANSVILLE	Indiana	47710	1.9	6.75	8.65	0	0	0	8.65
TOYOTA MOTOR MANUFACTURING TEX AS INC	1 LONE STAR PASS	SAN ANTONIO	Texas	78264	5.2135	3.4115	8.625	0	0	0	8.625
FORD MOTOR COMPANY-WAYNE ASSEMBLY	37625 MICHIGAN AVE	WAYNE	Michigan	48184	0.085	8.5	8.585	0	0	0	8.585
MAYTAG CORP CLEVELAND COOKING PRODUCTS PLANT 1	740 KING EDWARD AVE SE	CLEVELAND	Tennessee	37311	0	8.5585	8.5585	0	0	0	8.5585
RR DONNELLEY & SONS CO	1145 CONWELL AVE	WILLARD	Ohio	44890	6.0815	2.366	8.4475	0	0	0	8.4475
SIGNODE	7701 W 71ST ST	BRIDGEVIEW	Illinois	60455	0.85	7.55	8.4	0	0	0	8.4
BERENFIELD CONTAINERS INC	31 RAILROAD ST	CLARENDON	Pennsylvania	16313	0.0755	8.2925	8.368		0	0	8.368
GM ORION ASSEMBLY CENTER	4555 GIDDINGS RD	ORION	Michigan	48359	6.5	0.8	7.3	0	1.05	0	8.35
MASTERBRAND CABINETS INC	217 S OAK ST	ARTHUR	Illinois	61911	0	8.25	8.25	0	0	0	8.25
SILGAN CAN CO	500 NW LOOP 286 SUITE 101	PARIS	Texas	75460	4.945	3.217	8.162	0	0	0	8.162
BERENFIELD CONTAINERS INC MASON	1229 CASTLE DR	MASON	Ohio	45040	0.375	7.508	7.883		0	0	7.883

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
NOV DOWNHOLE TOOLS CASPER	778 CIR DR	CASPER	Wyoming	82601	0	0	0	0	0	7.857	7.857
LA-Z-BOY TENNESSEE	500 WALNUT GROVE RD	DAYTON	Tennessee	37321	0	7.823	7.823	0	0	0	7.823
DECORATIVE PANELS INTERNATIONA L	2900 HILL AVE	TOLEDO	Ohio	43607	7.5945	0.0135	7.608	0	0	0	7.608
GREIF PACKAGING LLC	2400 COOPER AVE	MERCED	California	95348	6.4965	1.0605	7.557	0	0	0	7.557
GM TRUCK GROUP FORT WAYNE ASSEMBLY	12200 LAFAYETTE CENTER RD	ROANOKE	Indiana	46783	0.475	7	7.475	0	0	0	7.475
WHITING DOOR MANUFACTURING CORP	113 CEDAR ST	AKRON	New York	14001	0	7.4105	7.4105	0	0	0	7.4105
HOWARD FINISHING LLC	32565 DEQUINDRE	MADISON HEIGHTS	Michigan	48071	0.0025	7.3555	7.358	0	0	0	7.358
SILGAN CONTAINERS MANUFACTURING CORP	135 NATIONAL RD	EDISON	New Jersey	08817	6	1.35	7.35	0	0	0	7.35
BWAY CORP	3200 S KILBOURN AVE	CHICAGO	Illinois	60623	4.3655	2.886	7.2515	0	0	0	7.2515
SILGAN CONTAINERS MANUFACTURING CORP	1416 INDIANHEAD DR	MENOMONIE	Wisconsin	54751	1.45	5.8	7.25	0	0	0	7.25
NASHVILLE WIRE PRODUCTS	1604 COUNTY HOSPITAL RD	NASHVILLE	Tennessee	37218	0.7	6.5	7.2	0	0	0	7.2
CHICAGO STEEL CONTAINER CORP	1846 S KILBOURN AVE	CHICAGO	Illinois	60623	1.3	5.89	7.19	0	0	0	7.19
DOW CHEMICAL CO FREEPORT FACILITY	2301 N BRAZOSPORT BLVD BUILDIN	FREEPORT	Texas	77541	0.1645	0.0035	0.168	3.2305	0	3.7895	7.188
BENJAMIN MOORE & CO JOHNSTOWN	UNION AVE EXTENSION	JOHNSTOWN	New York	12095	0.014	0	0.014	0	0	7.1215	7.1355
SHIELDCOAT TECHNOLOGIES INC (DBA CYBERSHIELD OF TEXAS)	2602 SPENCE ST	LUFKIN	Texas	75904	7.1205	0	7.1205	0	0	0	7.1205
WIX FILTRATION CORP - ALLEN PLANT	2900 NW BLVD	GASTONIA	North Carolina	28052	0.0025	7.1	7.1025	0	0	0	7.1025
RR DONNELLEY LANCASTER WEST	1375 HARRISBURG PIKE	LANCASTER	Pennsylvania	17601	6.6515	0.445	7.0965	0	0	0	7.0965
NUCOR CORP VULCRAFT DIV	7205 GAULT AVE N	FORT PAYNE	Alabama	35967	5.101	1.822	6.923	0	0	0	6.923
GREIF PACKAGING LLC	6000 JEFFERSON HWY	NEW ORLEANS	Louisiana	70123	2.673	4.1805	6.8535	0	0	0	6.8535
SONOCO PHOENIX - PRESIDENTS ISLAND	2755 HARBOR AVE	MEMPHIS	Tennessee	38113	0	6.841	6.841	0	0	0	6.841
AFTON CHEMICAL CORP	725 CANNON BRIDGE RD	ORANGEBURG	South Carolina	29115	3.179	0.526	3.705	0.247	0	2.8645	6.8165
ACME FINISHING CO INC	1595 E OAKTON ST	ELK GROVE VILLAGI	Illinois	60007	1.359	5.435	6.794	0	0	0	6.794
EQUISTAR CHEMICALS BAYPORT CHEMICALS PLANT	5761 UNDERWOOD RD	PASADENA	Texas	77507	6.753	0.0095	6.7625	0	0	0	6.7625
COLOR COMMUNICATIONS INC	4242 W FILLMORE	CHICAGO	Illinois	60624	1.419	5.3145	6.7335	0	0	0	6.7335
CHRYSLER WARREN TRUCK ASSEMBLY PLANT (PART)	21500 MOUND RD	WARREN	Michigan	48091	6	0.7	6.7	0	0	0.0055	6.7055
IMPRESS USA INC	936 BARRACUDA ST	TERMINAL ISLAND	California	90731	6.15	0.55	6.7	0	0	0	6.7
BERENFIELD CONTAINERS SE LTD	12180 UNIVERSITY CITY BLVD	HARRISBURG	North Carolina	28075	0	6.6745	6.6745	0	0	0	6.6745
GMVM-LANSING GRAND RIVER ASSEMBLY	920 TOWNSEND ST MAIL CODE: 489-	LANSING	Michigan	48921	3.55	3.1	6.65	0	0	0	6.65

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
KITZINGER COOPERAGE CORP	2529 E NORWICH AVE	SAINT FRANCIS	Wisconsin	53235	0	6.6085	6.6085	0	0	0	6.6085
ARMSTRONG HARDWOOD FLOORING CO	565 HARTCO DR	ONEIDA	Tennessee	37841	0	6.568	6.568	0	0	0	6.568
HIRSH INDUSTRIES INC	1525 MCKEE RD	DOVER	Delaware	19904	0.0025	6.5135	6.516	0	0	0	6.516
WORLDCOLOR - DYERSBURG DIV	2030 SYLVAN RD	DYERSBURG	Tennessee	38024	6.2595	0.111	6.3705	0	0	0	6.3705
ESCO CORP	9098 EASTSIDE DR EXT	NEWTON	Mississippi	39345	6.312	0	6.312		0	0	6.312
JOHN DEERE HARVESTER WORKS EAST MOLINE	1100 13TH AVE	EAST MOLINE	Illinois	61244	0.3145	5.9755	6.29	0	0	0	6.29
AKZO NOBEL SURFACE CHEMISTRY LLC	15200 ALMEDA RD	HOUSTON	Texas	77053	0.626	0.116	0.742	0	0	5.4675	6.2095
QUEBECOR WORLD DIRECT-PETTY	420 W INDUSTRIAL AVE	EFFINGHAM	Illinois	62401	6.155	0	6.155	0	0	0	6.155
PACKAGING DYNAMICS INC BAGCRAFT/PAPERCON DIV	3400 BAGCRAFT BLVD	BAXTER SPRINGS	Kansas	66713	0	6.15	6.15	0	0	0	6.15
GMTG - SHREVEPORT ASSEMBLY	7600 GENERAL MOTORS BLVD	SHREVEPORT	Louisiana	71129	0.105	6	6.105	0	0	0	6.105
SENECA FOODS CORP CAN PLANT	3709 MILL ST	MARION	New York	14505	0	6.103	6.103		0	0	6.103
NOVOLYTE TECHNOLOGIES	111 W IRENE RD	ZACHARY	Louisiana	70791	4.7	0.445	5.145	0.95	0	0	6.095
CARRY-ON TRAILER CORP	1965 HWY 30	MISSOURI VALLEY	Iowa	51555	0	6.013	6.013	0	0	0	6.013
SILGAN CONTAINERS MANUFACTURING CORP	2501 165TH ST	HAMMOND	Indiana	46320	0	6	6	0	0	0	6
METOKOTE CORP PLANT 15	312 SAVANNAH	CEDAR FALLS	Iowa	50613	0	5.991	5.991	0	0	0	5.991
ELECTROPRIME INC	63 DIXIE HWY	ROSSFORD	Ohio	43460	0	5.952	5.952	0	0	0	5.952
QUAD/GRAPHICS INC	56 DUPLAINVILLE RD	SARATOGA SPRING	New York	12866	5.575	0.325	5.9	0	0	0	5.9
FIBERMARK NORTH AMERICA INC	5492 BOSTWICK ST	LOWVILLE	New York	13367	0.0595	5.8	5.8595	0	0	0	5.8595
BRADFORD WHITE CORP	200 LAFAYETTE ST	MIDDLEVILLE	Michigan	49333	0	5.837	5.837	0	0	0	5.837
TECNOCAP LLC	2100 GRISWOLD NE	WARREN	Ohio	44483	2.074	3.7205	5.7945	0	0	0	5.7945
VON HOFFMANN GRAPHICS INC	1005 COMMERCIAL DR	OWENSVILLE	Missouri	65066	4.147	1.6345	5.7815	0	0	0	5.7815
U.S. AIR FORCE TINKER AFB OK	7701 ARNOLD ST SUITE 204	TINKER A F B	Oklahoma	73145	1.6	4.15	5.75	0	0	0.0165	5.7665
HUNTER DOUGLAS TUPELO CENTER	RT 2 LEE INDUSTRIAL PARK E	SHANNON	Mississippi	38868	0.274	5.4825	5.7565	0	0	0	5.7565
CROWN FOOD PACKAGING	851 E MAPLE ST	WINTER GARDEN	Florida	34787	1.3385	4.4155	5.754	0	0	0	5.754
RR DONNELLEY LANCASTER EAST	216 GREENFIELD RD	LANCASTER	Pennsylvania	17601	5.319	0.3725	5.6915	0	0	0	5.6915
ROLL COATER INC	4502 FREEDOM WAY	WEIRTON	West Virginia	26062	0	5.684	5.684	0	0	0	5.684
CNH AMERICA LLC	1930 DES MOINES AVE	BURLINGTON	Iowa	52601	0.175	5.5	5.675		0	0	5.675
NAVISTAR INC	6125 URBANA RD	SPRINGFIELD	Ohio	45502	0.6	5	5.6	0.015	0	0.0305	5.6455
HUSQVARNA CONSUMER OUTDOOR PRODUCTS	172 OLD ELLOREE RD	ORANGEBURG	South Carolina	29116	0.115	5.525	5.64	0	0	0	5.64

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Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
PRECOAT METALS	25 NORTHGATE INDUSTRIAL DR	GRANITE CITY	Illinois	62040	4.4645	1.0945	5.559	0	0	0	5.559
LOGAN ALUMINUM INC	US HWY 431 N	RUSSELLVILLE	Kentucky	42276	0.0475	5.4965	5.544	0	0	0	5.544
PPG INDUSTRIES,INC-SPRINGDALE COMPLEX	125 COLFAX ST	SPRINGDALE	Pennsylvania	15144	5.4805	0.0435	5.524	0	0	0	5.524
GREIF PACKAGING LLC	4300 W 130TH ST	ALSIP	Illinois	60803	1.5795	3.93	5.5095	0	0	0	5.5095
USS - CLAIRTON WORKS	400 STATE ST	CLAIRTON	Pennsylvania	15025	5.5	0	5.5	0	0	0	5.5
CREE INC	4600 SILICON DR	DURHAM	North Carolina	27703	1.34	4.1565	5.4965	0	0	0	5.4965
TOYOTA MOTOR MANUFACTURING KENTUCKY INC	1001 CHERRY BLOSSOM WAY	GEORGETOWN	Kentucky	40324	0.125	5.35	5.475	0	0	0	5.475
PRIME TANNING CO - HARTLAND	9 MAIN ST	HARTLAND	Maine	04943	0.1085	5.3265	5.435	0	0	0	5.435
NAZDAR SHAWNEE	8501 HEDGE LN TERRACE	SHAWNEE	Kansas	66227	1.623	3.7875	5.4105	0	0	0	5.4105
BALL METAL FOOD CONTAINER CORP	300 W GREGER RD	OAKDALE	California	95361	0.75	4.65	5.4	0	0	0	5.4
3M CO - CORDOVA	22614 RT 84 N	CORDOVA	Illinois	61242	0.27	0.0385	0.3085	5.05	0	4.44089E-16	5.3585
OWENS CORNING VETROTEX LLC	4837 HWY 81 S	STARR	South Carolina	29684	0.5355	4.819	5.3545	0	0	0	5.3545
NEW MILLENNIUM BUILDING SYSTEMS	100 DIUGUIDS LN	SALEM	Virginia	24153	5.296	0	5.296	0	0	0	5.296
MID CONTINENT CABINETRY	67 E 2ND ST N	COTTONWOOD	Minnesota	56229	0.5285	4.758	5.2865	0	0	0	5.2865
AVERY DENNISON - IBMD LENOIR	950 GERMAN ST	LENOIR	North Carolina	28645	3.73	1.556	5.286	0	0	0	5.286
GREIF PACKAGING LLC	10850 STRANG RD	LA PORTE	Texas	77571	4.1335	0.085	4.2185	0	0	1.063	5.2815
SILGAN CAN CO	6200 FRANKLIN BLVD SUITE #100	SACRAMENTO	California	95824	4.864	0.407	5.271	0	0	0	5.271
ENKEI AMERICA INC	2900 W INWOOD DR	COLUMBUS	Indiana	47201	0	5.25	5.25	0	0	0.012	5.262
WORTHINGTON CYLINDERS WISCONSI N LLC	300 E BREED ST	CHILTON	Wisconsin	53014	0.9375	4.3205	5.258	0	0	0	5.258
METAL COATERS MISSISSIPPI	951 PRISOCK RD	JACKSON	Mississippi	39272	0	5.1255	5.1255	0	0	0	5.1255
MEDALLION CABINETRY INC	180 INDUSTRIAL BLVD	WACONIA	Minnesota	55387	0	5.0815	5.0815	0	0	0	5.0815
PRECOAT METALS	16402 JACINTOPORT BLVD	HOUSTON	Texas	77015	4.8145	0.2605	5.075	0	0	0	5.075
TRAD NA INC	210 BILL BRYAN BLVD	HOPKINSVILLE	Kentucky	42240	0.004	5.066	5.07	0	0	0	5.07
AGY AIKEN LLC	2556 WAGENER RD	AIKEN	South Carolina	29801	2.9835	0.8965	3.88	0	1.183	0	5.063
GREENWICH INDUSTRIES LP CLARIN DIV	927 N SHORE DR	LAKE BLUFF	Illinois	60044	0.0505	5.0075	5.058	0	0	0	5.058
ROLL COATER	858 E HUPP RD	LA PORTE	Indiana	46350	0.0025	5.0255	5.028	0	0	0	5.028
ALCOA HOME EXTERIORS INC	2615 CAMPBELL RD	SIDNEY	Ohio	45365	0.6675	3.95	4.6175	0	0	0.3	4.9175
SCHAEFFER MANUFACTURING	102 BARTON ST	SAINT LOUIS	Missouri	63104	4.8465	0	4.8465	0	0	0	4.8465
ASHLEY INDUSTRIAL MOLDING INC	310 S WABASH	ASHLEY	Indiana	46705	0.475	4.35	4.825	0	0	0	4.825

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US ARMY LAKE CITY ARMY AMMUNITION PLANT	INTERSECTION OF MO HWYS 7 & 78	INDEPENDENCE	Missouri	64051	1.3775	3.349	4.7265	0	0	0	4.7265
INX DIGITAL INK CO	405 INDUSTRIAL WAY	DIXON	California	95620	4.7155	0	4.7155	0	0	0	4.7155
NAHAN PRINTING INC	7000 SAUKVIEW DR	SAINT CLOUD	Minnesota	56303	4.577	0.132	4.709	0	0	0	4.709
AAP ST MARYS CORP	1100 MCKINLEY RD	SAINT MARYS	Ohio	45885	0.031	4.6575	4.6885	0	0	0	4.6885
ZURN INDUSTRIES LLC	1301 RASPBERRY ST	ERIE	Pennsylvania	16502	4.674	0	4.674	0	0	0	4.674
DUPONT PONTCHARTRAIN WORKS	586 HWY 44	LA PLACE	Louisiana	70068	0.005	0	0.005	0	0	4.596	4.601
ARVINMERITOR HEAVY VEHICLE SYSTEMS LLC	801 RAILROAD AVE	YORK	South Carolina	29745	0.001	4.5785	4.5795	0	0	0	4.5795
OMG AMERICAS	TWO MILE RUN RD	FRANKLIN	Pennsylvania	16323	0.025	0.634	0.659	0	0	3.8855	4.5445
SABIC INNOVATIVE PLASTICS MT VERNON LLC	1 LEXAN LN	MOUNT VERNON	Indiana	47620	2.7	1.7	4.4	0.125	0	0	4.525
GENERAL MOTORS WENTZVILLE ASSEMBLY	1500 E RT A	WENTZVILLE	Missouri	63385	0.85	3.65	4.5	0	0	0	4.5
RUSKIN CO	HWY 27 N	GENEVA	Alabama	36340	0.027	4.4635	4.4905	0	0	0	4.4905
ALLIANCE INDUSTRIES WAUPACA	N 2467 VAUGHAN RD	WAUPACA	Wisconsin	54981	0.447	4.0215	4.4685	0	0	0	4.4685
GENIE INDUSTRIES SOUTH CAMPUS	18700 NE 65TH ST	REDMOND	Washington	98052	0.125	4.29	4.415	0	0	0	4.415
ENDICOTT INTERCONNECT TECHNOLOGIES INC	1093 CLARK ST	ENDICOTT	New York	13760	0.25	4.1155	4.3655	0.031	0	0	4.3965
BROWN PRINTING CO	2300 BROWN AVE	WASECA	Minnesota	56093	4.2665	0.057	4.3235	0	0	0	4.3235
BALL METAL BEVERAGE CONTAINER CORP	1800 REYNOLDS AVE	KANSAS CITY	Missouri	64120	4.15	0.09	4.24	0	0	0	4.24
BATESVILLE MANUFACTURING INC	310 CROWN RD	BATESVILLE	Mississippi	38606	0.6345	3.5955	4.23	0	0	0	4.23
SILGAN CONTAINERS MANUFACTURING CORP	N90 W14600 COMMERCE DR	MENOMONEE FALLS	Wisconsin	53051	0	4.2	4.2	0	0	0	4.2
GREIF PACKAGING LLC	695 LOUIS DR	WARMINSTER	Pennsylvania	18974	0.4005	0.65	1.0505	0	0	3.144	4.1945
SEQUA COATINGS CORP-PRECOAT M ETALS DIV	US HWY 12 AT RT 249	PORTAGE	Indiana	46368	0.2925	3.8895	4.182	0	0	0	4.182
R R DONNELLEY & SONS CO DANVILLE DIV	JOHN HILL BAILEY INDL PARK HWY	DANVILLE	Kentucky	40422	3.8845	0.272	4.1565	0	0	0	4.1565
BROWN PRINTING CO	11595 MCCONNELL RD	WOODSTOCK	Illinois	60098	4.035	0.09	4.125	0	0	0	4.125
SILGAN CONTAINER MANUFACTURING CORP	3250 PATTERSON RD	RIVERBANK	California	95367	0.218	3.8875	4.1055	0	0	0	4.1055
QUEBECOR WORLD	8649 HACKS CROSS RD	OLIVE BRANCH	Mississippi	38654	0.375	3.722	4.097		0	0	4.097
CLARIANT CORP - MOUNT HOLLY WEST PLANT	625 E CATAWBA AVE	MOUNT HOLLY	North Carolina	28120	0	0.0545	0.0545	0	3.48	0.534	4.0685
VAN CAN CO	10837 ETIWANDA AVE	FONTANA	California	92337	3.5	0.55	4.05	0	0	0	4.05
WORLDCOLOR STILLWATER (WAS QUEBECOR WORLD - STILLWATER DIV)	100 W AIRPORT RD	STILLWATER	Oklahoma	74075	3.517	0.4105	3.9275	0	0	0	3.9275
PRO LINE PRINTING ARLINGTON	401 N GREAT SW PKWY	ARLINGTON	Texas	76011	3.8005	0.125	3.9255	0	0	0	3.9255
ALERIS ROLLED PRODUCTS INC	1372 KY HWY 1957	LEWISPORT	Kentucky	42351	0.125	3.6985	3.8235	0	0	0	3.8235

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
NESTLE PURINA PETCARE	1000 HAMILTON RD	WEIRTON	West Virginia	26062	0.993	2.809	3.802	0	0	0	3.802
RR DONNELLEY LOS ANGELES MANUFACTURING	19681 PACIFIC GATEWAY DR	TORRANCE	California	90502	3.706	0.0865	3.7925	0	0	0	3.7925
BROWN PRINTING CO	668 GRAVEL PIKE	EAST GREENVILLE	Pennsylvania	18041	3.6115	0.125	3.7365	0	0	0.006	3.7425
INLAND LABEL & MARKETING	2009 W AVE S	LA CROSSE	Wisconsin	54601	3.7245	0	3.7245	0	0	0	3.7245
PHOENIX CONTAINER INC	1202 AIRPORT RD	NORTH BRUNSWICK	New Jersey	08902	1.4665	2.21	3.6765	0	0	0	3.6765
BETCO CORP	1001 BROWN AVE	TOLEDO	Ohio	43607	3.674	0	3.674	0	0	0	3.674
FUJIFILM NORTH AMERICA CORP	20 W 14TH AVE	NORTH KANSAS CIT	Missouri	64116	0	3.547	3.547	0	0	0	3.547
FORD MOTOR CO TWIN CITIES ASSEMBLY PLANT	966 S MISSISSIPPI RIVER BLVD	SAINT PAUL	Minnesota	55116	0.41	3	3.41	0	0	0.13	3.54
AVERY DENNISON INDUSTRIAL PRODUCTS DIV	17700 FOLTZ PKWY	STRONGSVILLE	Ohio	44149	0.4595	3.0755	3.535	0	0	0	3.535
BATESVILLE MANUFACTURING INC -DOLL PLANT	1000 E PEARL ST	BATESVILLE	Indiana	47006	0.175	3.329	3.504	0	0	0	3.504
KODAK COLORADO DIV	9952 EASTMAN PARK DR	WINDSOR	Colorado	80551	0	0	0	3.486	0	0	3.486
MERIX CORP	1521 POPLAR LN	FOREST GROVE	Oregon	97116	0.0895	3.3955	3.485	0	0	0	3.485
SCHWAN'S GLOBAL SUPPLY CHAIN - SALINA KS	3019 SCANLAN	SALINA	Kansas	67401	0	3.4845	3.4845	0	0	0	3.4845
BWAY CORP BWAY PACKAGING DIV	8200 BROADWELL RD	CINCINNATI	Ohio	45244	3.1135	0.3665	3.48	0	0	0	3.48
APOLLO COLORS INC	1550 MOUND RD	ROCKDALE	Illinois	60436	0	0	0	0	0	3.469	3.469
TTM PRINTED CIRCUIT GROUP - S TAFFORD DIV	4 OLD MONSON RD	STAFFORD	Connecticut	06075	0	3.403	3.403	0	0	0	3.403
BON L MANUFACTURING CO	508 W WILSON ST	KENTLAND	Indiana	47951	0.33	3.05	3.38	0	0	0.005	3.385
PONTIAC ASSEMBLY CENTER	2100 S OPDYKE RD	PONTIAC	Michigan	48341	0.335	3.05	3.385	0	0	0	3.385
WORLDCOLOR LEBANON DIV	760 FUJITEC DR	LEBANON	Ohio	45036	2.938	0.438	3.376	0	0	0	3.376
QUEBECOR WORLD INC WINCHESTER VIRGINIA	160 CENTURY LN STONEWALL INDU	WINCHESTER	Virginia	22603	3.202	0.1495	3.3515	0	0	0	3.3515
AK STEEL CORP - ZANESVI LLE WORKS	1724 LINDEN AVE	ZANESVILLE	Ohio	43701	0	2.45	2.45	0	0	0.9	3.35
SHERWIN-WILLIAMS CO	2150 W SAND LAKE RD	ORLANDO	Florida	32809	0	0.0015	0.0015	0	0	3.3465	3.348
KAWASAKI MOTORS MANUFACTURING CORP USA	6600 NW 27TH ST	LINCOLN	Nebraska	68524	0.3235	2.8725	3.196	0	0	0.125	3.321
SILGAN CONTAINERS MANUFACTURING CORP	8673 LYONS-MARENGO RD	LYONS	New York	14489	0.6	2.7	3.3	0	0	0	3.3
TYCO FIRE SUPPRESSION & BUILDING PRODUCTS	1 STANTON ST	MARINETTE	Wisconsin	54143	0.0065	3.189	3.1955	0	0	0	3.1955
CROWN FOOD PACKAGING	10200 N LOMBARD ST	PORTLAND	Oregon	97203	1.191	1.9725	3.1635	0	0	0	3.1635
ST CHARLES OPERATIONS (TAFT/STAR) UNION CARBIDE CORP	355 LA HWY 3142 (GATE 1)	TAFT	Louisiana	70057	0.62	0.925	1.545	1.565	0	0.0005	3.1105
CROWN EQUIPMENT CORP	2600 E STATE RD 240	GREENCASTLE	Indiana	46135	0	3.104	3.104	0	0	0	3.104
SILGAN CONTAINERS MANUFACTURING CORP	400 N 15TH ST	ROCHELLE	Illinois	61068	1.8115	1.26	3.0715	0	0	0	3.0715

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Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
3M CO - MENOMONIE	1425 STOKKE PKWY	MENOMONIE	Wisconsin	54751	0	0	0	0	0	3.05	3.05
MERCK SHARP & DOHME CORP	2778 SE SIDE HWY	ELKTON	Virginia	22827	0.705	0.805	1.51	1.465	0	0	2.975
DISC GRAPHICS	10 GILPIN AVE	HAUPPAUGE	New York	11788	0.7425	2.2275	2.97	0	0	0	2.97
DOW CHEMICAL CO	1790 BUILDING	MIDLAND	Michigan	48667	2.65	0.045	2.695	0.0035	0	0.256	2.9545
PPG INDUSTRIES ARCHITECTURAL FINISHES	1020 OLYMPIC DR	BATAVIA	Illinois	60510	0	0.52	0.52	0	0	2.431	2.951
ACCESS BUSINESS GROUP LLC	7575 FULTON ST E	ADA	Michigan	49355	2.815	0.132	2.947	0	0	0	2.947
ITW DYMON	805 E OLD 56 HWY	OLATHE	Kansas	66061	0.8825	2.059	2.9415	0	0	0	2.9415
MAXIM INTEGRATED PRODUCTS INC	9651 WESTOVER HILLS BLVD	SAN ANTONIO	Texas	78251	0	2.9395	2.9395	0	0	0	2.9395
SAPA EXTRUDER INC	2905 OLD OAKWOOD RD	GAINESVILLE	Georgia	30504	0	2.926	2.926	0	0	0	2.926
U.S. AIR FORCE ROBINS AFB GA	775 MACON ST BUILDING 1555	ROBINS AFB	Georgia	31098	1.597	0.93	2.527	0	0	0.382	2.909
PRECOAT METALS	3399 DAVEY ALLISON BLVD	HUEYTOWN	Alabama	35023	2.209	0.6895	2.8985	0	0	0	2.8985
VERTIS COMMUNICATIONS	4051 FONDORF DR	COLUMBUS	Ohio	43228	2.579	0.301	2.88	0	0	0	2.88
MAUSER CORP	14 CONVERY BLVD	WOODBRIDGE	New Jersey	07095	0.023	2.854	2.877	0	0	0	2.877
MOTOR CASTINGS CO	1323 S 65TH	MILWAUKEE	Wisconsin	53214	0	1.466	1.466	0	0	1.3885	2.8545
CURTIS METAL FINISHING CO	6645 SIMS DR	STERLING HEIGHTS	Michigan	48313	2.039	0.813	2.852	0	0	0	2.852
TITAN COATINGS INC	2025 EXCHANGE PL	BESSEMER	Alabama	35023	2.85	0	2.85	0	0	0	2.85
BALL METAL FOOD CONTAINER CORP	1200 S CRUTCHER ST	SPRINGDALE	Arkansas	72764	0.015	2.8	2.815	0	0	0	2.815
MAXIM INTEGRATED PRODUCTS INC	3725 N FIRST ST	SAN JOSE	California	95134	2.785	0	2.785	0	0	0	2.785
3M CO - HUTCHINSON	905/915 ADAMS ST SE	HUTCHINSON	Minnesota	55350	0	2.767	2.767	0	0	0	2.767
MICHELIN NORTH AMERICA INC	5101 21ST ST	TUSCALOOSA	Alabama	35401	0.004	0.006	0.01	0	0	2.737	2.747
GOODYEAR TIRE & RUBBER CO. AKRON TECHNICAL CENTER	200 S. MARTHA AVE	AKRON	Ohio	44309	0	0	0	0	0	2.7435	2.7435
WORLDCOLOR ATGLEN	4581 LOWER VALLEY RD	ATGLEN	Pennsylvania	19310	2.5835	0.1205	2.704	0	0	0	2.704
RR DONNELLEY STRASBURG DIV	ONE SHENANDOAH VALLEY DR	STRASBURG	Virginia	22657	2.6	0.1	2.7	0	0	0.0025	2.7025
RHODIA INC	2ND ST & BLUEBALL AVE	MARCUS HOOK	Pennsylvania	19061	0.161	0.0005	0.1615	0	0	2.492	2.6535
CENTRIA	530 N SECOND ST	CAMBRIDGE	Ohio	43725	1.3625	1.289	2.6515	0	0	0	2.6515
BON L MANUFACTURING CO	HWY 53 BONNELL RD	CARTHAGE	Tennessee	37030	0.9755	1.2295	2.205	0	0.36	0.037	2.602
MISSION KLEENSWEEP PRODUCTS INC	2434 BIRKDALE ST	LOS ANGELES	California	90031	2.6	0	2.6		0	0	2.6
SOLIANT LLC	1872 HWY 9 BYPASS W	LANCASTER	South Carolina	29721	0.566	1.995	2.561	0	0	0	2.561
GREIF INDUSTRIAL PACKAGING & SERVICES	7604 RAILROAD AVE	WINFIELD	Kansas	67156	0.255	2.2955	2.5505	0	0	0	2.5505

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Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
KNS COMPANYS INC	475 RANDY RD	CAROL STREAM	Illinois	60188	0.5035	2.015	2.5185	0	0	0	2.5185
BRILLION IRON WORKS INC	200 PARK AVE	BRILLION	Wisconsin	54110	2.0315	0.3605	2.392	0	0	0.125	2.517
TEXAS FINISHING CO	1801 SURVEYOR BLVD	CARROLLTON	Texas	75006	0	2.4885	2.4885	0	0	0	2.4885
WORLDCOLOR	451 INTERNATIONAL BLVD	CLARKSVILLE	Tennessee	37040	2.35	0.12	2.47	0	0	0	2.47
BRUNSWICK CORP MERCURY MARINE DIV	W6250 PIONEER RD	FOND DU LAC	Wisconsin	54935	0.2425	2.1815	2.424	0	0	0	2.424
DENSO MANUFACTURING TENNESSEE INC	1720, 1725, 1755 ROBERT C JACKSO	MARYVILLE	Tennesee	37801	0	2.3935	2.3935		0	0	2.3935
MASTER GUARD CORP	1200 E 8TH ST	VEEDERSBURG	Indiana	47987	0.024	2.349	2.373	0.0025	0.0025	0	2.3775
SANFORD LP	1 PENCIL ST	SHELBYVILLE	Tennessee	37160	0.125	2.226	2.351	0.0025	0	0	2.3535
ABC COMPOUNDING CO INC	6970 JONESBORO RD	MORROW	Georgia	30260	0.0025	0.375	0.3775	0.0025	0	1.964	2.344
ROPPE CORP	1602 N UNION ST	FOSTORIA	Ohio	44830	0.125	2.2045	2.3295	0	0	0	2.3295
AMERICAN COLOR GRAPHICS INC	215 N ZARFOSS DR	YORK	Pennsylvania	17404	2.073	0.2395	2.3125	0	0	0	2.3125
SUN CHEMICAL CORP	2445 PRODUCTION DR	SAINT CHARLES	Illinois	60174	0.299	1.9925	2.2915	0	0	0	2.2915
3M CO - BROWNWOOD	4501 HWY 377 S	BROWNWOOD	Texas	76801	0.065	2.2	2.265	0	0	0.007	2.272
KIK (HOUSTON) INC	2921 CORDER ST	HOUSTON	Texas	77054	2.265	0	2.265		0	0	2.265
SAFETY-KLEEN SYSTEMS INC	130 A FRONTAGE RD	LEXINGTON	South Carolina	29073	0	2.216	2.216	0	0	0	2.216
KAWNEER CO INC	2785 MCCRACKEN RD	HERNANDO	Mississippi	38632	0.2475	1.9595	2.207	0	0	0	2.207
AMERICAN COLOR GRAPHICS - LUFKIN	3001 ATKINSON DR	LUFKIN	Texas	75901	2.009	0.172	2.181	0	0	0	2.181
CENTURY INDUSTRIAL COATINGS I NC	HWY 69 S	JACKSONVILLE	Texas	75766	0.089	1.69	1.779	0	0	0.357	2.136
LEHIGH PRESS CADILLAC (DBA LEHIGH DIRECT DIVISION)	1900 S 25TH AVE	BROADVIEW	Illinois	60153	1.9755	0.1495	2.125	0	0	0	2.125
MACDERMID PRINTING SOLUTIONS	260 S PACIFIC ST	SAN MARCOS	California	92078	0	2.122	2.122		0	0.0005	2.1225
UNION CARBIDE CORP SOUTH CHARLESTON FACILITY	437 MACCORKLE AVE SW	SOUTH CHARLESTO	West Virginia	25303	2.058	0.0595	2.1175	0	0	0	2.1175
THREE RIVERS ALUMINUM CO	71 PROGRESS AVE	CRANBERRY TOWN	Pennsylvania	16066	0.2195	1.8905	2.11	0	0	0	2.11
NCP COATINGS INC	225 FORT ST	NILES	Michigan	49120	2.1075	0	2.1075	0	0	0	2.1075
PRECOAT METALS	4301 S SPRING AVE	SAINT LOUIS	Missouri	63116	0.57	1.523	2.093	0	0	0	2.093
VERTIS COMMUNICATIONS	10911 GRANITE ST	CHARLOTTE	North Carolina	28273	1.841	0.215	2.056	0	0	0	2.056
DUPONT YERKES PLANT	3115 RIVER RD	BUFFALO	New York	14207	0.039	2.014	2.053	0	0	0	2.053
TORO CO	200 SIME AVE	TOMAH	Wisconsin	54660	0	2.0475	2.0475	0	0	0	2.0475
CADON PLATING CO	3715 11TH ST	WYANDOTTE	Michigan	48192	1.121	0.915	2.036	0	0	0	2.036
WORLD COLOR PRESS	50 JOHN HANCOCK RD	TAUNTON	Massachusetts	02780	1.605	0.032	1.637	0	0	0.3745	2.0115

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AVX CORP CONWAY	2875 HWY 501 E	CONWAY	South Carolina	29526	0.888	1.085	1.973	0	0	0	1.973
SILGAN CONTAINERS MANUFACTURING CORP	2200 WILBUR AVE	ANTIOCH	California	94509	0	1.9645	1.9645	0	0	0	1.9645
STEELSCAPE INC	7001 ALLISON-BONNET MEMORIAL D	FAIRFIELD	Alabama	35064	0.0045	1.9495	1.954	0	0	0	1.954
BASF CORP - CLEAR LAKE PLANT	11200 BAY AREA BLVD	PASADENA	Texas	77507	1.95	0.0005	1.9505	0	0	0	1.9505
BOEING COMMERCIAL AIRPLANE GROUP NORTH BOEING FIELD (PART)	7500 E MARGINAL WAY S	SEATTLE	Washington	98108	0.1155	1.8345	1.95	0	0	0	1.95
RR DONNELLEY PINEVILLE	10519 INDUSTRIAL DR	PINEVILLE	North Carolina	28134	1.85	0.098	1.948	0	0	0	1.948
THIRD COAST PACKAGING INC PEARLAND	1871 MYKAWA	PEARLAND	Texas	77581	0	0	0	0	0	1.942	1.942
NOV TUBOSCOPE NAVASOTA	9574 FM 1227	NAVASOTA	Texas	77868	0.8325	0.31	1.1425	0	0	0.7975	1.94
TYSON FRESH MEATS INC	HWY 66 E & FARM RD 1912	AMARILLO	Texas	79187	0.07	0	0.07	0	1.86	0.0025	1.9325
TREND OFFSET PRINTING SERVICES INC	3791 CATALINA ST	LOS ALAMITOS	California	90720	1.8	0.125	1.925	0	0	0	1.925
WARREN UNILUBE INC	1200 S 8TH ST	WEST MEMPHIS	Arkansas	72301	1.9085	0.007	1.9155	0	0	0	1.9155
HYUNDAI MOTOR MANUFACTURING ALABAMA LLC	700 HYUNDAI BLVD	MONTGOMERY	Alabama	36105	1.2395	0.66	1.8995	0	0	0	1.8995
PRIOR COATED METALS	2233 26TH ST SW	ALLENTOWN	Pennsylvania	18103	1.305	0.581	1.886	0	0	0	1.886
KEYMARK CORP	1188 CAYADUTTA ST RT 334	FONDA	New York	12068	0.007	1.8765	1.8835	0	0	0	1.8835
BUCKEYE INTERNATIONAL INC	2700 WAGNER PL	MARYLAND HEIGHTS	Missouri	63043	0.125	1.7515	1.8765	0	0	0	1.8765
AMERICAN COLOR GRAPHICS	810 E S ST	MARENGO	Iowa	52301	1.669	0.1985	1.8675	0	0	0	1.8675
HANNA STEEL CORP	3812 COMMERCE AVE	FAIRFIELD	Alabama	35064	0.6905	1.027	1.7175	0	0	0.1435	1.861
DUPONT CHAMBERS WORKS	RT 130	DEEPWATER	New Jersey	08023	0.139	0.001	0.14	1.628	0	0.09	1.858
ASTRO COATINGS INC	27 MAIN ST	STRUTHERS	Ohio	44471	0.65	1.15	1.8	0	0	0.0195	1.8195
IMPRESS USA INC	3030 BIRCH DR HALF MOON INDUST	WEIRTON	West Virginia	26062	0.006	1.8125	1.8185	0	0	0	1.8185
EASTMAN KODAK CO EASTMAN BUSINESS PARK	1669 LAKE AVE	ROCHESTER	New York	14652	0.001	0.0165	0.0175	1.2285	0	0.5685	1.8145
CUMMINS POWER GENERATION	1400 73RD AVE NE	FRIDLEY	Minnesota	55432	0.09	1.7	1.79	0	0	0	1.79
NOV TUBOSCOPE WEST LITTLE YORK COATING	12100 W LITTLE YORK RD	HOUSTON	Texas	77041	0.0535	1.41	1.4635	0	0	0.323	1.7865
TTM TECHNOLOGIES INC	710 N 600 W	LOGAN	Utah	84321	0.12	1.079	1.199	0	0	0.5835	1.7825
FORD MOTOR CO - OHIO ASSEMBLY PLANT	650 MILLER RD	AVON LAKE	Ohio	44012	1.65	0.12	1.77	0	0	0	1.77
LION COPOLYMER LLC	5955 SCENIC HWY	BATON ROUGE	Louisiana	70805	0	0	0	0.0015	0	1.75	1.7515
REICHHOLD INC	425 S PACE BLVD	PENSACOLA	Florida	32502	0.1065	1.628	1.7345	0	0	0	1.7345
J&M MANUFACTURING CO INC	284 RAILROAD ST	FORT RECOVERY	Ohio	45846	0	1.7285	1.7285	0	0	0	1.7285
RR DONNELLEY	100 QUALITY CT	CHARLESTOWN	Indiana	47111	1.6325	0.076	1.7085	0	0	0	1.7085

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BOEING COMMERCIAL AIRPLANE GROUP - RENTON	8TH & LOGAN AVE N	RENTON	Washington	98055	0.697	1.0065	1.7035	0	0	0	1.7035
GMC TRUCK GROUP ARLINGTON ASSEMBLY PLANT	2525 E ABRAMS ST	ARLINGTON	Texas	76010	0.5	1.2	1.7	0	0	0	1.7
PRO LINE PRINTING / RR DONNELLEY	365 PARR CIR	RENO	Nevada	89512	1.5035	0.1755	1.679	0	0	0	1.679
TRELLEBORG COATED SYSTEMS US INC / GRACE ADVANCED MATERIALS	715 RAILROAD AVE & HWY 74	RUTHERFORDTON	North Carolina	28139	0	0.125	0.125	0	0	1.5385	1.6635
EASTMAN CHEMICAL CO TENNESSEE OPERATIONS	100 EASTMAN RD	KINGSPORT	Tennessee	37662	0.5725	0.825	1.3975	0.262	0	0	1.6595
RR DONNELLEY VON HOFFMANN CORP	321 WILSON DR	JEFFERSON CITY	Missouri	65109	1.6195	0.038	1.6575	0	0	0	1.6575
COMPLEMENTARY COATINGS CORP	308 OLD COUNTY RD	EDGEWATER	Florida	32132	1.639	0	1.639	0	0	0	1.639
CHRYSLER STERLING HEIGHTS ASSEMBLY PLANT	38111 VAN DYKE	STERLING HEIGHTS	Michigan	48312	0.9	0.7	1.6	0	0	0	1.6
COLOR CORP OF AMERICA	1630 W HILL ST	LOUISVILLE	Kentucky	40210	0	1.59	1.59	0	0	0	1.59
U S CHEMICAL	316 HART ST	WATERTOWN	Wisconsin	53094	0	0	0	0	0	1.5605	1.5605
U.S. AIR FORCE OGDEN AIR LOGISTICS CENTER	7274 WARDLEIGH DR	HILL AFB	Utah	84056	0.8625	0.69	1.5525	0	0	0	1.5525
AKZONOBEL AEROSPACE COATINGS	1 E WATER ST	WAUKEGAN	Illinois	60085	0.775	0.7765	1.5515	0	0	0	1.5515
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	901 N GREENWOOD AVE	KANKAKEE	Illinois	60901	0.9585	0.545	1.5035	0	0	0	1.5035
BENCHMARK ENERGY PRODUCTS LLC	4113 W INDUSTRIAL AVE	MIDLAND	Texas	79703	0.125	1.3725	1.4975	0	0	0	1.4975
IVC INDUSTRIAL COATINGS INC	2245-50 VALLEY AVE	INDIANAPOLIS	Indiana	46218	0.2955	1.183	1.4785	0	0	0	1.4785
VANEX INC	1700 S SHAWNEE ST	MOUNT VERNON	Illinois	62864	0	1.467	1.467	0	0	0	1.467
SAPA INC COATINGS DIVSION	5325 NE SKYPORT WAY	PORTLAND	Oregon	97218	1.0905	0.376	1.4665	0	0	0	1.4665
VEYANCE TECHNOLOGIES INC	2701 W OMAHA AVE	NORFOLK	Nebraska	68701	0.0615	0.183	0.2445	0	0	1.208	1.4525
ARANDELL CORP	N82 W13118 LEON RD	MENOMONEE FALLS	Wisconsin	53051	1.418	0.033	1.451	0	0	0	1.451
WHEELING CORRUGATING CO - BEECH BOTTOM PLANT	2481 RIVER RD	WELLSBURG	West Virginia	26070	0	1.45	1.45	0	0	0	1.45
ZEP INC	1310 SEABOARD INDUSTRIAL BLVD	ATLANTA	Georgia	30318	0.1435	0.287	0.4305	0.1235	0.8565	0.027	1.4375
CARDINAL ALUMINUM CO PLAN T 3	4005 OAKLAWN DR	LOUISVILLE	Kentucky	40219	0.05	1.3855	1.4355	0	0	0	1.4355
GREIF INDUSTRIAL PACKAGING & SERVICES LLC	8250 ALMERIA AVE	FONTANA	California	92335	0.1915	1.2415	1.433	0	0	0	1.433
DECOSTAR INDUSTRIES INC	1 DECOMA DR	CARROLLTON	Georgia	30117	0.125	1.307	1.432	0	0	0	1.432
ALERIS ROLLED PRODUCTS INC	1 REYNOLDS RD	ASHVILLE	Ohio	43103	0.668	0.748	1.416	0	0	0	1.416
MITSUBISHI MOTORS NORTH AMERICA INC	100 N MITSUBISHI MOTORWAY	NORMAL	Illinois	61761	1.41	0.0035	1.4135	0	0	0	1.4135
GATES CORP - CHARLESTON	1300 S PLANT RD	CHARLESTON	Missouri	63834	0.0795	0.119	0.1985	0	0	1.2095	1.408
BRENNTAG SOUTHWEST INC HOUS TON	14826 HOOPER RD	HOUSTON	Texas	77047	0.02	0.0175	0.0375	0	0	1.3675	1.405

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
CAMACO COLUMBUS MANUFACTURING	1851 E 32ND AVE	COLUMBUS	Nebraska	68601	0	1.4005	1.4005	0	0	0	1.4005
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	372 CLEVELAND ST	ROCHESTER	Pennsylvania	15074	0.53	0.8595	1.3895	0	0	0	1.3895
TAIYO AMERICA INC	2675 ANTLER DR	CARSON CITY	Nevada	89701	0.005	0.7885	0.7935	0	0	0.584	1.3775
W W HENRY	150 MOONEY DR	BOURBONNAIS	Illinois	60914	1.3725	0	1.3725	0	0	0	1.3725
UNIVAR USA INC MORRISVILLE BRANCH	200 DEAN SIEVERS PL	MORRISVILLE	Pennsylvania	19067	0.002	0.0025	0.0045	0	0	1.363	1.3675
JOHN DEERE SEEDING & CYLINDER	501 RIVER DR	MOLINE	Illinois	61265	0	1.353	1.353	0	0	0	1.353
CROWN AEROSOL PACKAGING	4TH ST & PARK AVE	FARIBAULT	Minnesota	55021	0.877	0.4725	1.3495	0	0	0	1.3495
BRENNTAG SOUTHWEST INC LANC ASTER	704 E WINTERGREEN RD	LANCASTER	Texas	75134	0.0175	0.0175	0.035	0	0	1.3	1.335
GM MLCG FAIRFAX ASSEMBLY	3201 FAIRFAX TRAFFICWAY	KANSAS CITY	Kansas	66115	0.0175	1.3	1.3175	0	0	0	1.3175
ARR-MAZ CUSTOM CHEMICALS	4800 STATE RD 60 E	MULBERRY	Florida	33860	0.0625	1.2505	1.313		0	0	1.313
SILGAN WHITE CAP CORP	350 JAYCEE DR VALMONT INDUSTR	HAZLETON	Pennsylvania	18201	0.7	0.6	1.3	0	0	0	1.3
AKZO NOBEL COATINGS INC	1313 WINDSOR AVE	COLUMBUS	Ohio	43211	0.7545	0.5455	1.3	0	0	0	1.3
ARMSTRONG WORLD INDUSTRIES LANCASTER PLANT	1067 DILLERVILLE RD	LANCASTER	Pennsylvania	17603	0.8895	0.4005	1.29	0	0	0	1.29
GENERAL MOTORS MLCG DETROIT-HAMTRAMCK ASSEM BLY CENTER	2500 E GENERAL MOTORS BLVD	DETROIT	Michigan	48211	1.15	0.14	1.29	0	0	0	1.29
CHEMCOAT INC	2790 CANFIELDS LN	MONTOURSVILLE	Pennsylvania	17754	0.125	0	0.125	0	0	1.158	1.283
PPG ARCHITECTURAL FINISHES EAST POINT	1377 OAKLEIGH DR	EAST POINT	Georgia	30344	0.001	0.791	0.792	0	0	0.478	1.27
PARKER HANNIFIN TECH SEAL DIV	2600 WILCO BLVD	WILSON	North Carolina	27893	0	0	0	0	0	1.2605	1.2605
DAIMLERCHRYSLERCORP TOLEDO ASSEMBLY PLANT	4000 STICKNEY AVE	TOLEDO	Ohio	43612	0.355	0.9	1.255	0	0	0.0025	1.2575
SHEBOYGAN PAINT CO	608 CANAL ST	CEDARTOWN	Georgia	30125	0.687	0.554	1.241	0	0	0	1.241
RR DONNELLEY & SONS CO	60 SECURITY DR	AVON	Connecticut	06001	1.2045	0.028	1.2325	0	0	0	1.2325
CONSOLIDATED SYSTEMS INC	650 ROSEWOOD DR	COLUMBIA	South Carolina	29201	0	1.23	1.23	0	0	0	1.23
CHRYSLER BELVIDERE ASSEMBLY PLANT	3000 W CHRYSLER DR	BELVIDERE	Illinois	61008	0.12	1.1	1.22	0	0	0.0055	1.2255
DURA COAT PRODUCTS INC	26655 PEOPLES RD	MADISON	Alabama	35756	1.2145	0.0025	1.217	0	0	0	1.217
CLEVELAND STEEL CONTAINER - NI LES	115 ERIE ST	NILES	Ohio	44446	0.0025	1.202	1.2045	0	0	0	1.2045
CCL CONTAINER AEROSOL DIV	ONE LLODIO DR	HERMITAGE	Pennsylvania	16148	0.0935	1.0955	1.189	0	0	0	1.189
CATERPILLAR INC	3701 STATE RD 26 E	LAFAYETTE	Indiana	47905	0.0475	1.1275	1.175	0	0	0	1.175
GFX INTERNATIONAL	333 BARRON BLVD	GRAYSLAKE	Illinois	60030	0	0.79	0.79	0	0	0.378	1.168
BEHR PROCESS CORP	3400 W GARRY AVE	SANTA ANA	California	92704	0.0035	0.0055	0.009	0	1.139	0	1.148

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
WINSLOW-BROWNING INC	215 BROWNSVILLE AVE	LIBERTY	Indiana	47353	1.148	0	1.148	0	0	0	1.148
CHEMTURA CORP - TAFT PLANT	471 HWY 3142	KILLONA	Louisiana	70066	0.105	1.0405	1.1455	0	0	0	1.1455
J L CLARK INC	923 23RD AVE	ROCKFORD	Illinois	61104	0.304	0.8415	1.1455	0	0	0	1.1455
PRECOAT METALS	6754 SANTA BARBARA CT	ELKRIDGE	Maryland	21075	0	1.1415	1.1415	0	0	0	1.1415
HARCROS CHEMICALS INC	5200 SPEAKER RD	KANSAS CITY	Kansas	66106	0.0175	0.07	0.0875	0.0005	0.002	1.05	1.14
NICHOLS ALUMINUM ALABAMA INC	2001 HWY 20 W	DECATUR	Alabama	35601	0.913	0.2245	1.1375	0	0	0	1.1375
SONY ELECTRONICS INC	4275 W MAIN ST	DOTHAN	Alabama	36305	0	0	0	0	0	1.137	1.137
GENTEK BUILDING PRODUCTS	11 CRAGWOOD RD	AVENEL	New Jersey	07001	0.2	0.9335	1.1335	0	0	0	1.1335
OHIO ART CO	ONE TOY ST	BRYAN	Ohio	43506	0.8965	0.2295	1.126	0	0	0	1.126
RED SPOT WESTLAND INC	550 S EDWIN ST	WESTLAND	Michigan	48186	0.628	0.483	1.111	0	0	0	1.111
TRELLEBORG OFFSHORE US RANKIN ROAD FACILITY	1902 RANKIN RD	HOUSTON	Texas	77073	1.1105	0	1.1105	0	0	0	1.1105
INCHEM CORP	800 CEL-RIVER RD	ROCK HILL	South Carolina	29730	0.125	0.125	0.25	0	0	0.8545	1.1045
HUNTSMAN PETROCHEMICAL LLC	3892 US HWY 90	DAYTON	Texas	77535	0.001	0	0.001	0	0	1.1025	1.1035
TEXAS INSTRUMENTS INC	12201 SW FWY MS600	STAFFORD	Texas	77477	0.0025	0.125	0.1275	0	0	0.975	1.1025
TESORO REFINING & MARKETING CO - MANDAN REFINERY	900 OLD RED TRAIL NE	MANDAN	North Dakota	58554	1.1	0.0005	1.1005	0	0	0	1.1005
CANFIELD METAL COATING CORP	460 W MAIN ST	CANFIELD	Ohio	44406	0	1.1	1.1	0	0	0	1.1
BEAULIEU OF AMERICA PLANT 560-MODEL	950 RIVERBEND RD	DALTON	Georgia	30721	0	1.0865	1.0865	0	0	0	1.0865
COOK COMPOSITES & POLYMERS CO	1415 STEELE AVE SW	GRAND RAPIDS	Michigan	49507	0.7325	0.3525	1.085	0	0	0	1.085
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	701 SHILOH RD	GARLAND	Texas	75042	0.644	0.4405	1.0845	0	0	0	1.0845
POLYMERIC IMAGING INC	117 E 14TH AVE	NORTH KANSAS CIT	Missouri	64116	0	1.0705	1.0705	0	0	0	1.0705
CELLU TISSUE/CITYFOREST LLC	1215 WORDEN AVE E	LADYSMITH	Wisconsin	54848	0	0	0	1.07	0	0	1.07
COMBE PRODUCTS INC	EL DUQUE INDUSTRIAL PARK RD 97	NAGUABO	Puerto Rico	00718	0	0	0	0	0	1.053	1.053
CANBERRA CORP	3610 HOLLAND-SYLVANIA RD	TOLEDO	Ohio	43615	0.675	0.375	1.05	0	0	0	1.05
NEXTEER AUTOMOTIVE CORP	3900 HOLLAND RD	SAGINAW	Michigan	48601	0.1045	0.9385	1.043	0	0	0	1.043
SPRAYLAT CORP CA	3465 S LA CIENAGA BLVD	LOS ANGELES	California	90016	0.52	0.52	1.04	0	0	0	1.04
AKZONOBEL COATINGS INC	120 FRANKLIN RD	PONTIAC	Michigan	48341	0.105	0.026	0.131	0	0	0.901	1.032
ROLL COATER INC	2604 RIVER RD	HAWESVILLE	Kentucky	42348	0	1.032	1.032	0	0	0	1.032
RED SPOT PAINT & VARNISH CO INC	1016 E COLUMBIA ST	EVANSVILLE	Indiana	47711	0.6065	0.416	1.0225	0	0	0	1.0225

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
STAR BUILDING SYSTEMS	151 JUDGE DON LEWIS RD	ELIZABETHTON	Tennessee	37643	0	1.019	1.019	0	0	0	1.019
BOEING COMMERCIAL AIRPLANE GROUP PLANT 2 (PART)	7755 E MARGINAL WAY S	SEATTLE	Washington	98108	0.9965	0.0125	1.009	0	0	0	1.009
HYDRITE CHEMICAL CO	114 N MAIN ST	COTTAGE GROVE	Wisconsin	53527	0	1	1	0	0	0	1
ARMSTRONG WORLD INDUSTRIES INC	4115 N PERKINS RD	STILLWATER	Oklahoma	74075	0.3885	0.6095	0.998	0	0	0	0.998
VERSO PAPER HOLDINGS LLC	ANDROSCOGGIN MILL RILEY RD	JAY	Maine	04239	0.0125	0	0.0125	0.967	0	0.001	0.9805
TTM TECHNOLOGIES-SANTA CLARA	407 MATHEW ST	SANTA CLARA	California	95050	0	0.9555	0.9555	0	0	0	0.9555
COOK COMPOSITES & POLYMERS CO	2434 HOLMES RD	HOUSTON	Texas	77051	0.9225	0.004	0.9265	0	0	0	0.9265
IVC SOUTH	875 PROGRESS CENTER AVE	LAWRENCEVILLE	Georgia	30043	0.185	0.739	0.924	0	0	0	0.924
HADCO (SANMINA) CORP - OWEGO DIV	1200 TAYLOR RD	OWEGO	New York	13827	0.009	0.8935	0.9025	0	0	0.014	0.9165
WATSON STANDARD CO (NEVILLE ISLAND PLANT)	2895 GRAND AVE	NEVILLE ISLAND	Pennsylvania	15225	0.8975	0.0125	0.91	0	0	0	0.91
MAXIM INTEGRATED PRODUCTS	4350 S BELTWOOD PKWY	DALLAS	Texas	75244	0	0.9005	0.9005	0	0	0	0.9005
SYNDICATE SYSTEMS INC	402 N MAIN ST	MIDDLEBURY	Indiana	46540	0	0.8555	0.8555	0	0	0	0.8555
B-WAY PACKAGING INC	6 LITHO RD	TRENTON	New Jersey	08648	0.085	0.763	0.848	0	0	0	0.848
BEHR PROCESS CORP ALLENTOWN	7529 MORRIS CT BLDG 500 W PARK	ALLENTOWN	Pennsylvania	18106	0.021	0.0355	0.0565	0	0.769	0	0.8255
EVONIK DEGUSSA CORP TIPPECANOE LABORATORIES	1650 LILLY RD	LAFAYETTE	Indiana	47909	0.7	0.125	0.825	0	0	0	0.825
SPRAYLAT CORP IL	1701 E 122-ND ST	CHICAGO	Illinois	60633	0.041	0.777	0.818	0	0	0	0.818
NJT ENTERPRISES LLC	42400 MERRILL RD	STERLING HEIGHTS	Michigan	48314	0	0.8135	0.8135	0	0	0	0.8135
STEEL DYNAMICS INC	5134 LOOP RD	JEFFERSONVILLE	Indiana	47130	0	0.8125	0.8125	0	0	0	0.8125
ICL-IP AMERICA INC	11636 HUNTINGTON	GALLIPOLIS FERRY	West Virginia	25515	0.0635	0.1585	0.222	0.103	0.48	8.32667E-17	0.805
FLINT HILLS RESOURCES LP	13775 CLARK RD	ROSEMOUNT	Minnesota	55068	0.8	0	0.8	0.0025	0	0	0.8025
COMPLEMENTARY COATINGS CORP	4701 O'DONNELL ST	BALTIMORE	Maryland	21224	0.8	0	0.8	0	0	0	0.8
BERRYMAN PRODUCTS INC	3800 E RANDOL MILL RD	ARLINGTON	Texas	76011	0.8	0	0.8	0	0	0	0.8
IC OF OKLAHOMA LLC	2322 N MINGO RD	TULSA	Oklahoma	74116	0	0.8	0.8	0	0	0	0.8
GENERAL MOTORS LLC BOWLING GREEN ASSEMBLY PLANT	600 CORVETTE DR	BOWLING GREEN	Kentucky	42101	0.135	0.65	0.785	0	0	0.007	0.792
METALS USA BUILDING PRODUCTS	227 S TOWN E BLVD	MESQUITE	Texas	75149	0.391	0.391	0.782	0	0	0	0.782
SUN CHEMICAL CORP	1380 FORD RD	MAUMEE	Ohio	43537	0.114	0.6455	0.7595	0	0	0	0.7595
VISTA PAINT CORP	2020 E ORANGETHORPE AVE	FULLERTON	California	92831	0.673	0	0.673	0	0	0.084	0.757
UNITED PAINT & CHEMICAL	24671 TELEGRAPH RD	SOUTHFIELD	Michigan	48034	0.7525	0	0.7525	0	0	0	0.7525

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
DELEET MERCHANDISING	26 BLANCHARD ST	NEWARK	New Jersey	07105	0.375	0.375	0.75	0	0	0	0.75
TEXAS TILE MANUFACTURING LLC	1705 N OLIVER	HOUSTON	Texas	77007	0.001	0.748	0.749	0	0	0	0.749
HB FULLER	12110 HARLAND DR NE	COVINGTON	Georgia	30014	0.386	0.275	0.661	0	0.0765	0	0.7375
LONGABERGER CO	5565 RAIDERS RD	FRAZEYSBURG	Ohio	43822	0.2325	0.214	0.4465	0	0	0.288	0.7345
KAWNEER CO INC	7200 DOE AVE	VISALIA	California	93291	0.5005	0.225	0.7255	0	0	0	0.7255
HUNT REFINING CO A CORP	1855 FAIRLAWN RD	TUSCALOOSA	Alabama	35401	0.7205	0	0.7205	0	0	0	0.7205
RYCOLINE PRODUCTS LLC	5540 NW HWY	CHICAGO	Illinois	60630	0.108	0.6115	0.7195	0	0	0	0.7195
VEYANCE TECHNOLOGIES INC	400 N GOODYEAR RD	MOUNT PLEASANT	Iowa	52641	0.0005	0	0.0005	0	0	0.7075	0.708
MARCUS PAINT CO	235 E MARKET ST	LOUISVILLE	Kentucky	40202	0.7	0.0025	0.7025	0	0	0	0.7025
WESTERN EXTRUSIONS CORP	1735 SANDY LAKE RD	CARROLLTON	Texas	75006	0.125	0.5735	0.6985	0.0025	0	0	0.701
ELEMENTIS SPECIALTIES	400 CLAREMONT AVE	JERSEY CITY	New Jersey	07304	0.2	0.5	0.7	0	0	0	0.7
SPARTAN CHEMICAL CO INC	1110 SPARTAN DR	MAUMEE	Ohio	43537	0.0675	0	0.0675	0	0	0.6325	0.7
KAWNEER CO INC	500 E 12TH ST	BLOOMSBURG	Pennsylvania	17815	0.117	0.579	0.696	0	0	0	0.696
CLEVELAND STEEL CONTAINER - PE OTONE FACILITY	117 E LINCOLN ST	PEOTONE	Illinois	60468	0.008	0.6865	0.6945	0	0	0	0.6945
WEST PENN OIL CO, INC130130	2305 MARKET ST EXT	WARREN	Pennsylvania	16365	0.6945	0	0.6945	0	0	0	0.6945
TERNIUM USA INC	2500 RON BEAN BLVD	SHREVEPORT	Louisiana	71115	0.0165	0.674	0.6905	0	0	0	0.6905
SONOCO PRODUCTS CO	1854 CENTRAL FLORIDA PKWY	ORLANDO	Florida	32837	0.385	0.292	0.677	0	0	0	0.677
FERRO GLASS & COLOR CORP	W WYLIE AVE	WASHINGTON	Pennsylvania	15301	0.1255	0.548	0.6735	0	0	0	0.6735
BJ CHEMICAL SERVICES	707 N LEECH	HOBBS	New Mexico	88240	0.0065	0.0015	0.008	0	0	0.663	0.671
FINISHES UNLIMITED INC	482 WHEELER RD	SUGAR GROVE	Illinois	60554	0.3325	0.3325	0.665	0	0	0	0.665
VANGUARD PAINTS & FINISHES INC	1409 GREENE ST	MARIETTA	Ohio	45750	0.648	0	0.648		0	0	0.648
SYNGENTA CROP PROTECTION INC SAINT GABRIEL FACILITY	3905 HWY 75	SAINT GABRIEL	Louisiana	70776	0.249	0.201	0.45	0.0005	0	0.1965	0.647
SILGAN CONTAINERS MANUFACTURING CORP	12130 LYNN AVE S	SAVAGE	Minnesota	55378	0	0.642	0.642	0	0	0	0.642
CRYSTAL FINISHING SYSTEMS INC	2608 ROSS AVE	SCHOFIELD	Wisconsin	54476	0	0.6405	0.6405	0	0	0	0.6405
HERCULES INC KENEDY TEXAS	ONE MILL ST	KENEDY	Texas	78119	0.602	0.033	0.635	0	0	0	0.635
BASF CORP	1175 MARTIN ST	GREENVILLE	Ohio	45331	0.12	0.13	0.25	0	0	0.385	0.635
CENTRIA	500 PERTH DR NEW ECONOMY BUS	AMBRIDGE	Pennsylvania	15003	0	0.635	0.635	0	0	0	0.635
TRINKOTE INDUSTRIAL FINISHES INC	1800 PARK PL AVE	FORT WORTH	Texas	76110	0	0.628	0.628	0	0	0	0.628
ALERIS ROLLED PRODUCTS INC	3321 DURHAM RD	ROXBORO	North Carolina	27573	0.0025	0.624	0.6265	0	0	0	0.6265

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Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
CHROMASOURCE INC	2433 S CR 600 E	COLUMBIA CITY	Indiana	46725	0	0.621	0.621	0	0	0	0.621
MULTICIRCUITS	2301 UNIVERSAL ST	OSHKOSH	Wisconsin	54903	0.619	0	0.619	0	0	0	0.619
TCI COATINGS INC	4501 BRADLEY ST	LUBBOCK	Texas	79415	0.616	0	0.616	0	0	0	0.616
BRENNTAG SOUTHWEST INC ST GABRIEL	7200 HWY 74	SAINT GABRIEL	Louisiana	70776	0.0075	0.008	0.0155	0	0	0.6	0.6155
GREIF INDUSTRIAL PACKAGING & SERVICES LLC	10700 STRANG RD	LA PORTE	Texas	77571	0.595	0.0025	0.5975	0	0	0	0.5975
ROCK TENN CO	2301 S 21ST ST	CLINTON	Iowa	52732	0	0.585	0.585	0	0	0.0025	0.5875
ASHLAND DISTRIBUTION	8500 S WILLOW SPRINGS RD	WILLOW SPRINGS	Illinois	60480	0.538	0.048	0.586	0	0	0	0.586
CLEVELAND STEEL CONTAINER CORP - STREETSBORO PLANT	10048 AURORA-HUDSON RD	STREETSBORO	Ohio	44241	0.006	0.5735	0.5795	0	0	0	0.5795
BECKER SPECIALTY CORP	15310 ARROW BLVD	FONTANA	California	92335	0.0285	0.55	0.5785		0	0	0.5785
COMPLEX CHEMICALS CO INC	MADISON PARISH INDUSTRIAL PARI	TALLULAH	Louisiana	71282	0.3	0.2	0.5	0.072	0	0	0.572
NICHOLS ALUMINUM DAVENPORT	1725 ROCKINGHAM RD	DAVENPORT	Iowa	52802	0.159	0.408	0.567	0	0	0	0.567
SUPERIOR OIL CO INC RECLAIMED ENERGY DIV	1500 WESTERN AVE	CONNERSVILLE	Indiana	47331	0.041	0.025	0.066	0	0	0.5	0.566
SOUTHERN CLAY PRODUCTS INC	1335 S 13TH ST	LOUISVILLE	Kentucky	40210	0.0025	0.125	0.1275		0.0025	0.425	0.555
ALUMAX MILL PRODUCTS INC	300 ALUMAX DR	TEXARKANA	Texas	75501	0	0.5505	0.5505	0	0	0	0.5505
CHRYSLER GROUP LLC STERLING STAMPING PLANT (PART)	35777 VAN DYKE	STERLING HEIGHTS	Michigan	48312	0.55	0	0.55	0	0	0	0.55
HB FULLER CO	4440 MALSBARY RD	BLUE ASH	Ohio	45242	0.545	0.0015	0.5465	0	0	0	0.5465
BRADLEY COATINGS GROUP	608 W CRAWFORD AVE	CONNELLSVILLE	Pennsylvania	15425	0.389	0	0.389	0	0	0.157	0.546
HOVENSA LLC	1 ESTATE HOPE	CHRISTIANSTED	Virgin Islands	00820	0.351	0	0.351	0.1805	0	0	0.5315
FLINT GROUP NORTH AMERICA CORP	104 NATIONAL DR	ANNISTON	Alabama	36207	0.265	0.265	0.53	0	0	0	0.53
GLASS COATINGS & CONCEPTS	300 LAWTON AVE	MONROE	Ohio	45050	0.5245	0.002	0.5265	0	0	0	0.5265
NAPCO INC	125 MCFANN RD	VALENCIA	Pennsylvania	16059	0.48	0.0445	0.5245	0	0	0	0.5245
LEVLAD	9200 MASON AVE	CHATSWORTH	California	91311	0.0005	0	0.0005	0	0	0.5235	0.524
ARROW GROUP INDUSTRIES INC	1 THIRD AVE	HASKELL	New Jersey	07420	0.0025	0.219	0.2215	0	0	0.3005	0.522
RADIATOR SPECIALTY CO	600 RADIATOR RD	INDIAN TRAIL	North Carolina	28079	0.161	0	0.161	0	0	0.36	0.521
NB COATINGS INC	2701 E 170TH ST	LANSING	Illinois	60438	0.315	0.08	0.395	0	0	0.119	0.514
DUBOIS CHEMICALS INC	3630 E KEMPER RD	SHARONVILLE	Ohio	45241	0	0	0	0	0	0.513	0.513
FORREST PAINT CO	1011 MCKINLEY ST	EUGENE	Oregon	97402	0.206	0.307	0.513	0	0	0	0.513
LOCKHEED MARTIN AERONAUTICS CO	1011 LOCKHEED WAY MZ 6607	PALMDALE	California	93599	0.0715	0.431	0.5025	0	0	0.005	0.5075

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
INEOS OXIDE A DIV OF INEOS AMERICAS LLC	21255A HWY 1 S	PLAQUEMINE	Louisiana	70765	0.4805	0.0255	0.506	0	0	0.0005	0.5065
PPG INDUSTRIES ARCHITECTURAL FINISHES	1886 LYNNBURY WOODS RD	DOVER	Delaware	19904	0.0025	0.0025	0.005	0	0	0.5	0.505
BRIGHTSMITH LLC	120 ENTERPRISE AVE	MORRISVILLE	Pennsylvania	19067	0.1025	0.2435	0.346		0	0.1585	0.5045
CLARIANT CORP MARTIN PLANT	788 CHERT QUARRY RD	MARTIN	South Carolina	29836	0.125	0.0025	0.1275	0.375	0	0	0.5025
STEELSCAPE	222 W KALAMA RIVER RD	KALAMA	Washington	98625	0.003	0.4995	0.5025	0	0	0	0.5025
PPG INDUSTRIES INC	500 PITTSBURGH AVE	MCCARRAN	Nevada	89434	0	0.125	0.125	0	0	0.3775	0.5025
ARCADIA INC	3225 E WASHINGTON BLVD	VERNON	California	90023	0.125	0.375	0.5	0	0	0	0.5
SILBOND CORP	9901 SAND CREEK HWY	WESTON	Michigan	49289	0.125	0.375	0.5	0	0	0	0.5
RUST-OLEUM CORP	8105 95TH ST	PLEASANT PRAIRIE	Wisconsin	53158	0.125	0.375	0.5	0	0	0	0.5
SC JOHNSON & SON INC WAXDALE FACILITY	8311 16TH ST	STURTEVANT	Wisconsin	53177	0.125	0.375	0.5	0	0	0	0.5
DERRICK CORP	3350 UNION RD	CHEEKTOWAGA	New York	14225	0	0.4975	0.4975	0	0	0	0.4975
HEXION SPECIALTY CHEMICALS INC	8600 W 71ST ST	BEDFORD PARK	Illinois	60501	0	0.4925	0.4925		0	0	0.4925
EXXONMOBIL CHEMICAL BATON ROUGE CHEMICAL PLANT	4999 SCENIC HWY	BATON ROUGE	Louisiana	70805	0.245	0.0015	0.2465	0.245	0	0	0.4915
BECKER SPECIALTY CORP	2500 DELTA LN	ELK GROVE VILLAGI	Illinois	60007	0.005	0.485	0.49		0	0	0.49
TTM TECHNOLOGIES INC	234 CASHMAN DR	CHIPPEWA FALLS	Wisconsin	54729	0	0.4895	0.4895	0	0	0	0.4895
PARKER HANNIFIN	400 S ST	MC COOK	Nebraska	69001	0	0	0	0	0	0.486	0.486
ENGINEERED POLYMER SOLUTIONS I NC D/B/A VALSPAR COATINGS	90 CARSON RD	BIRMINGHAM	Alabama	35215	0.125	0.36	0.485	0	0	0	0.485
UNIVAR USA INC SALEM BRANCH	COLONIAL RD	SALEM	Massachusetts	01970	0.001	0.001	0.002	0	0	0.4775	0.4795
SHERWIN-WILLIAMS CO	2802 W MILLER RD	GARLAND	Texas	75041	0.003	0.0315	0.0345	0	0	0.4405	0.475
SNAP-ON TOOLS MANUFACTURING CO	2600 US HWY 18 E	ALGONA	Iowa	50511	0.0055	0.465	0.4705	0	0	0.0025	0.473
SKF SEALING SOLUTIONS	900 N STATE ST	ELGIN	Illinois	60123	0	0	0	0	0	0.463	0.463
IVC INDUSTRIAL COATINGS INC	550-560 W CENTENNIAL BLVD	CASA GRANDE	Arizona	85222	0.091	0.3635	0.4545	0	0	0	0.454
UNIVERSAL CHEMICALS & COATINGS INC	1124 ELMHURST RD	ELK GROVE VILLAGI	Illinois	60007	0	0.4505	0.4505	0	0	0	0.4505
DUPONT MOUNT CLEMENS PLANT	400 GROESBECK HWY	MOUNT CLEMENS	Michigan	48043	0.0005	0.449	0.4495	0	0	0	0.4495
NAZDAR CHICAGO	1087 N N BRANCH ST	CHICAGO	Illinois	60622	0.131	0.3055	0.4365	0	0	0	0.4365
APOLLO CHEMICAL	2001 WILLOW SPRINGS LN	BURLINGTON	North Carolina	27215	0.14	0	0.14	0	0	0.2955	0.4355
ROHM & HAAS CHEMICALS LLC KNOXVILLE SITE	730 DALE AVE	KNOXVILLE	Tennessee	37921	0.002	0.0005	0.0025	0	0	0.431	0.4335
PFI INC	9215 SANTA FE SPRINGS RD	SANTA FE SPRINGS	California	90670	0.42	0	0.42	0	0	0	0.42

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
SILGAN WHITE CAP CORP	1701 WILLIAMSBURG PIKE	RICHMOND	Indiana	47375	0.055	0.3625	0.4175	0	0	0	0.4175
STANDARD PAINTS INC	940 S 6TH AVE	MANSFIELD	Texas	76063	0	0.3865	0.3865	0	0	0.03	0.4165
MUTI-PACK LLC	8372 N STEVEN RD	MILWAUKEE	Wisconsin	53223	0.415	0	0.415	0	0	0	0.415
UNITED STATES ALUMINUM CORP	200 SINGLETON DR	WAXAHACHIE	Texas	75165	0.3775	0.03	0.4075	0	0	0	0.4075
AMERIMAX HOME PRODUCTS INC	450 RICHARDSON DR	LANCASTER	Pennsylvania	17603	0.0115	0.3905	0.402	0	0	0	0.402
STP PRODUCTS MANUFACTURING CO	477 LEXINGTON AVE	PAINESVILLE	Ohio	44077	0.298	0	0.298	0	0	0.102	0.4
DIAMOND VOGEL PAINTS	5111 E 36TH ST N	TULSA	Oklahoma	74115	0.008	0.3895	0.3975	0	0	0	0.3975
AMERICAN METALS CORP	1000 CROCKER RD	WESTLAKE	Ohio	44145	0	0.3955	0.3955	0	0	0	0.3955
FORBO ADHESIVES LLC	7440 W DUPONT RD	MORRIS	Illinois	60450	0.3905	0	0.3905	0	0	0	0.3905
ROLLEX CORP	800 CHASE AVE	ELK GROVE VILLAGI	Illinois	60007	0	0.387	0.387	0	0	0	0.387
GSP MARKETING TECHNOLOGIES	5400 140TH AVE N	CLEARWATER	Florida	33760	0.384	0	0.384	0	0	0	0.384
NALCO CO TULSA PLANT 102	6717 S 61ST W AVE	TULSA	Oklahoma	74131	0.0015	0.006	0.0075	0	0	0.375	0.3825
EXXONMOBIL REFINING & SUPPLY BATON ROUGE REFINERY	4045 SCENIC HWY	BATON ROUGE	Louisiana	70805	0.175	0.001	0.176	0.205	0	2.77556E-17	0.381
BASF CORP	1609 BIDDLE AVE	WYANDOTTE	Michigan	48192	0.375	0.0025	0.3775	0	0	0	0.3775
INTERNATIONAL PAINT LLC	6001 ANTOINE DR	HOUSTON	Texas	77091	0.0025	0.375	0.3775	0	0	0	0.3775
TYSON FRESH MEATS INC JOSLIN IL	HWY 92 & I-88 28424 38TH AVE N	HILLSDALE	Illinois	61257	0.0125	0.0025	0.015	0.115	0.005	0.24	0.375
FIBRO CHEM LLC	1804 KIMBERLY PARK DR	DALTON	Georgia	30720	0.125	0	0.125	0	0	0.25	0.375
TOWER PRODUCTS INC	2703 FREEMANSBURG AVE	EASTON	Pennsylvania	18045	0.375	0	0.375	0	0	0	0.375
RODDA PAINT CO	6123 N MARINE DR	PORTLAND	Oregon	97203	0.373	0.002	0.375	0	0	0	0.375
QUEST CHEMICAL CORP	12255 FM 529	HOUSTON	Texas	77041	0.375	0	0.375	0	0	0	0.375
PARISER INDUSTRIES INC	91 MICHIGAN AVE	PATERSON	New Jersey	07503	0.375	0	0.375	0	0	0	0.375
HILLYARD INDUSTRIES INC	402 N 3TH ST	SAINT JOSEPH	Missouri	64501	0.334	0.0335	0.3675	0	0	0	0.3675
SIKA CORP SIKA SARNAFIL DIV	100 DAN RD	CANTON	Massachusetts	02021	0	0.366	0.366	0	0	0	0.366
NASCOTE INDUSTRIES	18310 ENTERPRISE AVE	NASHVILLE	Illinois	62263	0.1275	0.2375	0.365	0	0	0.0005	0.3655
MASCO RETAIL CABINET GROUP LLC	423 HOPEWELL RD	WAVERLY	Ohio	45690	0.0055	0.3525	0.358	0	0	0	0.358
FULLER BRUSH CO	ONE FULLER WAY	GREAT BEND	Kansas	67530	0.1185	0.237	0.3555	0	0	0	0.3555
WATSON LABORATORIES INC UTAH	575, 577, 579 CHIPETA WAY	SALT LAKE CITY	Utah	84108	0.353	0	0.353	0	0	0	0.353
SHERWIN-WILLIAMS AUTOMOTIVE FINISHES CORP	395 BOGGS LN - S	RICHMOND	Kentucky	40475	0.32	0.03	0.35	0	0	0	0.35

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	1717 ENGLISH RD	HIGH POINT	North Carolina	27261	0.0635	0.2855	0.349	0	0	0	0.349
NELCO PRODUCTS INC	1107 E KIMBERLY	ANAHEIM	California	92801	0.027	0.321	0.348	0	0	0	0.348
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	5400 23RD AVE	MOLINE	Illinois	61265	0.207	0.134	0.341	0	0	0	0.341
ROHM & HAAS CHEMICALS LLC	200 RT 413	BRISTOL	Pennsylvania	19007	0.0645	0.2015	0.266	0	0	0.074	0.34
HERITAGE-WTI INC	1250 ST GEORGE ST	EAST LIVERPOOL	Ohio	43920	0.005	0	0.005	0	0	0.3295	0.3345
ROLL COATER INC	5888 E COUNTY RD 180	BLYTHEVILLE	Arkansas	72315	0	0.334	0.334	0	0	0	0.334
ENERGIZER BATTERY MANUFACTURING INC	75 SWANTON RD	SAINT ALBANS	Vermont	05478	0.0025	0.1715	0.174	0	0	0.159	0.333
ASHLAND DISTRIBUTION	3300 BALL ST	BIRMINGHAM	Alabama	35234	0.2985	0.034	0.3325	0	0	0	0.3325
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	411 N DARLING	FREMONT	Michigan	49412	0.31	0.0175	0.3275	0	0	0	0.3275
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	1647 ENGLISH RD	HIGH POINT	North Carolina	27261	0.0635	0.2635	0.327	0	0	0	0.327
HB FULLER	10500 INDUSTRIAL AVE	ROSEVILLE	California	95678	0.008	0.2585	0.2665	0	0.06	0	0.3265
PACKAGING CORP OF AMERICA COUNCE MILL	HWY 57	COUNCE	Tennessee	38326	0.0205	0	0.0205	0.305	0	1.73472E-17	0.3255
KIK-SOCAL INC	9028 DICE RD	SANTA FE SPRINGS	California	90670	0.3255	0	0.3255	0	0	0	0.3255
ENTHONE INC	350 FRONTAGE RD	WEST HAVEN	Connecticut	06516	0.006	0.307	0.313	0	0	0.0005	0.3135
PILOT CHEMICAL CO	11623 N HOUSTON ROSSLYN RD	HOUSTON	Texas	77086	0.31	0.0005	0.3105	0	0	0.0005	0.311
METAL COATERS OF CALIFORNIA INC	9133 CENTER AVE	RANCHO CUCAMON	California	91730	0.0285	0.2825	0.311	0	0	0	0.311
PPG INDUSTRIES OHIO INC (CL)	3800 W 143 ST	CLEVELAND	Ohio	44111	0.001	0.303	0.304	0	0	0	0.304
ET PRODUCTS CO INC	747 DOUGLAS RD	BREMEN	Indiana	46506	0	0.3	0.3	0	0	0	0.3
DUCKBACK PRODUCTS	2644 HEGAN LN	CHICO	California	95928	0.298	0	0.298	0	0	0	0.298
SIERRA CORP	11400 W 47TH ST	MINNETONKA	Minnesota	55343	0.2975	0	0.2975	0	0	0	0.2975
SUMTER COATINGS INC	2410 HWY 15S	SUMTER	South Carolina	29150	0.0625	0.1895	0.252	0	0	0.0455	0.2975
LINETEC	725 S 75TH AVE	WAUSAU	Wisconsin	54401	0.0205	0.2755	0.296	0	0	0	0.296
CERTIFIED ENAMELING INC	3342 EMERY ST	LOS ANGELES	California	90023	0	0.2905	0.2905	0	0	0	0.2905
CROWN CORK & SEAL CO (USA) INC CROWN CLOSURES DIV	940 MILL PARK DR	LANCASTER	Ohio	43130	0	0.2905	0.2905	0	0	0	0.2905
PPG ARCHITECTURAL FINISHES INC	400 S 13TH ST	LOUISVILLE	Kentucky	40203	0	0.2895	0.2895	0	0	0	0.2895
CELLO PROFESSIONAL PRODUCTS	1354 OLD POST RD	HAVRE DE GRACE	Maryland	21078	0.2795	0.0015	0.281	0	0	0	0.281
FORD MOTOR CO CHICAGO ASSEMBLY	12600 S TORRENCE AVE	CHICAGO	Illinois	60633	0.28	0	0.28	0	0	0	0.28

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Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
SERIGRAPH INC	3801 E DECORAH RD	WEST BEND	Wisconsin	53095	0.0455	0.234	0.2795	0	0	0	0.2795
VIDEOJET TECHNOLOGIES INC	1855 ESTES AVE	ELK GROVE VILLAGI	Illinois	60007	0	0.275	0.275	0	0	0	0.275
QUANTUM MARKETING INC	3606 CRAFTSMAN BLVD	LAKELAND	Florida	33803	0.272	0	0.272	0	0	0	0.272
FUCHS LUBRICANTS CO-CORPORATE OFFICE	17050 S LATHROP AVE	HARVEY	Illinois	60426	0.2675	0	0.2675	0	0	0	0.2675
HELEN,INC DBA ENVIRONMENTAL COATINGS,INC	6450 HANNA LAKE AVE SE	CALEDONIA	Michigan	49316	0.2	0.065	0.265	0	0	0	0.265
SEQUA COATINGS CORP PRECOAT METALS DIV	3500 WALNUT ST	MC KEESPORT	Pennsylvania	15132	0.2105	0.0535	0.264	0	0	0	0.264
OLDCASTLE BUILDING ENVELOPE TENNESSEE FACILITY	920 POTTERTOWN RD	MIDWAY	Tennessee	37809	0	0.2615	0.2615	0	0	0	0.2615
HARLEY-DAVIDSON MOTOR CO OPERATIONS INC	1425 EDEN RD	YORK	Pennsylvania	17402	0.2365	0.024	0.2605	0	0	0	0.2605
ASHLAND DISTRIBUTION CO	395 JAMES AVE	SAINT PAUL	Minnesota	55102	0.248	0.0115	0.2595	0	0	0	0.2595
GATES CORP	630 US HWY 150 E	GALESBURG	Illinois	61401	0	0	0	0	0	0.259	0.259
HEXION SPECIALTY CHEMICALS INC	400 E COTTAGE PL	CARPENTERSVILLE	Illinois	60110	0.0645	0.194	0.2585	0	0	0	0.2585
SHERWIN-WILLIAMS CO	180 CANAL ST	TERRE HAUTE	Indiana	47808	0.0165	0.042	0.0585	0	0	0.196	0.2545
ASHLAND DISTRIBUTION	2315 CLIFTON AVE	NASHVILLE	Tennessee	37209	0.2435	0.0105	0.254	0	0	0	0.254
CHASE PRODUCTS CO	2727 GARDNER RD	BROADVIEW	Illinois	60155	0.0015	0.252	0.2535		0	0	0.2535
MOC PRODUCTS CO INC	12306 MONTAGUE ST	PACOIMA	California	91331	0.125	0.0025	0.1275	0	0	0.125	0.2525
BF GOODRICH TIRE MANUFACTURING	18906 US 24 E	WOODBURN	Indiana	46797	0.0025	0.125	0.1275	0	0	0.125	0.2525
BACHMAN SERVICES INC	2220 S PROSPECT	OKLAHOMA CITY	Oklahoma	73129	0.125	0.125	0.25	0	0	0.0025	0.2525
ASHLAND DISTRIBUTION CO	350 ROOSEVELT AVE	CARTERET	New Jersey	07008	0.229	0.023	0.252	0	0	0	0.252
MISCO PRODUCTS CORP	1048 STINSON DR	READING	Pennsylvania	19605	0.125	0.125	0.25	0	0	0	0.25
YENKIN-MAJESTIC PAINT CORPORAT ION	1920 LEONARD AVE	COLUMBUS	Ohio	43219	0.125	0.125	0.25	0	0	0	0.25
QUANTUM COATINGS INC	1337 N WOOD BRANCH DR	CHARLOTTE	North Carolina	28273	0.125	0.125	0.25	0	0	0	0.25
HONDA MANUFACTURING OF INDIANA LLC	2755 N MICHIGAN AVE	GREENSBURG	Indiana	47240	0.125	0.125	0.25	0	0	0	0.25
MALCO PRODUCTS INC	361 FAIRVIEW AVE	BARBERTON	Ohio	44203	0.125	0.125	0.25		0	0	0.25
UNIVAR USA INC BERKELEY	8925 SEEGER INDUSTRIAL DR	BERKELEY	Missouri	63134	0.125	0.125	0.25	0	0	0	0.25
CHEMICAL SPECIALISTS & DEVELOPMENT INC	9733 MEADOR RD	CONROE	Texas	77303	0.125	0.125	0.25	0	0	0	0.25
EQUILON CARSON TERMINAL	20945 S WILMINGTON AVE	CARSON	California	90810	0.125	0.125	0.25	0	0	0	0.25
PREMIER INK SYSTEMS INC	10420 N STATE ST	HARRISON	Ohio	45030	0.125	0	0.125	0	0	0.125	0.25
PROCLEAN OF ARIZONA INC	4315 W VAN BUREN	PHOENIX	Arizona	85043	0	0.125	0.125	0	0	0.125	0.25
UNIVAR USA INC METRO BLVD	2646 METRO BLVD	MARYLAND HEIGHTS	Missouri	63043	0.125	0.125	0.25	0	0	0	0.25

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Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
BERGQUIST CO	301 WASHINGTON ST	CANNON FALLS	Minnesota	55009	0.125	0.125	0.25	0	0	0	0.25
REICHHOLD INC	249 ST LOUIS AVE	VALLEY PARK	Missouri	63088	0.125	0.125	0.25	0	0	0	0.25
CPJ TECHNOLOGIES	200 TANNER DR	TAYLORS	South Carolina	29687	0.125	0.125	0.25	0	0	0	0.25
ASHLAND DISTRIBUTION CO	1610 E HIGHLAND RD	TWINSBURG	Ohio	44087	0.229	0.019	0.248	0	0	0	0.248
EFI / INKWARE	189 WAUKEWAN ST	MEREDITH	New Hampshire	03253	0	0.0635	0.0635	0	0	0.1835	0.247
FLINT GROUP NORTH AMERICA	4675 W PARK DR	ATLANTA	Georgia	30339	0.12	0.12	0.24	0	0	0	0.24
ATMI MATERIALS LTD	706 HOUSTON CLINTON DR	BURNET	Texas	78611	0.051	0.0005	0.0515	0	0	0.1885	0.24
CAR PRODUCTS INC	630 BEAULIEU ST	HOLYOKE	Massachusetts	01040	0.236	0	0.236	0	0	0	0.236
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	347 CENTRAL AVE	BOWLING GREEN	Kentucky	42101	0.1285	0.1045	0.233	0	0	0	0.233
WARREN STAMPING PLANT (PART)	22800 MOUND RD	WARREN	Michigan	48091	0.23	0	0.23	0	0	0	0.23
METAL COATERS OF GEORGIA	1150 MARIETTA INDUSTRIAL DR NE	MARIETTA	Georgia	30062	0.003	0.225	0.228	0	0	0	0.228
CLEARWATER INTERNATIONAL LLC	4420 S FLORES	ELMENDORF	Texas	78112	0.0005	0.002	0.0025	0	0	0.225	0.2275
COSMETIC LABORATORIES OF AMERICA	20245 SUNBURST ST	CHATSWORTH	California	91311	0	0.002	0.002	0	0	0.225	0.227
FLUID ROUTING SOLUTIONS	1921 N BROAD ST	LEXINGTON	Tennessee	38351	0	0	0	0	0	0.225	0.225
PERMA-PIPE OIL & GAS	5008-11 CURTIS LN	NEW IBERIA	Louisiana	70560	0.22	0	0.22	0	0	0	0.22
MARY KAY INC	1330 REGAL ROW	DALLAS	Texas	75247	0.0005	0	0.0005	0	0	0.214	0.2145
INTERNATIONAL EXTRUSION CORP TEXAS	202 SINGLETON DR	WAXAHACHIE	Texas	75165	0	0.2115	0.2115	0	0	0	0.2115
COLWELL INC	231 S PROGRESS DR E	KENDALLVILLE	Indiana	46755	0.19	0.02	0.21	0	0	0	0.21
ACTEGA KELSTAR INC	1050 TAYLORS LN	CINNAMINSON	New Jersey	08077	0.0015	0.005	0.0065	0	0	0.2	0.2065
GUARDIAN AUTOMOTIVE - MOREHEAD PLANT	200 GUARDIAN AVE	MOREHEAD	Kentucky	40351	0	0.203	0.203	0	0	0	0.203
ASHLAND DISTRIBUTION CO	4550 NE EXPRESSWAY	DORAVILLE	Georgia	30340	0.1555	0.047	0.2025	0	0	0	0.2025
CHAMPION TECHNOLOGIES INC	3303 HWY 135 N	KILGORE	Texas	75662	0.194	0.002	0.196	0	0	0	0.196
RHODIA INC	577 BANKHEAD HWY	WINDER	Georgia	30680	0.16	0.0335	0.1935	0	0	0	0.1935
ROCKLINE INDUSTRIES	1113 MARYLAND AVE	SHEBOYGAN	Wisconsin	53081	0.193	0	0.193	0	0	0	0.193
FIRST AMERICAN RESOURCES CO	2030 RIVERVIEW INDUSTRIAL DR	MABLETON	Georgia	30126	0	0.191	0.191	0	0	0	0.191
SASOL NORTH AMERICA INC LAKE CHARLES CHEMICAL COMPLEX	2201 OLD SPANISH TRAIL	WESTLAKE	Louisiana	70669	0.124	0.0645	0.1885	0	0	0	0.1885
RUDD CO INC	1141 NW 50TH ST	SEATTLE	Washington	98107	0.175	0.0125	0.1875	0	0	0	0.1875
ASHLAND DISTRIBUTION	7710 POLK ST	SAINT LOUIS	Missouri	63111	0.1845	0.0015	0.186	0	0	0	0.186
CURTIS METAL FINISHING CO	9917 N ALPINE	MACHESNEY PARK	Illinois	61115	0.1325	0.053	0.1855	0	0	0	0.1855

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
TRITECH COATINGS CORP	1378 KINGSLAND AVE	PAGEDALE	Missouri	63133	0.1585	0.0235	0.182	0	0	0	0.182
ASHLAND DISTRIBUTION CO GARLAND TX	3101 WOOD DR	GARLAND	Texas	75041	0.151	0.031	0.182	0	0	0	0.182
JAMESTOWN COATING TECHNOLOGIES	108 MAIN ST	JAMESTOWN	Pennsylvania	16134	0.1795	0	0.1795	0	0	0	0.1795
NALCO CO PLANT 106	7701 US HWY 90A	SUGAR LAND	Texas	77478	0	0	0	0	0	0.1795	0.1795
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	1991 S WHEELING RD	WHEELING	Illinois	60090	0.0635	0.1135	0.177	0	0	0	0.177
ASHLAND INC - CHANDLER	6839 W CHICAGO ST	CHANDLER	Arizona	85226	0.149	0.028	0.177	0	0	0	0.177
PLAZE INC	113 BOLTE LN	SAINT CLAIR	Missouri	63077	0.1745	0	0.1745	0	0	0	0.1745
ASHLAND DISTRIBUTION CO	11109 S CHOCTAW DR	BATON ROUGE	Louisiana	70815	0.1625	0.0105	0.173	0	0	0	0.173
BYK USA INC	524 S CHERRY ST	WALLINGFORD	Connecticut	06492	0.17	0.003	0.173	0	0	0	0.173
DUPONT FRONT ROYAL PLANT	7961 WINCHESTER RD	FRONT ROYAL	Virginia	22630	0.0005	0.1675	0.168	0	0	0	0.168
SHERWIN-WILLIAMS CO	1891 DUFFY RD	FERNLEY	Nevada	89408	0.0005	0.002	0.0025	0	0	0.165	0.1675
ANCHOR PAINT MANUFACTURING CO INC	6707 E 14TH ST	TULSA	Oklahoma	74112	0.167	0	0.167	0	0	0	0.167
JOHNSONDIVERSEY INC	8311 16TH ST	STURTEVANT	Wisconsin	53177	0.0255	0.01	0.0355	0	0	0.124	0.1595
BEHR PROCESS CORP - CHICAGO	270 STATE ST	CHICAGO HEIGHTS	Illinois	60411	0.048	0.0815	0.1295	0	0.0275	0	0.157
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	188 SIDE TRACK DR	STATESVILLE	North Carolina	28625	0.0635	0.0925	0.156	0	0	0	0.156
SONOCO FLEXIBLE PACKAGING	6502 S US HWY 31 N	EDINBURGH	Indiana	46124	0	0.1545	0.1545	0	0	0	0.1545
STOUSE INC	300 NEW CENTURY PKWY	NEW CENTURY	Kansas	66031	0.154	0	0.154	0	0	0	0.154
DUPONT FORT MADISON PLANT	801 - 35TH ST	FORT MADISON	Iowa	52627	0	0.135	0.135	0	0	0.0185	0.1535
WARREN OIL CO - NC	2340 US 301 N	DUNN	North Carolina	28335	0.1525	0.0005	0.153	0	0	0	0.153
HENTZEN COATINGS,INC BATAVIA FACILITY	1500 LATHEM ST	BATAVIA	Illinois	60510	0.151	0	0.151	0	0	0	0.151
ROHM & HAAS ELECTRONIC MATERIA LS LLC	455 FOREST ST	MARLBOROUGH	Massachusetts	01752	0.0025	0.0025	0.005	0	0	0.144	0.149
BAKER PETROLITE CORP	9100 W 21ST ST	SAND SPRINGS	Oklahoma	74063	0.103	0.0295	0.1325	0	0	0.0145	0.147
SUPERIOR SOLVENTS & CHEMICALS	320 NORTHPOINTE DR	FAIRFIELD	Ohio	45014	0.0365	0	0.0365	0	0	0.11	0.1465
TNEMEC CO INC	123 W 23RD AVE	NORTH KANSAS CIT	Missouri	64116	0	0.1465	0.1465	0	0	0	0.1465
PPG INDUSTRIES OHIO INC CIRCLEVILLE OH	559 PITTSBURGH RD	CIRCLEVILLE	Ohio	43113	0.0345	0.111	0.1455	0	0	0	0.1455
MT ELLIOTT TOOL & DIE MANUFACTURING (PART)	3675 E OUTER DR	DETROIT	Michigan	48234	0.145	0	0.145	0	0	0	0.145
DYCO PAINTS INC	5850 ULMERTON RD	CLEARWATER	Florida	33760	0	0.142	0.142	0	0	0	0.142
MID-STATES PAINT & CHEMICAL CO	9315 WATSON INDUSTRIAL PARK	CRESTWOOD	Missouri	63126	0.1415	0	0.1415	0	0	0	0.1415

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
DOW CHEMICAL CO - LOUISIANA OPERATIONS	21255 LA HWY 1 S	PLAQUEMINE	Louisiana	70765	0.139	0	0.139	0	0	0	0.139
ASHLAND DISTRIBUTION	2351 CHANNEL AVE	MEMPHIS	Tennessee	38113	0.1225	0.012	0.1345	0	0	0	0.1345
AMREP INC	990 INDUSTRIAL PARK DR	MARIETTA	Georgia	30062	0.0435	0.088	0.1315	0	0	0	0.1315
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	3050 HANFORD DR	LEBANON	Pennsylvania	17046	0.0635	0.068	0.1315	0	0	0	0.1315
NALCO CO - ODESSA PLANT 114	12205 W COUNTY RD 125	ODESSA	Texas	79765	0	0.125	0.125	0	0	0.006	0.131
VARN INTERNATIONAL	1333 N KIRK RD	BATAVIA	Illinois	60510	0.125	0.0025	0.1275	0.0025	0	0	0.13
WATSON STANDARD CO HARWICK PLANT	616 HITE RD	HARWICK	Pennsylvania	15049	0.1165	0.011	0.1275	0	0	0	0.1275
POWER SERVICE PRODUCTS INC	513 PEASTER HWY	WEATHERFORD	Texas	76086	0.0025	0.125	0.1275		0	0	0.1275
BASF CORP	3455 SOUTHPORT RD	SPARTANBURG	South Carolina	29302	0.125	0.0025	0.1275	0	0	0	0.1275
PERMATEX SOLON	6875 PARKLAND BLVD	SOLON	Ohio	44139	0.0025	0.125	0.1275	0	0	0	0.1275
CONOCOPHILLIPS PONCA CITY REFINERY	1000 S PINE ST	PONCA CITY	Oklahoma	74601	0.0025	0.125	0.1275	0	0	0	0.1275
CONOCOPHILLIPS OKLAHOMA CITY PRODUCTS TERMINAL	4600 NE 10TH ST	OKLAHOMA CITY	Oklahoma	73117	0.0025	0.125	0.1275	0	0	0	0.1275
GEORGE S COYNE CHEMICAL CO INC	3015 STATE RD	CROYDON	Pennsylvania	19021	0.125	0.0025	0.1275	0	0	0	0.1275
TAKASAGO INTERNATIONAL CORP (USA)	267 UNION ST	NORTHVALE	New Jersey	07647	0.125	0.0025	0.1275	0	0	0	0.1275
BRYCE CO LLC	4505 OLD LAMAR AVE	MEMPHIS	Tennessee	38118	0	0.0025	0.0025	0	0	0.125	0.1275
CHEMICALS INC	12321 HATCHERVILLE RD	BAYTOWN	Texas	77520	0.125	0.0025	0.1275	0	0	0	0.1275
COASTAL CHEMICAL CO LLC	3520 VETERANS MEMORIAL BLVD	ABBEVILLE	Louisiana	70510	0.125	0.0025	0.1275	0	0	0	0.1275
OAKLEY INC	1 ICON	FOOTHILL RANCH	California	92610	0.0025	0.125	0.1275	0	0	0	0.1275
GE WATER & PROCESS TECHNOLOGIES ORANGE FACILITY	3901 WILLIAMS DR	ORANGE	Texas	77630	0.125	0.0025	0.1275	0	0	0	0.1275
BRENNTAG GREAT LAKES LLC	14765 W BOBOLINK AVE	MENOMONEE FALLS	Wisconsin	53051	0.0025	0.125	0.1275	0	0	0	0.1275
RESEARCH SOLVENTS & CHEMICALS INC	402 INDUSTRIAL PARK DR	PELHAM	Alabama	35124	0.125	0.0025	0.1275	0	0	0	0.1275
RESEARCH SOLVENTS & CHEMICALS INC	133 BAIN DR	LA VERGNE	Tennessee	37086	0.125	0.0025	0.1275	0	0	0	0.1275
UNITED LABORATORIES INC	320 37TH AVE	SAINT CHARLES	Illinois	60174	0.125	0.0025	0.1275	0	0	0	0.1275
RR STREET & CO INC	2353 S BLUE ISLAND AVE	CHICAGO	Illinois	60608	0.0025	0.125	0.1275	0	0	0	0.1275
NICCA USA INC	1044 S NELSON RD	FOUNTAIN INN	South Carolina	29644	0.0025	0.125	0.1275	0	0	0	0.1275
ELANTAS PDG INC	5200 N SECOND ST	SAINT LOUIS	Missouri	63147	0.0025	0.125	0.1275	0	0	0	0.1275
HARCROS CHEMICALS INC	4606 NEW W DR	PASADENA	Texas	77507	0.0345	0.0035	0.038	0	0.0025	0.085	0.1255
ACTON TECHNOLOGIES INC	100 THOMPSON ST	PITTSTON	Pennsylvania	18640	0.125	0	0.125	0	0	0	0.125

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
AKCROS CHEMICALS INC	500 JERSEY AVE	NEW BRUNSWICK	New Jersey	08901	0	0.125	0.125	0	0	0	0.125
MAGNABLEND INC LIQUID PLANT	100 W STERRETT RD	WAXAHACHIE	Texas	75165	0.125	0	0.125	0	0	0	0.125
KALCOR COATINGS CO	37721 STEVENS BLVD	WILLOUGHBY	Ohio	44094	0.125	0	0.125	0	0	0	0.125
DANLIN INDUSTRIES CORP	23737 HWY 47	THOMAS	Oklahoma	73669	0.125	0	0.125	0	0	0	0.125
UNIVAR USA INC DALLAS DAN MORTON FACILITY	3636 DAN MORTON DR	DALLAS	Texas	75236	0.125	0	0.125	0	0	0	0.125
TYSON FRESH MEATS INC	HWY 50 W	HOLCOMB	Kansas	67851	0.125	0	0.125	0	0	0	0.125
NOV TUBOSCOPE HOLMES ROAD	2811 HOLMES RD	HOUSTON	Texas	77051	0.125	0	0.125	0	0	0	0.125
SICPA SECURINK CORP	8000 RESEARCH WAY	SPRINGFIELD	Virginia	22153	0.125	0	0.125	0	0	0	0.125
TRANS CHEMICAL INC	419 E DE SOTO AVE	SAINT LOUIS	Missouri	63147	0.125	0	0.125	0	0	0	0.125
JASPER RUBBER PRODUCTS INC	1010 FIRST AVE	JASPER	Indiana	47546	0	0	0	0	0	0.125	0.125
CLEANING SYSTEMS INC	1997 AMERICAN BLVD	DE PERE	Wisconsin	54115	0.125	0	0.125	0	0	0	0.125
CHEMETALL US INC	13177 HURON RIVER DR	ROMULUS	Michigan	48174	0	0.125	0.125	0	0	0	0.125
CERAM-TRAZ CORP CERAMIC INDL COATINGS (DBA)	325 HWY 81	OSSEO	Minnesota	55369	0.125	0	0.125		0	0	0.125
COLUMBIA PAINT CORP	641 JACKSON AVE	HUNTINGTON	West Virginia	25704	0.125	0	0.125	0	0	0	0.125
INX INTERNATIONAL INK CO	1000 MAPLE AVE	HOMEWOOD	Illinois	60430	0	0.125	0.125	0	0	0	0.125
W M BARR & CO	2105 CHANNEL AVE	MEMPHIS	Tennessee	38113	0	0.125	0.125	0	0	0	0.125
GOLD EAGLE CO	4400 S KILDARE AVE	CHICAGO	Illinois	60632	0.125	0	0.125	0	0	0	0.125
AKZO NOBEL COATINGS INC	1431 PROGRESS AVE	HIGH POINT	North Carolina	27261	0.125	0	0.125	0	0	0	0.125
ELECTRONICS FOR IMAGING INC	1260 JAMES L HART PKWY	YPSILANTI	Michigan	48197	0.124	0	0.124	0	0	0	0.124
KEYSTONE ANILINE CORP	2165 HWY 292	INMAN	South Carolina	29349	0.0615	0.0615	0.123	0	0	0	0.123
CAROLINA SOLVENTS INC	2274 1ST ST SE	HICKORY	North Carolina	28602	0.116	0.0025	0.1185	0.0025	0	0	0.121
ASHLAND DISTRIBUTION	4185 ALGONQUIN PKWY	LOUISVILLE	Kentucky	40211	0.1145	0.0065	0.121	0	0	0	0.121
ASHLAND DISTRIBUTION CO	3930 GLENWOOD DR	CHARLOTTE	North Carolina	28208	0.082	0.036	0.118	0	0	0	0.118
AEP INDUSTRIES INC	1201 S PINE HILL RD	GRIFFIN	Georgia	30224	0.0025	0.115	0.1175	0	0	0	0.1175
ALLEGHENY PETROLEUM PRODUCTS CO	999 AIRBRAKE AVE	WILMERDING	Pennsylvania	15148	0.0235	0.093	0.1165	0	0	0	0.1165
ACCURATE DISPERSIONS	192 W 155TH ST	SOUTH HOLLAND	Illinois	60473	0.088	0.028	0.116	0	0	0	0.116
SUPERIOR SOLVENTS & CHEMICALS	4211 BRAMERS LN	LOUISVILLE	Kentucky	40216	0.004	0	0.004	0	0	0.111	0.115
US MARINE CORPS AIR STATION YUMA	AVE 3E	YUMA	Arizona	85369	0.096	0.0185	0.1145	0	0	0	0.1145
TECHNICAL CHEMICAL CO	3327 PIPELINE RD	CLEBURNE	Texas	76033	0.1135	0	0.1135		0	0	0.1135

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ARDEX LABORATORIES INC	2050 BYBERRY RD	PHILADELPHIA	Pennsylvania	19116	0.1125	0	0.1125	0	0	0	0.1125
ASHLAND INC - EVENDALE	2788 GLENDALE-MILFORD RD	EVENDALE	Ohio	45241	0.0805	0.032	0.1125	0	0	0	0.1125
SHERWIN-WILLIAMS CO	2121 NEW WORLD DR	COLUMBUS	Ohio	43207	0.0085	0.0065	0.015	0	0	0.097	0.112
SHERWIN-WILLIAMS CO	1025 HOWARD ST	GREENSBORO	North Carolina	27403	0.053	0.057	0.11	0	0	0.001	0.111
3M CO - NEVADA	2120 E AUSTIN BLVD	NEVADA	Missouri	64772	0.01	0.1	0.11	0	0	0	0.11
DELTA LABORATORIES INC	3710 COUNTY RD 326 W	OCALA	Florida	34475	0.1085	0.0005	0.109	0	0	0	0.109
SHERWIN-WILLIAMS CO	636 E 40TH ST	HOLLAND	Michigan	49423	0.1045	0.0015	0.106	0	0	0	0.106
SUPERIOR OIL CO INC	400 W REGENT ST	INDIANAPOLIS	Indiana	46225	0.0045	0	0.0045	0	0	0.0995	0.104
FRAZEE INDUSTRIES	6625 MIRAMAR RD	SAN DIEGO	California	92121	0	0.103	0.103	0	0	0	0.103
HENKEL CORP	23343 SHERWOOD AVE	WARREN	Michigan	48091	0.044	0.044	0.088	0	0	0.015	0.103
CENTRAL MOTOR WHEEL OF AMERICA (DBA CMWA)	125 WHEAT DR	PARIS	Kentucky	40361	0	0.103	0.103		0	0	0.103
ASHLAND DISTRIBUTION CO	2461 CROCKER CIR	FAIRFIELD	California	94533	0.1015	0.001	0.1025	0	0	0	0.1025
STEELSCAPE INC RANCHO	11200 ARROW RT	RANCHO CUCAMON	California	91730	0.0035	0.0975	0.101	0	0	0	0.101
ASHLAND DISTRIBUTION CO	20915 S WILMINGTON AVE	CARSON	California	90810	0.0925	0.0055	0.098	0	0	0	0.098
MRCG-KRAFTMAID P3	150 GRAND VALLEY AVE	ORWELL	Ohio	44076	0.002	0.0775	0.0795	0	0	0.0175	0.097
UNIVAR USA INC HAMILTON BRANCH	12 STANDEN DR	HAMILTON	Ohio	45015	0.007	0.02	0.027	0	0	0.0685	0.0955
GROTTOES PLASTICS PLANT	149 GRAND CAVERNS DR	GROTTOES	Virginia	24441	0.022	0.0375	0.0595	0.004	0	0.03	0.0935
CYTEC INDUSTRIES INC LANGLEY PLANT	403 CARLINE RD	LANGLEY	South Carolina	29834	0.0835	0.01	0.0935	0	0	0	0.0935
ASHLAND DISTRIBUTION CO	200 NE 181ST ST	MIAMI	Florida	33162	0.075	0.018	0.093	0	0	0	0.093
CE BRADLEY LABORATORIES INC	55 BENNETT DR	BRATTLEBORO	Vermont	05301	0.093	0	0.093	0	0	0	0.093
MULTI-COLOR CORP	2281 S US 31	SCOTTSBURG	Indiana	47170	0	0.091	0.091	0	0	0	0.091
ATHEA LABORATORIES INC	7855 N FAULKNER RD	MILWAUKEE	Wisconsin	53224	0.0905	0	0.0905	0	0	0	0.0905
BRENNTAG PACIFIC INC	10747 PATTERSON PL	SANTA FE SPRINGS	California	90670	0.081	0.0065	0.0875	0	0	0	0.0875
DIC IMAGING PRODUCTS USA LLC	7335 S 10TH ST	OAK CREEK	Wisconsin	53154	0.0085	0.0775	0.086	0	0	0	0.086
NORTHERN COATINGS & CHEMICAL CO INC	705 6TH AVE	MENOMINEE	Michigan	49858	0.085	0	0.085	0	0	0	0.085
CCI MANUFACTURING IL CORP	15550 CANAL BANK RD	LEMONT	Illinois	60439	0	0.0835	0.0835	0	0	0	0.0835
UNION TANK CAR ALEXANDRIA MANUFACTURING FACILITY	6325 HWY 1 N	ALEXANDRIA	Louisiana	71303	0.004	0.0795	0.0835	0	0	0	0.0835
CHAMPION TECHNOLOGIES INC	350 CENTAURUS RD	CORPUS CHRISTI	Texas	78405	0.0805	0.002	0.0825	0	0	0	0.0825
ASHLAND DISTRIBUTION	400 MAIN ST	TEWKSBURY	Massachusetts	01876	0.076	0.006	0.082	0	0	0	0.082

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THIRD COAST PACKAGING INC FRIENDSWOOD	18410 W CLOVER LN	FRIENDSWOOD	Texas	77549	0	0	0	0	0	0.0815	0.0815
BERNER CHEESE CORP	2034 E FACTORY RD	DAKOTA	Illinois	61018	0	0	0	0	0	0.0805	0.0805
CHAMPION TECHNOLOGIES INC	1100 HUGHIE LONG RD	CRESSON	Texas	76035	0.0795	0.0005	0.08	0	0	0	0.08
BUZZI UNICEM USA - GREENCASTLE PLANT	3301 S COUNTY RD 150 W	GREENCASTLE	Indiana	46135	0.0155	0.064	0.0795	0	0	0	0.0795
KEY POLYMER	17 SHEPARD ST LAWRENCE INDUST	LAWRENCE	Massachusetts	01843	0	0.0165	0.0165	0	0	0.063	0.0795
TEXAS INSTRUMENTS INC	13500 N CENTRAL EXPRESSWAY	DALLAS	Texas	75243	0	0.0795	0.0795	0	0	0	0.0795
AVERY DENNISON PFD	650 W 67TH AVE	SCHERERVILLE	Indiana	46375	0.0545	0.025	0.0795	0	0	0	0.0795
ECOLAB	18383 E RAILROAD ST	CITY OF INDUSTRY	California	91748	0.018	0.061	0.079	0	0	0	0.079
LUBRIZOL	9550 W 55TH ST	MC COOK	Illinois	60525	0	0.078	0.078		0	0	0.078
ARCH CHEMICALS INC	HWY 933	BRANDENBURG	Kentucky	40108	0.02	0.058	0.078	0	0	0	0.078
PLAZE INC	105 BOLTE LN	SAINT CLAIR	Missouri	63077	0.078	0	0.078	0	0	0	0.078
ASHLAND DISTRIBUTION CO	5420 SPEAKER RD	KANSAS CITY	Kansas	66106	0.069	0.0085	0.0775	0	0	0	0.0775
AKZO NOBEL COATINGS INC	1000 INDUSTRIAL PARK DR	CLINTON	Mississippi	39056	0.0765	0	0.0765	0	0	0	0.0765
MATTHEWS INTERNATIONAL CORP	101 FAIRVIEW AVE	PITTSBURGH	Pennsylvania	15238	0.064	0.0125	0.0765	0	0	0	0.0765
CHEMICAL SOLVENTS JENNINGS ROAD FACILITY	3751 JENNINGS RD	CLEVELAND	Ohio	44109	0.069	0.003	0.072	0	0	0.0025	0.0745
CLOROX PRODUCTS MANUFACTURING CO	2600 HUNTINGTON DR	FAIRFIELD	California	94533	0.074	0.0005	0.0745	0	0	0	0.0745
LAMBERTI USA INC WHARTON CHEMICAL COMPLEX	HWY 59 AT COUNTY RD 212	HUNGERFORD	Texas	77448	0.0115	0	0.0115	0.021	0	0.042	0.0745
SPRAYLAT CORP	716 S COLUMBUS AVE	MOUNT VERNON	New York	10550	0.0035	0.0705	0.074	0	0	0	0.074
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	2000 WESTHALL ST	PITTSBURGH	Pennsylvania	15233	0.063	0.0105	0.0735	0	0	0	0.0735
AKZO NOBEL COATINGS INC	1660 CROSS ST SE	SALEM	Oregon	97302	0.043	0.03	0.073	0	0	0	0.073
BOEHRINGER INGELHEIM CHEMICALS INC	2820 N NORMANDY RD	PETERSBURG	Virginia	23805	0.009	0.0635	0.0725	0	0	0	0.0725
VEYANCE TECHNOLOGIES INC	4021 N 56TH ST	LINCOLN	Nebraska	68504	0	0	0	0	0	0.072	0.072
VEOLIA ES TECHNICAL SOLUTIONS LLC PORT ARTHUR FACILITY	HWY 73, 35 MILES W OF TAYLOR BA	PORT ARTHUR	Texas	77640	0.071	0	0.071	0	0	0	0.071
ADCO CLEANING PRODUCTS LLC	900 W MAIN ST	SEDALIA	Missouri	65301	0.0235	0.0475	0.071	0	0	0	0.071
WARSAW CHEMICAL CO INC	390 ARGONNE RD	WARSAW	Indiana	46580	0.048	0.022	0.07	0	0	0	0.07
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	901 W UNION ST	MONTEBELLO	California	90640	0.0635	0.0065	0.07	0	0	0	0.07
GENERAL DYNAMICS ORDNANCE & TACTICAL SYSTEMS GARLAND	1200 N GLENBROOK	GARLAND	Texas	75040	0.003	0	0.003	0	0	0.064	0.067

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
CARDINAL INDUSTRIAL FINISHES	1329 POTRERO AVE	SOUTH EL MONTE	California	91733	0.048	0.018	0.066	0	0	0	0.066
MINUTEMAN INTERNATIONAL MULTI-CLEAN DIV	600 CARDIGAN RD	SHOREVIEW	Minnesota	55126	0.063	0.0025	0.0655	0	0	0	0.0655
UNIVAR USA INC INDIANAPOLIS WEST BRANCH	5850 W 82ND ST	INDIANAPOLIS	Indiana	46268	0.003	0.0085	0.0115	0	0	0.0515	0.063
KARCHER NORTH AMERICA- PROCHEM	325 S PRICE RD	CHANDLER	Arizona	85224	0.0625	0	0.0625	0	0	0	0.0625
ICI PAINTS PUERTO RICO INC	65 INFANTERIA KM 134	CAROLINA	Puerto Rico	00985	0.0615	0	0.0615	0	0	0	0.0615
COOK COMPOSITES & POLYMERS C O	13511 MAIN ST	LEMONT	Illinois	60439	0.017	0.044	0.061	0	0	0	0.061
MRCG-KRAFTMAID P1	16052 INDUSTRIAL PKWY	MIDDLEFIELD	Ohio	44062	0	0.0485	0.0485	0	0	0.0105	0.059
BRENNTAG SOUTHEAST INC	2000 E PETTIGREW ST	DURHAM	North Carolina	27703	0.043	0.015	0.058	0	0	0	0.058
CONOCOPHILLIPS CO EAST ST LOUIS TERMINAL	3300 MISSISSIPPI AVE	CAHOKIA	Illinois	62206	0	0.0575	0.0575	0	0	0	0.0575
CONTINENTAL CEMENT CO LLC	10107 HWY 79	HANNIBAL	Missouri	63401	0.057	0	0.057	0	0	0	0.057
ECOLAB INC	261 HWY 155 S	MC DONOUGH	Georgia	30253	0.0185	0.0385	0.057		0	0	0.057
COGNIS CORP MAULDIN PLANT	1520 OLD STAGE RD	MAULDIN	South Carolina	29662	0.0465	0.0105	0.057	0	0	0	0.057
GRAPHIC CONTROLS LLC	400 EXCHANGE ST	BUFFALO	New York	14204	0.054	0	0.054	0	0	0	0.054
UNIVAR USA INC	7050 W 71ST ST	BEDFORD PARK	Illinois	60499	0.0285	0.025	0.0535	0	0	0	0.0535
ABC COMPOUNDING CO OF TEXAS INC	1102 AVE J E	GRAND PRAIRIE	Texas	75050	0.0025	0.051	0.0535	0	0	0	0.0535
HANNA STEEL CORP	220 HANNA DR	PEKIN	Illinois	61554	0.0035	0.0495	0.053	0	0	0	0.053
DYSTAR LP	209 WATLINGTON INDUSTRIAL DR	REIDSVILLE	North Carolina	27320	0.035	0.015	0.05	0	0	0	0.05
NORTHERN LABS INC WEST DRIVE	5800 W DR	MANITOWOC	Wisconsin	54220	0.049	0	0.049	0	0	0	0.049
BARTON SOLVENTS INC BETTENDORF	204 36TH ST	BETTENDORF	Iowa	52722	0.0115	0.0375	0.049	0	0	0	0.049
WHITFORD CORP	47 PARK AVE	ELVERSON	Pennsylvania	19520	0.046	0.0025	0.0485	0	0	0	0.0485
AMERICAN COATINGS INC	10625 MAHAFFEY RD	TOMBALL	Texas	77375	0.013	0.0355	0.0485	0	0	0	0.0485
NORMAN FOX & CO	5511 S BOYLE AVE	VERNON	California	90058	0.0025	0.046	0.0485		0	0	0.0485
KAY CHEMICAL CO	8300 CAPITAL DR	GREENSBORO	North Carolina	27409	0.0095	0.0385	0.048	0	0	0	0.048
ASHLAND DISTRIBUTION CO	5125 W HANNA AVE	TAMPA	Florida	33634	0.0015	0.0455	0.047	0	0	0	0.047
FRANKLIN INTERNATIONAL	2020 BRUCK ST	COLUMBUS	Ohio	43207	0.0045	0.0425	0.047	0	0	0	0.047
RECKITT BENCKISER	799 RT 206 & HILLSBOROUGH RD	HILLSBOROUGH	New Jersey	08844	0.045	0.001	0.046	0	0	0	0.046
INOAC PACKAGING GROUP	901 NUTTER DR	BARDSTOWN	Kentucky	40004	0	0.044	0.044	0	0	0	0.044
ECOLAB INC	3001 CHANNAHON RD	JOLIET	Illinois	60436	0.0305	0.0125	0.043	0	0	0	0.043
CORSICANA TECHNOLOGIES INC	2733 E HWY 31	CORSICANA	Texas	75109	0.0065	0.018	0.0245	0	0	0.018	0.0425

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
KBP COIL COATERS INC	3600 E 44TH AVE	DENVER	Colorado	80216	0	0.042	0.042	0	0	0	0.042
ENTHONE INC	9809 INDUSTRIAL DR	BRIDGEVIEW	Illinois	60455	0.004	0.0375	0.0415	0	0	0	0.0415
FORD MOTOR CO MICHIGAN ASSEMBLY PLANT	38303 MICHIGAN AVE	WAYNE	Michigan	48184	0.0405	0	0.0405	0	0	0	0.0405
RECTICEL INTERIORS NORTH AMERICA LLC	1420 INDUSTRIAL PARK DR	TUSCALOOSA	Alabama	35401	0.0005	0.039	0.0395	0	0	0	0.0395
BIOLAB INC	1735 DOGWOOD DR	CONYERS	Georgia	30012	0.039	0	0.039	0	0	0	0.039
BARTON SOLVENTS INC WICHITA	201 S CEDAR	VALLEY CENTER	Kansas	67147	0.008	0.031	0.039	0	0	0	0.039
BARTON SOLVENTS INC KANSAS CITY	901 S 66TH TERRACE	KANSAS CITY	Kansas	66111	0.008	0.031	0.039	0	0	0	0.039
SHERWIN-WILLIAMS CO	630 E 13TH	ANDOVER	Kansas	67002	0.0285	0.01	0.0385	0	0	0	0.0385
CLEAN HARBORS EL DORADO LLC	309 AMERICAN CIR UNION	EL DORADO	Arkansas	71730	0.037	0	0.037	0	0	0.0005	0.0375
ECOLAB	383 N HIGH ST	HEBRON	Ohio	43025	0.0265	0.0105	0.037	0	0	0	0.037
EXCEL-POLYMERS LLC	HWY 353 S PO BOX 377	JONESBOROUGH	Tennessee	37659	0	0.0365	0.0365	0	0	0	0.0365
AIR PRODUCTS PERFORMANCE MANUFACTURING INC	337 VINCENT DR	MILTON	Wisconsin	53563	0.0025	0.0335	0.036	0	0	0	0.036
ECOLAB INC	942 BAKER RD	MARTINSBURG	West Virginia	25405	0.022	0.0135	0.0355	0	0	0	0.0355
HUNTSMAN ADVANCED MATERIALS AMERICAS INC	555 HUNTSMAN RD	MC INTOSH	Alabama	36553	0.0125	0.023	0.0355	0	0	0	0.0355
ETHOX CHEMICALS LLC	1801 PERIMETER RD	GREENVILLE	South Carolina	29605	0.0025	0.0325	0.035	0	0	0	0.035
RICHARDSAPEX INC	4202-24 MAIN ST	PHILADELPHIA	Pennsylvania	19127	0.025	0	0.025	0	0	0.0095	0.0345
GIANT CEMENT CO	HWY 453 & I-26 (654 JUDGE ST)	HARLEYVILLE	South Carolina	29448	0.0015	0.0005	0.002	0	0	0.032	0.034
BRENNTAG NORTHEAST INC	81 W HULLER LN	READING	Pennsylvania	19605	0.0185	0.015	0.0335	0	0	0	0.0335
LUBRIZOL CORP	29400 LAKELAND BLVD	WICKLIFFE	Ohio	44092	0.033	0	0.033	0	0	0	0.033
RANBAR ELECTRICAL MATERIALS INC	RTE 993 ONE MILE W OF RTE 130	MANOR	Pennsylvania	15665	0	0.023	0.023	0	0	0.01	0.033
DUPONT PARLIN PLANT	CHEESEQUAKE RD	PARLIN	New Jersey	08859	0.004	0.028	0.032	0	0	0	0.032
BARTON SOLVENTS INC WEST BEND	800 RAIL WAY	WEST BEND	Wisconsin	53095	0.005	0.0265	0.0315	0	0	0	0.0315
3M CO - KNOXVILLE	3406 E PLEASANT	KNOXVILLE	Iowa	50138	0	0.0315	0.0315	0	0	0	0.0315
SI GROUP INC	1000 MAIN ST	ROTTERDAM JUNCT	New York	12150	0.009	0.0145	0.0235	0.007	0	0	0.0305
UNIVAR USA INC - INDIANAPOLIS	7425 E 30TH ST	INDIANAPOLIS	Indiana	46219	0.008	0.0225	0.0305	0	0	0	0.0305
MACDERMID INC	1221 FARROW AVE	FERNDALE	Michigan	48220	0.0135	0.015	0.0285	0	0	0	0.0285
MEADWESTVACO SOUTH CAROLINA LLC	400 CROSBY RD	DERIDDER	Louisiana	70634	0.0025	0.0255	0.028	0	0	0	0.028
CARBOLINE CO	900 OPELOUSAS ST	LAKE CHARLES	Louisiana	70601	0	0.028	0.028	0	0	0	0.028
ASHLAND DISTRIBUTION	2011 TURNER ST	LANSING	Michigan	48906	0.025	0.0025	0.0275	0	0	0	0.0275

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
KEMIRA WATER SOLUTIONS INC	1 CYANAMID RD	MOBILE	Alabama	36614	0.013	0.0125	0.0255	0	0	0.0015	0.027
UNIVAR USA INC - TOLEDO SOUTH BRANCH	4051 S AVE	TOLEDO	Ohio	43615	0.009	0.0175	0.0265	0	0	0	0.0265
ECOLAB INC	2305 SHERWIN ST	GARLAND	Texas	75041	0.0145	0.012	0.0265	0	0	0	0.0265
VEOLIA ES TECHNICAL SOLUTIONS LLC	125 FACTORY LN	MIDDLESEX	New Jersey	08846	0.0125	0.0135	0.026	0	0	0	0.026
AMPHENOL APC INC	91 NORTHEASTERN BLVD	NASHUA	New Hampshire	03062	0.0025	0.0235	0.026	0	0	0	0.026
CLEARWATER INTERNATIONAL LLC	100 INDUSTRIAL DR (BLDG 180, 150,	LEETSDALE	Pennsylvania	15056	0.0015	0	0.0015	0	0	0.0245	0.026
BARTON SOLVENTS INC DES MOINES	1970 NE BROADWAY	DES MOINES	Iowa	50313	0.003	0.023	0.026	0	0	0	0.026
HOLLY OAK CHEMICAL INC	101 CASE ST	FOUNTAIN INN	South Carolina	29644	0.025	0	0.025	0	0	0	0.025
PROCTER & GAMBLE HAIR CARE LLC	2200 LOWER MUSCATINE RD	IOWA CITY	Iowa	52240	0.005	0.01	0.015	0	0	0.01	0.025
EXCEL POLYMERS LLC	150 S CONNELL AVE	DYERSBURG	Tennessee	38024	0	0.0245	0.0245	0	0	0	0.0245
ASHLAND DISTRIBUTION CO	8901 OLD GALVESTON RD	HOUSTON	Texas	77034	0.0055	0.019	0.0245	0	0	0	0.0245
SHERWIN-WILLIAMS CO	113 STAGE COACH TRAIL	GREENSBORO	North Carolina	27409	0.004	0.0205	0.0245	0	0	0	0.0245
SHERWIN-WILLIAMS CO	11700 S COTTAGE GROVE	CHICAGO	Illinois	60628	0	0	0	0	0	0.024	0.024
FORD MOTOR CO DEARBORN TOOL & DIE PLANT	3001 MILLER RD	DEARBORN	Michigan	48121	0.001	0	0.001	0	0	0.0225	0.0235
BASF CORP	1 JAMES ST	BELVIDERE	New Jersey	07823	0	0.02	0.02	0	0	0.0035	0.0235
UNIVAR USA INC NORCROSS FACILI TY	2145 SKYLAND CT	NORCROSS	Georgia	30071	0.011	0.0125	0.0235	0	0	0	0.0235
ECOLAB INC	640 LENFEST RD	SAN JOSE	California	95133	0.0135	0.0095	0.023	0	0	0	0.023
VALERO THREE RIVERS REFINERY	301 LEROY ST	THREE RIVERS	Texas	78071	0.023	0	0.023	0	0	0	0.023
BARTON SOLVENTS INC COUNCIL BLUFFS	2135 9TH AVE	COUNCIL BLUFFS	Iowa	51502	0.0015	0.0215	0.023	0	0	0	0.023
UNIVAR USA INC - TOLEDO BRANCH	30450 TRACY RD	WALBRIDGE	Ohio	43465	0.003	0.0195	0.0225	0	0	0	0.0225
PRIDE SOLVENTS & CHEMICAL CO OF NEW JERSEY	211 RANDOLPH AVE	AVENEL	New Jersey	07001	0.0055	0.017	0.0225	0	0	0	0.0225
DAUBERT CHEMICAL CO	4700 S CENTRAL AVE	CHICAGO	Illinois	60638	0.0095	0.0125	0.022	0	0	0	0.022
KWAL-HOWELLS INC (DBA KWAL PAINT INC)	2430 ALBERT BROADFOOT ST	BONHAM	Texas	75418	0	0.0185	0.0185		0	0.0025	0.021
U.S. POLYMERS ACCUREZ LLC	300 E PRIMM ST	SAINT LOUIS	Missouri	63111	0.0085	0.003	0.0115	0	0	0.009	0.0205
3M CO - SPRINGFIELD	3211 E CHESTNUT EXPY	SPRINGFIELD	Missouri	65802	0	0.02	0.02	0	0	0	0.02
UNIVAR USA INC 68TH ST	8500 W 68 TH ST	BEDFORD PARK	Illinois	60501	0.01	0.0095	0.0195	0	0	0	0.0195
GAGE PRODUCTS CO	625 WANDA AVE	FERNDALE	Michigan	48220	0	0.0195	0.0195	0	0	0	0.0195
VALSPAR REFINISH	210 CROSBY ST	PICAYUNE	Mississippi	39466	0	0.019	0.019	0	0	0	0.019
FISHER SCIENTIFIC INTERNATIONAL MTN DIAGNOSTICS PLANT	8365 VALLEY PIKE	MIDDLETOWN	Virginia	22645	0	0.019	0.019	0	0	0	0.019

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
ZEP COMMERCIAL	350 JOE FRANK HARRIS PKWY	EMERSON	Georgia	30137	0	0.019	0.019	0	0	0	0.019
STEEL DYNAMICS INC	4500 COUNTY RD 59	BUTLER	Indiana	46721	0	0.0185	0.0185	0	0	0	0.0185
TRANSTAR AUTOBODY TECHNOLOGIES	2040 HEISERMAN DR	BRIGHTON	Michigan	48114	0.009	0.009	0.018	0	0	0	0.0175
ASHLAND DISTRIBUTION CO	1842 ENTERPRISE PKWY	TWINSBURG	Ohio	44087	0.0025	0.0145	0.017	0	0	0	0.017
BLENTECH CORP	1305 RYE ST	HOUSTON	Texas	77029	0.0125	0.0015	0.014	0	0	0.0025	0.0165
ARLON INC ADHESIVES & FILMS DIV	2811 S HARBOR BLVD	SANTA ANA	California	92704	0	0.0165	0.0165	0	0	0	0.0165
HENKEL	14351 HWY 221	ENOREE	South Carolina	29335	0.0005	0.0145	0.015	0	0	0	0.015
CHEMDESIGN PRODUCTS INC	2 STANTON ST	MARINETTE	Wisconsin	54143	0.006	0.0085	0.0145	0	0	0	0.0145
MONSANTO CO	2500 WIGGINS RD	MUSCATINE	Iowa	52761	0.0135	0.001	0.0145	0	0	0	0.0145
SHERWIN-WILLIAMS CO	6795 S MAIN ST	MORROW	Georgia	30260	0.004	0.0105	0.0145	0	0	0	0.0145
PRIDE SOLVENT & CHEMICAL CO OF NY INC	6 LONG ISLAND AVE	HOLTSVILLE	New York	11742	0.0035	0.0105	0.014	0	0	0	0.014
SIMONIZ USA INC	201 BOSTON TURNPIKE	BOLTON	Connecticut	06043	0.0125	0.001	0.0135	0	0	0	0.013
BRULIN CORP	2920 DR ANDREW J BROWN AVE	INDIANAPOLIS	Indiana	46205	0.003	0.0095	0.0125	0	0	0	0.0125
EVONIK DEGUSSA CORP	4201 DEGUSSA RD	THEODORE	Alabama	36582	0.012	0.0005	0.0125	0	0	0	0.0125
UNIVAR USA INC	2600 S GARFIELD AVE	COMMERCE	California	90040	0.011	0.0015	0.0125	0	0	0	0.0125
HUBBARD-HALL INC	563 S LEONARD ST	WATERBURY	Connecticut	06708	0.0005	0.0115	0.012	0	0	0	0.012
GOODWIN CO	700 PROGRESS CENTER AVE	LAWRENCEVILLE	Georgia	30043	0.011	0.0005	0.0115	0	0	0	0.0115
HENKEL CORP	421 LONDON RD	DELAWARE	Ohio	43015	0.005	0.0065	0.0115	0	0	0	0.0115
SHERWIN-WILLIAMS CO	2325 HOLLINS FERRY RD	BALTIMORE	Maryland	21230	0.0065	0.004	0.0105	0	0	0	0.0105
PRC-DESOTO INTERNATIONAL INC	11601 UNITED ST	MOJAVE	California	93501	0.004	0.006	0.01	0	0	0	0.01
BERRIDGE MANUFACTURING CO	6515 FRATT RD	SAN ANTONIO	Texas	78218	0	0.01	0.01	0	0	0	0.01
BUCKLEY OIL CO	1809 ROCK ISLAND ST	DALLAS	Texas	75207	0.0075	0.0025	0.01	0	0	0	0.01
CHEMOL CO INC	2300 RANDOLPH AVE	GREENSBORO	North Carolina	27406	0	0.0095	0.0095	0	0	0	0.0095
HYDRITE CHEMICAL CO	2545 BOND ST	UNIVERSITY PARK	Illinois	60466	0	0.0095	0.0095	0	0	0	0.0095
TRUE VALUE MANUFACTURING	201 JANDUS RD	CARY	Illinois	60013	0.0025	0.007	0.0095	0	0	0	0.0095
DAVIES IMPERIAL COATINGS INC	1275 STATE ST	HAMMOND	Indiana	46320	0.0095	0	0.0095	0	0	0	0.0095
UNIVAR USA INC SANTA FE SPRINGS	13900 CARMENITA RD	SANTA FE SPRINGS	California	90670	0.003	0.0065	0.0095	0	0	0	0.0095
HENKEL ONTARIO	1496 E FRANCIS ST	ONTARIO	California	91761	0.0015	0.0075	0.009	0	0	0	0.009
BENJAMIN MOORE & CO PELL CITY	109 BAMBERG DR	PELL CITY	Alabama	35125	0.0085	0	0.0085	0	0	0	0.0085

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
GEORGIA-PACIFIC CHEMICALS LLC	1429 E LUFKIN AVE	LUFKIN	Texas	75901	0.008	0.0005	0.0085	0	0	0	0.0085
SHERWIN-WILLIAMS CO	26300 FARGO AVE	BEDFORD HEIGHTS	Ohio	44146	0.0005	0.0015	0.002	0	0	0.0065	0.0085
CRODA INC	315 CHERRY LN	NEW CASTLE	Delaware	19720	0.0075	0.0005	0.008	0	0	0	0.008
TARR ACQUISITION LLC	2429 N BORTHWICK AVE	PORTLAND	Oregon	97227	0.008	0	0.008	0	0	0	0.008
INTERSTATE CHEMICAL CO INC	23247 W EAMES ST	CHANNAHON	Illinois	60410	0.0025	0.0055	0.008	0	0	0	0.0075
DSM DESOTECH INC	1101 HWY 27 S	STANLEY	North Carolina	28164	0	0.0075	0.0075	0	0	0	0.0075
NEW DAWN MANUFACTURING CO	16001 TRADE ZONE AVE	UPPER MARLBORO	Maryland	20774	0.0075	0	0.0075	0	0	0	0.0075
RUSTOLEUM CORP	7850 OHIO RIVER RD	LESAGE	West Virginia	25537	0.0025	0.005	0.0075	0	0	0	0.0075
3M COTTAGE GROVE CENTER	10746 INNOVATION RD	COTTAGE GROVE	Minnesota	55016	0	0.002	0.002	0	0	0.0055	0.0075
SHERWIN-WILLIAMS CO	12401 INDUSTRIAL BLVD	VICTORVILLE	California	92392	0.0035	0.004	0.0075	0	0	0	0.0075
DYNALOY LLC	6445 OLIVIA LN	INDIANAPOLIS	Indiana	46226	0.0015	0.006	0.0075	0	0	0	0.0075
LUBRIZOL CORP PAINESVIL LE PLANT	155 FREEDOM RD	PAINESVILLE	Ohio	44077	0.0065	0.001	0.0075	0	0	0	0.0075
SCOT LABORATORIES	16841 PARK CIR DR	CHAGRIN FALLS	Ohio	44023	0.0025	0	0.0025	0	0.0025	0.0025	0.0075
CLOROX PRODUCTS MANUFACTURING CO	17 LAKE MIRROR RD	FOREST PARK	Georgia	30297	0.0035	0.0035	0.007	0	0	0.0005	0.0075
CUSTOM CHEMICAL FORMULATORS	8707 MILLERGROVE DR	SANTA FE SPRINGS	California	90670	0.007	0	0.007	0	0	0	0.007
HENKEL CORP	923 MAULDIN RD	CALHOUN	Georgia	30701	0	0.0065	0.0065	0	0	0	0.0065
UNIVAR USA INC - SAN JOSE	2256 JUNCTION AVE	SAN JOSE	California	95131	0.003	0.0035	0.0065	0	0	0	0.0065
DOW CHEMICAL JOLIET SITE	26332 S FRONTAGE RD W	CHANNAHON	Illinois	60410	0	0.0065	0.0065	0	0	0	0.0065
KEYSTONE CEMENT CO	RT 329	BATH	Pennsylvania	18014	0	0.0065	0.0065	0	0	0	0.0065
PROCTER & GAMBLE MANUFACTURING CO	1900 KANSAS AVE	KANSAS CITY	Kansas	66105	0.006	0	0.006	0	0	0	0.006
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	546 W ABBOTT ST	INDIANAPOLIS	Indiana	46225	0	0.006	0.006	0	0	0	0.006
AROMATIC TECHNOLOGIES INC	130 INDUSTRIAL PKWY	SOMERVILLE	New Jersey	08876	0.0055	0	0.0055	0	0	0	0.0055
CALLAHAN CHEMICAL CO	200 INDUSTRIAL AVE	RIDGEFIELD PARK	New Jersey	07660	0.003	0.0025	0.0055	0	0	0	0.0055
ACTEGA RADCURE INC	5 MANSARD CT	WAYNE	New Jersey	07470	0.0025	0.0025	0.005	0	0	0	0.005
INDEPENDENT INK INC	14705 S AVALON BLVD	GARDENA	California	90248	0.0025	0.0025	0.005		0	0	0.005
US ECOLOGY TEXAS INC	3277 COUNTY RD 69	ROBSTOWN	Texas	78380	0.0025	0	0.0025	0	0.0025	0	0.005
CUSTOM SYNTHESIS LLC	1704 DENVER RD	ANDERSON	South Carolina	29625	0.0025	0.0025	0.005	0	0	0	0.005
WORWAG COATINGS LLC NA	3420 KOSSUTH ST	LAFAYETTE	Indiana	47905	0.0025	0.0025	0.005		0	0	0.005
CR BRANDS INC	141 VENTURE BLVD	SPARTANBURG	South Carolina	29306	0.0025	0.0025	0.005	0	0	0	0.005

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
CENTRAL SOLUTIONS INC	401 FUNSTON RD	KANSAS CITY	Kansas	66115	0	0	0	0	0.005	0	0.005
UNIVAR USA INC LAKEVILLE	21675 HAMBURG AVE	LAKEVILLE	Minnesota	55044	0.0025	0.0025	0.005	0	0	0	0.005
CAR CARE PACKAGING LLC	1910 S STATE AVE	INDIANAPOLIS	Indiana	46203	0.0005	0.0045	0.005	0	0	0	0.005
SHIELD PACKAGING CO INC	50 OXFORD AVE	DUDLEY	Massachusetts	01571	0.0025	0.0025	0.005	0	0	0	0.005
GOODWIN CO	12361 MONARCH ST	GARDEN GROVE	California	92841	0.0045	0.0005	0.005	0	0	0	0.005
C P INC	196 S WATER	CONNERSVILLE	Indiana	47331	0.0025	0.0025	0.005	0	0	0	0.005
INTEL CORP - RONLER ACRES CAMPUS	2501 NW 229TH ST	HILLSBORO	Oregon	97124	0.0025	0.0025	0.005	0	0	0	0.005
BRAIN POWER INC	4470 SW 74TH AVE	MIAMI	Florida	33155	0.0025	0.0025	0.005	0	0	0	0.005
SARTOMER CO INC	601 TIGHTSQUEEZE INDUSTRIAL RD	CHATHAM	Virginia	24531	0.0025	0.0025	0.005	0	0	0	0.005
CHAMPION PACKAGING & DISTRIBUTING INC	1840 INTERNATIONALE PKWY	WOODRIDGE	Illinois	60517	0.0025	0.0025	0.005	0	0	0	0.005
INTEL CORP	4500 S DOBSON RD MAIL STOP: OC4	CHANDLER	Arizona	85248	0.0025	0.0025	0.005	0	0	0	0.005
SARTOMER CO INC	610 S BOLMAR ST	WEST CHESTER	Pennsylvania	19382	0.0025	0.0025	0.005	0	0	0	0.005
ASHLAND DISTRIBUTION CO	FREEPORT CENTER BUILDING 12 P0	CLEARFIELD	Utah	84016	0.0015	0.003	0.0045	0	0	0	0.0045
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	1215 NELSON BLVD	ROCKFORD	Illinois	61104	0	0.0045	0.0045	0	0	0	0.0045
KING INDUSTRIES INC	SCIENCE RD	NORWALK	Connecticut	06852	0.002	0.002	0.004	0	0	0	0.004
COGNIS CORP -- CHARLOTT E PLANT	3300 WESTINGHOUSE BLVD	CHARLOTTE	North Carolina	28273	0.004	0	0.004	0	0	0	0.004
OMNIUM	1280 IMPERIAL RD	HAMPTON	Iowa	50441	0.0025	0.0015	0.004	0	0	0	0.004
CALLAHAN CHEMICAL CO	18 INDUSTRIAL RD	WALPOLE	Massachusetts	02081	0.002	0.0015	0.0035	0	0	0	0.0035
UNIVAR USA INC HOUSTON	777 BRISBANE ST	HOUSTON	Texas	77061	0.0035	0	0.0035	0	0	0	0.0035
PENRAY COMPANIES INC	1801 ESTES AVE	ELK GROVE VILLAGE	Illinois	60007	0.0005	0.0005	0.001	0.0025	0	0	0.0035
ENGINEERED POLYMER SOLUTIONS INC	5501 E SLAUSON AVE	CITY OF COMMERCE	California	90040	0.003	0.0005	0.0035	0	0	0	0.0035
CARESTREAM HEALTH COLORADO	2000 HOWARD SMITH AVE W C42	WINDSOR	Colorado	80550	0.0035	0	0.0035	0	0	0	0.0035
BAKER PETROLITE BAYPORT FACILI TY	13200 BAYPARK RD	PASADENA	Texas	77507	0.0035	0	0.0035	0	0	0	0.0035
PENRAY COMPANIES INC	440 DENNISTON CT	WHEELING	Illinois	60090	0.0005	0.0005	0.001	0.0025	0	0	0.0035
BAKER PETROLITE	5135 BOYLAN ST	BAKERSFIELD	California	93308	0.0025	0.0005	0.003	0	0	0	0.003
DYNASOL INC	330 PINE ST	CANTON	Massachusetts	02021	0.003	0	0.003	0	0	0	0.003
NORLITE CORP	628 S SARATOGA ST	COHOES	New York	12047	0.003	0	0.003	0	0	0	0.003
FORD MOTOR CO DEARBORN DIVERSIFIED MANUFACTURING	3001 MILLER RD	DEARBORN	Michigan	48121	0.003	0	0.003	0	0	0	0.003

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
CALLAHAN CHEMICAL CO	BROAD ST & FILMORE AVE	PALMYRA	New Jersey	08065	0.0015	0.0015	0.003	0	0	0	0.003
BAKER PETROLITE CORP	16950 WALLISVILLE RD	HOUSTON	Texas	77049	0.0005	0.002	0.0025	0	0	0.0005	0.003
HEXION SPECIALTY CHEMICALS INC	2801 LYNWOOD RD	LYNWOOD	California	90262	0.0005	0.0025	0.003	0	0	0	0.003
MAINTEX INC	13300 E NELSON AVE	CITY OF INDUSTRY	California	91746	0.0025	0	0.0025	0	0	0	0.0025
CLEAN HARBORS ENVIRONMENTAL SERVICES INC	2247 S HWY 71	KIMBALL	Nebraska	69145	0.002	0.0005	0.0025	0	0	0	0.0025
ECP INC WOODRIDGE	11210 KATHERINE'S CROSSING SUI	WOODRIDGE	Illinois	60517	0.0025	0	0.0025	0	0	0	0.0025
UNIVAR USA INC MEMPHIS	3909 OUTLAND RD	MEMPHIS	Tennessee	38118	0.0025	0	0.0025	0	0	0	0.0025
CR BRANDS INC	230 OLD CONVERSE RD	SPARTANBURG	South Carolina	29307	0.0025	0	0.0025	0	0	0	0.0025
MAHONING PAINT CORP	653 JONES ST	YOUNGSTOWN	Ohio	44502	0.0025	0	0.0025		0	0	0.0025
UNION SPECIALTIES INC	3 MALCOLM HOYT DR	NEWBURYPORT	Massachusetts	01950	0.0005	0.002	0.0025	0	0	0	0.0025
UNIVAR USA INC DENVER	4300 HOLLY ST	DENVER	Colorado	80216	0.0025	0	0.0025	0	0	0	0.0025
SINCLAIR WYOMING REFINING CO	100 E LINCOLN AVE	SINCLAIR	Wyoming	82334	0	0.0025	0.0025	0	0	0	0.0025
ATOTECH USA	1750 OVERVIEW DR	ROCK HILL	South Carolina	29730	0.0025	0	0.0025	0	0	0	0.0025
FINGER LAKES CHEMICAL INC	418-424 ST PAUL ST	ROCHESTER	New York	14605	0.0025	0	0.0025	0	0	0	0.0025
MALLINCKRODT BAKER INC	600 N BROAD ST	PHILLIPSBURG	New Jersey	08865	0.0025	0	0.0025	0	0	0	0.0025
CHEMTEX LABORATORIES INC	2725 ARMENTROUT DR	CONCORD	North Carolina	28025	0.0025	0	0.0025	0	0	0	0.0025
WYNNEWOOD REFINING CO	906 S POWELL	WYNNEWOOD	Oklahoma	73098	0	0.0025	0.0025	0	0	0	0.0025
BASF CORP	100 INDUSTRIAL BLVD	SEAFORD	Delaware	19973	0.0025	0	0.0025	0	0	0	0.0025
CONOCOPHILLIPS CO TREMLEY POINT TERMINAL	FOOT OF S WOOD AVE	LINDEN	New Jersey	07036	0.0025	0	0.0025	0	0	0	0.0025
CONOCOPHILLIPS MT VERNON PRODUCTS TERMINAL	15138 HWY 96	MOUNT VERNON	Missouri	65712	0	0.0025	0.0025	0	0	0	0.0025
NIACET CORP	400 47TH ST	NIAGARA FALLS	New York	14304	0.0025	0	0.0025	0	0	0	0.0025
MAGNABLEND INC-CENTRAL PLANT	1601 W HWY 287 BYPASS	WAXAHACHIE	Texas	75165	0.0025	0	0.0025		0	0	0.0025
INTEL CORP	4100 SARA RD MS RR5-491	RIO RANCHO	New Mexico	87124	0.0025	0	0.0025	0	0	0	0.0025
HERCULES INC	1111 HERCULES RD	HOPEWELL	Virginia	23860	0.0025	0	0.0025	0	0	0	0.0025
MILPORT ENTERPRISES INC	2829 S 5TH CT	MILWAUKEE	Wisconsin	53207	0	0.002	0.002	0	0	0	0.002
DELTA HOUSTON	334 TIDAL RD	DEER PARK	Texas	77536	0.0015	0	0.0015	0	0	0.0005	0.002
ASTRO CHEMICALS INC	126 MEMORIAL DR	SPRINGFIELD	Massachusetts	01104	0.0015	0.0005	0.002	0	0	0	0.002
DUPONT EKC TECHNOLOGY	2520 BARRINGTON CT	HAYWARD	California	94545	0.0005	0.0015	0.002	0	0	0	0.002
DOBER CHEMICAL CORP	14461 WAVERLY AVE	MIDLOTHIAN	Illinois	60445	0.002	0	0.002	0	0	0	0.002

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
GOODYEAR TIRE & RUBBER CO	3260 GOODYEAR BLVD	UNION CITY	Tennessee	38261	0	0.0005	0.0005	0.0015	0	0	0.002
UNIVAR USA INC- CINCINNATI OH BRANCH	4600 DUES DR	CINCINNATI	Ohio	45246	0.001	0.001	0.002	0	0	0	0.002
KELLY-MOORE PAINT CO INC	1015 COMMERCIAL ST	SAN CARLOS	California	94070	0	0.0015	0.0015	0	0	0	0.0015
HYDRITE CHEMICAL CO	7300 W BRADLEY RD	MILWAUKEE	Wisconsin	53223	0.0005	0.001	0.0015	0	0	0	0.0015
FUJIFILM HUNT CHEMICALS USA INC	900 CARNEGIE ST	ROLLING MEADOWS	Illinois	60008	0.0015	0.0005	0.002	0	0	0	0.0015
CLEAN HARBORS ARAGONITE LLC	11600 N APTUS RD	GRANTSVILLE	Utah	84029	0	0	0	0	0	0.0015	0.0015
CHEMICAL SOLVENTS INC--DENISON FACILITY	1010 OLD DENNISON AVE	CLEVELAND	Ohio	44109	0.0015	0	0.0015	0	0	0	0.0015
BAKER PETROLITE-RAYNE FACILITY	135 INDUSTRIAL DR	RAYNE	Louisiana	70578	0.0005	0.001	0.0015	0	0	0	0.0015
FIRST SOURCE WORLDWIDE LLC MILWAUKEE	11725 W FAIRVIEW AVE	MILWAUKEE	Wisconsin	53226	0.001	0	0.001	0	0	0.0005	0.0015
BUCKMAN LABORATORIES INC	1256 N MCLEAN BLVD	MEMPHIS	Tennessee	38108	0	0.0015	0.0015	0	0	0	0.0015
SHERWIN-WILLIAMS CO	404 E MALLORY AVE	MEMPHIS	Tennessee	38109	0.0005	0.0005	0.001	0	0	0	0.001
SHERWIN-WILLIAMS CO	10136 MAGNOLIA DR	OLIVE BRANCH	Mississippi	38654	0.0005	0.0005	0.001	0	0	0	0.001
VOLTAIX LLC	197 MEISTER AVE	BRANCHBURG	New Jersey	08876	0	0.001	0.001	0	0	0	0.001
NALCO CO	3901 TERRY ST	TEXARKANA	Texas	75501	0	0.001	0.001	0	0	0	0.001
HONEYWELL-PRESTONE PRODUCTS CORP	250 HALLS MILL RD	FREEHOLD	New Jersey	07728	0.001	0	0.001	0	0	0	0.001
BRENNTAG SOUTHEAST INC	11750 FRUEHAUF DR	CHARLOTTE	North Carolina	28273	0.0005	0.0005	0.001	0	0	0	0.001
PPG ARCHITECTURAL COATINGS	6804 ENTERPRISE DR	LOUISVILLE	Kentucky	40214	0	0.001	0.001	0	0	0	0.001
SAFETY-KLEEN SYSTEMS INC	1200 SYLVAN ST	LINDEN	New Jersey	07036	0.0005	0	0.0005	0	0	0.0005	0.001
DSM NEORESINS INC	3110 W ST RD 28	FRANKFORT	Indiana	46041	0.001	0	0.001	0	0	0	0.001
SHERWIN-WILLIAMS CO	14 INDUSTRIAL PARK	FLORA	Illinois	62839	0	0.0005	0.0005	0	0	0	0.0005
MEADWESTVACO SC LLC CHARLESTON CHEMICAL PLANT	5598 VIRGINIA AVE	NORTH CHARLESTO	South Carolina	29406	0	0.0005	0.0005	0	0	0	0.0005
NATIONAL INDUSTRIAL COATINGS INC DBA NICOAT INC	1600 GLENLAKE AVE	ITASCA	Illinois	60143	0.0005	0	0.0005	0	0	0	0.0005
LANCO MANUFACTURING CORP	URBAPONTE #5	SAN LORENZO	Puerto Rico	00754	0	0.0005	0.0005	0	0	0	0.0005
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	5060 83RD ST	SACRAMENTO	California	95826	0	0.0005	0.0005	0	0	0	0.0005
IFF AUGUSTA LTD	3005 INTERNATIONAL BLVD	AUGUSTA	Georgia	30906	0	0.0005	0.0005		0	0	0.0005
SOLITE LLC	RT 652	ARVONIA	Virginia	23004	0	0.0005	0.0005	0	0	0	0.0005
HENTZEN COATINGS,INC	6937 W MILL RD	MILWAUKEE	Wisconsin	53218	0.0005	0.0005	0.001	0	0	0	0.0005
RIKER PRODUCTS INC	4901 STICKNEY AVE	TOLEDO	Ohio	43612	0.0005	0.0005	0.001	0	0	0	0.0005

Table B-1. 2009 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
CLARIANT CORP CLEAR LAKE PLANT	9502 BAYPORT BLVD - ETOX UNIT	PASADENA	Texas	77507	0.0005	0	0.0005	0	0	0	0.0005
LAMBERTI SYNTHESIS USA INC	4001 N HAWTHORNE ST	CHATTANOOGA	Tennessee	37406	0.0005	0	0.0005	0	0	0	0.0005

a. Releases to Surface Water reported as "On-Site Releases to Surface Water."
b. Releases to Soil is the sum of reported releases to onsite and offsite releases to land treatment and other land disposal.
c. Releases to other media include reported releases to onsite and offsite groundwater and landfills.
tpy: tons per year

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
EQ DETROIT INC	1923 FREDERICK	DETROIT	Michigan	48211	0	1.8155	1.8155	0		363.538	365.3535
REXAM BEVERAGE CAN CO RE: WINSTON SALEM PLANT	4000 OLD MILWAUKEE LN	WINSTON-SALEM	North Carolina	27107	31.218	157.5655	188.7835	0	0	0	188.7835
BALL METAL BEVERAGE CONTAINER CORP	8935 POCAHONTAS TRAIL J	WILLIAMSBURG	Virginia	23185	28.5	150	178.5	0	0	0	178.5
SANYO SOLAR (USA) LLC	970 E 236TH ST	CARSON	California	90745	0.0005	7.184275	7.184775	0		168.4595129	175.6442879
BALL METAL BEVERAGE CONTAINER CORP	12340 TOWNSHIP RD 99 E	FINDLAY	Ohio	45840	25	130	155	0		0	155
CROWN FOOD PACKAGING	2929 W BRIDGE ST	OWATONNA	Minnesota	55060	30.746	91.9	122.646	0		0	122.646
REXAM BEVERAGE CAN CO RE: FREMONT PLANT	2145 CEDAR	FREMONT	Ohio	43420	15.931	90.3915	106.3225	0	0	0	106.3225
REXAM BEVERAGE CAN CO RE: BISHOPVILLE SC FACILITY	609 COUSAR ST	BISHOPVILLE	South Carolina	29010	14.5145	82.2475	96.762	0	0	0	96.762
CROWN CORK & SEAL CO (USA) INC CROWN CLOSURE DIV	3011 BIRCH DR	WEIRTON	West Virginia	26062	35.9645	60.1235	96.088	0	0	0	96.088
BALL METAL BEVERAGE CONTAINER CORP	1900 BARNES ST	REIDSVILLE	North Carolina	27320	14.5	80	94.5	0	0	0	94.5
BMW MANUFACTURING CO LLC	1400 HWY 101 S	GREER	South Carolina	29651	1.8155	89.397	91.2125	0		0	91.2125
REXAM BEVERAGE CAN CO RE: EVA STREET ST PAUL MN	139 EVA ST	SAINT PAUL	Minnesota	55107	13.4245	76.0735	89.498	0	0	0	89.498
REXAM BEVERAGE CAN CO KENT WA FACILITY	1220 N SECOND AVE	KENT	Washington	98032	12.462	70.619	83.081	0	0	0	83.081
CROWN BEVERAGE PACKAGING	1202 FONES RD	OLYMPIA	Washington	98501	19.4225	58.267	77.6895	0	0	0	77.6895
REXAM BEVERAGE CAN CO OLIVE BRANCH FACILITY	10800 MARINA DR	OLIVE BRANCH	Mississippi	38654	20.551	56.273	76.824	0	0	0	76.824
BALL CONTAINER LLC COLUMBUS CAN PLANT	350 MCCORMICK BLVD	COLUMBUS	Ohio	43213	11.5	65	76.5	0	0	0	76.5
SILGAN CONTAINERS MANUFACTURING CORP	300 N FAIL RD	LA PORTE	Indiana	46350	12.85	55.5	68.35	0	0	0	68.35
AURORA CASKET CO INC	10944 MARSH RD	AURORA	Indiana	47001	0	68.17917	68.17917	0	0	0	68.17917
REXAM BEVERAGE CAN CO RE : CHICAGO PLANT	1101 W 43RD ST	CHICAGO	Illinois	60609	14.2105	53.7945	68.005	0	0	0	68.005
REXAM BEVERAGE CAN CO RE: WHITEHOUSE PLANT	10444 WATERVILLE	WHITEHOUSE	Ohio	43571	23.1975	44.6385	67.836	0	0	0	67.836
FORD MOTOR CO DEARBORN TRUCK PLANT	3001 MILLER RD	DEARBORN	Michigan	48121	1.5	65	66.5	0		0	66.5
CROWN BEVERAGE PACKAGING	1035 E NORTH ST	BRADLEY	Illinois	60915	16.0195	48.058	64.0775	0	0	0	64.0775
CROWN BEVERAGE PACKAGING	GLEN & SHEPARD ST	LAWRENCE	Massachusetts	01843	15.6815	47.0445	62.726	0	0	0	62.726
REXAM BEVERAGE CAN CO LONGVIEW FACILITY	1001 FISHER RD	LONGVIEW	Texas	75604	14.4385	43.014	57.4525	0	0	0	57.4525
WHIRLPOOL CORP MARION D IVISION	1300 MARION-AGOSTA RD	MARION	Ohio	43302	0.05	57.1625	57.2125	0		0	57.2125
BALL CONTAINER LLC ROME CAN PLANT	110 MCC DR	ROME	Georgia	30161	33.5	22	55.5	0	0	0	55.5
METAL CONTAINER CORPORTION - WINDSOR CAN PLANT	1201 METAL CONTAINER CT	WINDSOR	Colorado	80550	14.9135	40.085	54.9985	0		0	54.9985

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
FORD MOTOR COMPANY--KANSAS CITY ASSEMBLY PLANT	8121 E US HWY 69	CLAYCOMO	Missouri	64119	1.5	50	51.5	0		0.013	51.513
CROWN BEVERAGE PACKAGING	620 N 4TH ST	WORLAND	Wyoming	82401	12.782	38.346	51.128	0	0	0	51.128
HONDA OF AMERICA MANUFACTURING INC	11000 STATE RT 347	EAST LIBERTY	Ohio	43319	2.2	45	47.2	0		0.191	47.391
METAL CONTAINER CORP - ARNOLD CAN PLANT	42 TENBROOK INDUSTRIAL	ARNOLD	Missouri	63010	17.9475	28.3695	46.317	0		0	46.317
BWAY CORP	1601 VALDOSTA HWY	HOMERVILLE	Georgia	31634	37.053	8.9105	45.9635	0	0	0	45.9635
MEMC PASADENA INC	3000 N S ST	PASADENA	Texas	77503	12.77	8.793	21.563	0	0	23.7725	45.3355
REXAM BEVERAGE CAN CO CHATSWORTH FACILITY	20730 PRAIRIE ST	CHATSWORTH	California	91311	8.9005	35.513	44.4135	0	0	0	44.4135
EDSAL MANUFACTURING CO INC	4400 S PACKER	CHICAGO	Illinois	60609	0	43.1447	43.1447	0		0	43.1447
HONDA OF AMERICA MANUFACTURING INC	24000 HONDA PKY	MARYSVILLE	Ohio	43040	3.8	38.5	42.3	0		0.2335	42.5335
RR DONNELLEY	2347 KRATZER RD	HARRISONBURG	Virginia	22802	38.798	3.5855	42.3835	0		0	42.3835
METAL CONTAINER CORP - NEWBURGH CAN PLANT	130 BREUNIG RD	NEW WINDSOR	New York	12553	11.4875	30.7785	42.266	0		0	42.266
REXAM BEVERAGE CAN CO PHOENIX FACILITY	211 N 51ST AVE	PHOENIX	Arizona	85043	5.2035	32.9575	38.161	0	0	0	38.161
BALL METAL BEVERAGE CONTAINER CORP	8500 W TOWER AVE	MILWAUKEE	Wisconsin	53224	29	9	38	0		0	38
MAGNA STEYR NORTH AMERICA	3800 STICKNEY AVE	TOLEDO	Ohio	43608	4.65	33	37.65	0		0	37.65
CHICAGO HEIGHTS STEEL	211 E MAIN ST	CHICAGO HEIGHTS	Illinois	60411	7.496	29.984	37.48	0	0	0	37.48
ROCKY MOUNTAIN METAL CONTAINER	17755 W 32ND AVE	GOLDEN	Colorado	80401	29.5	6	35.5	0	0	1.9	37.4
CROWN BEVERAGE PACKAGING	2501 N FRAZIER ST	CONROE	Texas	77305	30.8465	5.0285	35.875	0	0	0	35.875
SUBARU OF INDIANA AUTOMOTIVE INC	5500 STATE RD 38E	LAFAYETTE	Indiana	47905	0.355	35.335	35.69	0		0	35.69
CHRYSLER JEFFERSON NORTH ASSEMBLY PLANT	2101 CONNOR AVE	DETROIT	Michigan	48215	4.1	31.5	35.6	0		0.003	35.603
NISSAN NA INC SMYRNA MANUFACTURING PLANT	983 NISSAN DR	SMYRNA	Tennessee	37167	1.307	34.2725	35.5795	0	0	0	35.5795
FORD MOTOR CO KENTUCKY TRUCK PLANT	3001 CHAMBERLAIN LN	LOUISVILLE	Kentucky	40241	2.4	33	35.4	0		0.13	35.53
GREIF PACKAGING LLC	7425 INDUSTRIAL RD	FLORENCE	Kentucky	41042	1.7475	33.1985	34.946	0		0.5	35.446
SILGAN CONTAINERS MANUFACTURING CORP	1400 PLOVER RD PO BOX 9	PLOVER	Wisconsin	54467	7.6	27.75	35.35	0	0	0	35.35
METAL CONTAINER CORP - JACKSONVILLE CAN PLANT	1100 N ELLIS RD	JACKSONVILLE	Florida	32254	6.952	28.0305	34.9825	0		0	34.9825
CROWN FOOD PACKAGING	8801 CITATION RD	BALTIMORE	Maryland	21221	8.5165	25.5495	34.066	0		0	34.066
CROWN BEVERAGE PACKAGING	12910 JESS PIRTLE BLVD	SUGAR LAND	Texas	77478	28.1175	4.2175	32.335	0	0	0	32.335
METAL CONTAINER CORP - MIRA LOMA CAN PLANT	10980 INLAND AVE	MIRA LOMA	California	91752	28.5415	3.7115	32.253	0		0	32.253
BALL METAL BEVERAGE CONTAINER CORP	500 CRENSHAW BLVD	TORRANCE	California	90503	29	3	32	0	0	0	32
BERENFIELD CONTAINERS SE LTD	12180 UNIVERSITY CITY BL	HARRISBURG	North Carolina	28075	0	31.510045	31.510045	0	0	0	31.510045
SENECA FOODS CORP	801 SAUK AVE	BARABOO	Wisconsin	53913	0	30.575	30.575	0	0	0.855	31.43

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
THERMA-TRU CORP	601 RE JONES RD	BUTLER	Indiana	46721	0	29.7775	29.7775	0	0	0	29.7775
BALL METAL BEVERAGE CONTAINER CORP	4525 INDIANA ST	GOLDEN	Colorado	80403	19.5	9.5	29	0	0	0	29
BALL METAL BEVERAGE CONTAINER CORP	501 N SIXTH ST	MONTICELLO	Indiana	47960	12.5	16	28.5	0	0	0	28.5
HUNTSMAN PETROCHEMICAL LLC PORT NECHES PERFORMANCE PRODUCTS	6001 HWY 366	PORT NECHES	Texas	77651	0.141	0	0.141	0	0	27.6245	27.7655
CROWN BEVERAGE PACKAGING	380 CALLE FABRIL ST KM 12	CAROLINA	Puerto Rico	00985	6.91	20.7295	27.6395	0	0	0	27.6395
S B FOOT TANNING CO	805 BENCH ST	RED WING	Minnesota	55066	0	27.586	27.586	0		0	27.586
PPG INDUSTRIES INC-OAK CREEK	10800 S 13TH ST	OAK CREEK	Wisconsin	53154	25.224	0.407	25.631	0	0	1.208	26.839
DEXTER CHASSIS GROUP PLANT 55	501 S MILLER DR	WHITE PIGEON	Michigan	49099	0	26.3225	26.3225	0	0	0.1285	26.451
MERCEDES-BENZ US INTERNATIONAL INC	1 MERCEDES DR	VANCE	Alabama	35490	0.366025	25.58058	25.946605	0	0	0	25.946605
INGERSOLL-RAND CO STEELCRAFT DIV	9017 BLUE ASH RD	CINCINNATI	Ohio	45242	5.6855	19.8995	25.585	0	0	0	25.585
ALLIED TUBE & CONDUIT CORP	16100 S LATHROP AVE	HARVEY	Illinois	60426	16.0515	9.4675	25.519	0	0	0	25.519
BWAY CORP	3200 S KILBOURN AVE	CHICAGO	Illinois	60623	6.818275	18.679745	25.49802	0		3.55271E-15	25.49802
GM TRUCK GROUP FLINT ASSEMBLY PLANT VAN SLYKE COMPLEX	G-3100 VAN SLYKE RD	FLINT	Michigan	48551	0.45	24.5	24.95	0	0	0.26	25.21
WHIRLPOOL CORP - CLYDE DIV	119 BIRDSEYE ST	CLYDE	Ohio	43410	0.718	22.64	23.358	0		1.2415	24.5995
ROLL COATER INC	1950 E MAIN ST	GREENFIELD	Indiana	46140	0	24.2775	24.2775	0	0	0	24.2775
NYW REALTY LLC/ HANOVER	500 E MIDDLE ST	HANOVER	Pennsylvania	17331	0	24.2	24.2	0	0	0	24.2
TOYOTA MOTOR MANUFACTURING INDIANA INC	4000 TULIP TREE DR	PRINCETON	Indiana	47670	10.3485	13.83	24.1785	0	0	0	24.1785
CROWN BEVERAGE PACKAGING	100 EVANS ROW	CHERAW	South Carolina	29520	21.398	2.7455	24.1435	0	0	0	24.1435
BALL METAL BEVERAGE CONTAINER CORP	4700 WHITEWAY DR	TAMPA	Florida	33617	9	15	24	0	0	0	24
HONDA MANUFACTURING OF ALABAMA LLC	1800 HONDA DR	LINCOLN	Alabama	35096	0.4995	23.484	23.9835	0		0	23.9835
CROWN BEVERAGE PACKAGING	1501 ST JAMES ST	LA CROSSE	Wisconsin	54603	22.1385	1.6605	23.799	0	0	0	23.799
GENERAL MOTORS LANSING DELTA TOWNSHIP	8175 MILLETT HWY	LANSING	Michigan	48917	0.5	23	23.5	0		0.1415	23.6415
S D WARREN CO	89 CUMBERLAND ST	WESTBROOK	Maine	04098	0.0025	23.5	23.5025	0.0835	0	0	23.586
GREIF PACKAGING LLC	4300 W 130TH ST	ALSIP	Illinois	60803	1.99	21.267	23.257	0	0	0	23.257
BALL METAL FOOD CONTAINER CORP	3010 BIRCH DR	WEIRTON	West Virginia	26062	14.5	8	22.5	0	0	0	22.5
CROWN BEVERAGE PACKAGING	195 CROWN RD	BATESVILLE	Mississippi	38606	19.5525	2.933	22.4855	0	0	0	22.4855
WHIRLPOOL CORP FINDLAY DIV	4901 N MAIN ST	FINDLAY	Ohio	45840	2.2375	20.1375	22.375	0		0	22.375
AVX CORP MYRTLE BEACH	801 17TH AVE S	MYRTLE BEACH	South Carolina	29577	3.3725	2.492	5.8645	0	0	16.405	22.2695
MOBIL CHEMICAL CO	41501 WOLVERINE RD	SHAWNEE	Oklahoma	74804	0.375	21.5	21.875	0		0.0025	21.8775

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AMES TRUE TEMPER INC	1500 S CAMERON ST	HARRISBURG	PENNSYLVANI	17104	1.082	20.557	21.639	0	0	0	21.639
NORTH COAST CONTAINER CORP	8806 CRANE AVE	CLEVELAND	Ohio	44105	0	21.231	21.231	0	0	0	21.231
BALL CONTAINER LLC	105 E BLACKHAWK DR	FORT ATKINSON	Wisconsin	53538	3.85	17	20.85	0	0	0	20.85
AIR SYSTEM COMPONENTS LP	900 DARR PARK DR	PONCA CITY	Oklahoma	74601	0.209	20.4325	20.6415	0		0	20.6415
PELLA CORP	102 MAIN ST	PELLA	Iowa	50219	0.125	20.2705	20.3955	0	0	0	20.3955
BALL METAL BEVERAGE CONTAINER CORP	11 ADAMS RD	SARATOGA SPRING	New York	12866	3.35	17	20.35	0	0	0	20.35
MID-AMERICA STEEL DRUM CO IN C	8570 S CHICAGO RD	OAK CREEK	WISCONSIN	53154	0	20.3365	20.3365	0		0	20.3365
BATESVILLE MANUFACTURING INC	175 MONOGARD DR	MANCHESTER	Tennessee	37355	1.0165	19.309	20.3255	0		0.0045	20.33
CECO DOOR PRODUCTS	9159 TELECOM DR	MILAN	Tennessee	38358	10.0825	10.0825	20.165	0	0	0	20.165
BALL METAL BEVERAGE CONTAINER CORP	2400 HUNTINGTON DR	FAIRFIELD	California	94533	7.5	12	19.5	0	0	0	19.5
WAYNE DISPOSAL INC	49350 N I-94 SERVICE DR	BELLEVILLE	MICHIGAN	48111	0	0.004	0.004	0	0	19.082	19.086
CROWN BEVERAGE PACKAGING	400 N WALNUT ST	CRAWFORDSVILLE	Indiana	47933	13.8125	5.1575	18.97	0	0	0	18.97
HALLSTAR CO ESTER SOLUTIONS FACILITY	5851 W 73RD ST	BEDFORD PARK	Illinois	60638	1.167	0.1455	1.3125	0		17.3205	18.633
BALL METAL BEVERAGE CONTAINER CORP	1001 N FM 3083 E	CONROE	Texas	77303	14	4.55	18.55	0	0	0	18.55
THOMAS BUILT BUSES INC	715 W FAIRFIELD RD	HIGH POINT	NORTH CAROL	27263	0	17.92	17.92	0	0	0	17.92
UNION CARBIDE CORP SEADRIFT PLANT	7501 N HWY 185	SEADRIFT	Texas	77983	13.946	3.5265	17.4725	0	0	0.064	17.5365
AIR SYSTEM COMPONENTS LP	3301 N MAIN ST	TARBORO	North Carolina	27886	0.1745	16.585	16.7595	0		0.3225	17.082
NASHVILLE WIRE PRODUCTS	1604 COUNTY HOSPITAL RD	NASHVILLE	Tennessee	37218	1.7	15	16.7	0		0	16.7
ALSTOM POWER INC PLATE FORMED PRODUCTS DIV	911 W MAIN ST	CHATTANOOGA	Tennessee	37402	16.67	0	16.67	0	0	0	16.67
OLDCASTLE BUILDING ENVELOPE TEXAS FACILITY	803 AIRPORT RD	TERRELL	Texas	75160	3.2115	13.386	16.5975	0	0	0	16.5975
SPECTRUM METAL FINISHING	535 BEV RD	YOUNGSTOWN	Ohio	44512	0.33	16.2	16.53	0	0	0.01	16.54
TOKICO (USA) INC	301 MAYDE RD	BEREA	Kentucky	40403	0.341	16.1255	16.4665	0	0	0	16.4665
AGY AIKEN LLC	2556 WAGENER RD	AIKEN	South Carolina	29801	10.0075	3.102	13.1095	0		3.3325	16.442
SEIDEL TANNING CORP	1306 E MEINECKE AVE	MILWAUKEE	Wisconsin	53212	0	15.463	15.463	0	0	0	15.463
METAL INDUSTRIES INC - BUSHNELL	400 W WALKER AVE	BUSHNELL	Florida	33513	0.075	14.7885	14.8635	0	0	0	14.8635
EASTMAN CHEMICAL CO TEXAS OPERATIONS	300 KODAK BLVD	LONGVIEW	Texas	75602	12.052	2.5015	14.5535	0	0.0205	0	14.574
NEW UNITED MOTOR MANUFACTURING INC	45500 FREMONT BLVD MAIL	FREMONT	California	94538	14.564	0	14.564	0		0	14.564
MPM SILICONES LLC	3500 S STATE RT 2	FRIENDLY	West Virginia	26146	2.193	0.0035	2.1965	9.7605	0	2.571	14.528
USS - CLAIRTON WORKS	400 STATE ST	CLAIRTON	Pennsylvania	15025	14.5	0	14.5	0	0	0	14.5
LAKESIDE LITHOGRAPHY LLC	1600 S LAFLIN ST	CHICAGO	Illinois	60608	1.125	13.15	14.275	0	0	0	14.275

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HART & COOLEY INC	4910 MOORES MILL RD	HUNTSVILLE	Alabama	35811	0.8045	12.8325	13.637	0		0.564	14.201
JOHNSON WELDED PRODUCTS INC	625 S EDGEWOOD AVE	URBANA	Ohio	43078	0	14.1725	14.1725	0	0	0	14.1725
BEDFORD MATERIALS CO INC	7676 ALLEGHENY RD	MANNS CHOICE	Pennsylvania	15550	1.403	12.701	14.104	0	0	0	14.104
BALL METAL BEVERAGE CONTAINER CORP	95 BALLARD RD	MIDDLETOWN	New York	10940	6.5	7.5	14	0	0	0	14
QUAD/GRAPHICS INC	1900 W SUMNER ST	HARTFORD	Wisconsin	53027	13.5	0.435	13.935	0		0	13.935
BEMIS MANUFACTURING CO PLANT B	300 MILL ST	SHEBOYGAN FALLS	Wisconsin	53085	0	13.9125	13.9125	0		0	13.9125
SILGAN WHITE CAP CORP	2201 W MARYLAND ST	EVANSVILLE	Indiana	47710	11.15	2.75	13.9	0	0	0	13.9
CROWN FOOD PACKAGING	5201 ENTERPRISE BLVD	TOLEDO	Ohio	43612	3.457	10.3605	13.8175	0	0	0	13.8175
GERSTENSLAGER CO	1425 E BOWMAN ST	WOOSTER	Ohio	44691	0.4135	13.3765	13.79	0		0.0045	13.7945
ROYAL MOULDINGS LTD; MARION VIRGINIA	135 BEAR CREEK RD	MARION	Virginia	24354	0.6885	13.076	13.7645	0	0	0	13.7645
TOPPAN INTERAMERICA INC	1131 HWY 155 S	MC DONOUGH	Georgia	30253	0	13.7	13.7	0	0	0	13.7
M&B HANGERS	1313 PKWY DR SE	LEEDS	Alabama	35094	2.732	10.929	13.661	0		0	13.661
KNAPHEIDE MANUFACTURING CO	1848 WESTPHALIA STRASS	QUINCY	Illinois	62305	0.175	13.4385	13.6135	0		0	13.6135
CROWN FOOD PACKAGING	1650 BROADWAY	HANOVER	Pennsylvania	17331	3.382	10.1465	13.5285	0		0	13.5285
NUCOR VULCRAFT GROUP GRAPELAND DIV	175 COUNTY RD 2345	GRAPELAND	Texas	75844	0.174	13.333	13.507	0	0	0	13.507
BALL METAL BEVERAGE CONTAINER CORP	6600 WILL ROGERS BLVD	FORT WORTH	Texas	76140	5.5	8	13.5	0	0	0	13.5
PENN COLOR INC	2755 BERGEY RD	HATFIELD	Pennsylvania	19440	0.176	0.058	0.234	0	0	13.2355	13.4695
FLINT HILLS RESOURCES LP - WEST PLANT	2825 SUNTIDE RD	CORPUS CHRISTI	Texas	78410	0.0075	0	0.0075	0	0	13.38	13.3875
DECORATIVE PANELS INTERNATIONA L	2900 HILL AVE	TOLEDO	Ohio	43607	13.32944	0	13.32944	0		0	13.32944
L A DARLING CO - PIGGOTT AR FACILITY	HWY 49 S	PIGGOTT	Arkansas	72454	0.152	13.158	13.31	0		0	13.31
TRI VULCRAFT OF NEW YORK INC	5362 RAILROAD ST	CHEMUNG	New York	14825	5.101	7.1315	12.2325	0	0	0.666	12.8985
BALL METAL BEVERAGE CONTAINER CORP	91-320 KOMOHANA ST	KAPOLEI	Hawaii	96707	2.3	10.5	12.8	0	0	0	12.8
3M CO - GUIN	6675 US HWY 43	GUIN	Alabama	35563	0.001	12.75	12.751	0	0	0	12.751
TOYOTA MOTOR MANUFACTURING KENTUCKY INC	1001 CHERRY BLOSSOM W/	GEORGETOWN	Kentucky	40324	0.375	12.302	12.677	0		0	12.677
AMERICAN TRIM LLC	1501 W MICHIGAN ST	SIDNEY	Ohio	45365	0	12.659	12.659	0	0	0	12.659
KEYMARK CORP OF FLORIDA	2540 KNIGHTS STATION RD	LAKELAND	Florida	33810	0.619	11.7595	12.3785	0	0	0	12.3785
VESTAL MANUFACTURING ENTERPRISES INC	177 INDUSTRIAL PARK RD	SWEETWATER	Tennessee	37874	12.168	0	12.168	0		0	12.168
GM TRUCK GROUP FORT WAYNE ASSEMBLY	12200 LAFAYETTE CENTER	ROANOKE	Indiana	46783	0.65	11.5	12.15	0		0	12.15
NOVELIS CORP	390 GRISWOLD ST NE	WARREN	Ohio	44483	3.543	8.579	12.122	0	0	0	12.122
BERENFIELD CONTAINERS INC MASON	1229 CASTLE DR	MASON	Ohio	45040	0.125	11.6705	11.7955	0	0	0	11.7955

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HOWARD FINISHING LLC	32565 DEQUINDRE	MADISON HEIGHTS	Michigan	48071	0.0025	11.751	11.7535	0	0	0	11.7535
SILGAN CONTAINERS MANUFACTURING CORP	305 W N ST	MOUNT VERNON	Missouri	65712	2.35	9.327	11.677	0	0	0	11.677
FRANKLIN INVESTMENT CORP	600 ATLANTIC AVE	FRANKLIN	Pennsylvania	16323	11.6	0	11.6	0		0	11.6
CHICAGO STEEL CONTAINER CORP	1846 S KILBOURN AVE	CHICAGO	Illinois	60623	1.453	9.7415	11.1945	0	0	0.25	11.4445
MEYER STEEL DRUM INC	2000 S KILBOURN AVE	CHICAGO	Illinois	60623	1.247	10.09	11.337	0		0	11.337
RINECO	1007 VULCAN RD- HASKELL	BENTON	Arkansas	72015	0.0495	0	0.0495	0	0	11.25	11.2995
CARRY-ON TRAILER CORP	101 JOE HARVEY ST	LAVONIA	GEORGIA	30553	0	11.244	11.244	0	0	0	11.244
SHAMROCK TECHNOLOGIES	FOOT OF PACIFIC ST	NEWARK	NEW JERSEY	07114	0	0	0	0		11.1435	11.1435
FORD MOTOR COMPANY-WAYNE ASSEMBLY	37625 MICHIGAN AVE	WAYNE	Michigan	48184	0.125	11	11.125	0		0	11.125
PRECOAT METALS	1095 MENDELL DAVIS DR	JACKSON	Mississippi	39272	10.083	0.9495	11.0325	0	0	0	11.0325
BOEING COMMERCIAL AIRPLANE GROUP - EVERETT	3003 W CASINO RD	EVERETT	Washington	98204	2	9	11	0		0.0175	11.0175
PHOENIX COLOR CORP	18249 PHOENIX DR	HAGERSTOWN	MARYLAND	21742	11	0	11	0	0	0	11
GEA BPO LLC	301 N CURRY PIKE	BLOOMINGTON	Indiana	47404	0	11	11	0	0	0	11
PROFESSIONAL DISPOSABLES INTERNATIONAL INC	TWO NICE-PAK PARK	ORANGEBURG	New York	10962	0.10232	0.032815	0.135135	0		10.8205	10.955635
TRILLA ST LOUIS CORP	2391 CASSENS DR	FENTON	MISSOURI	63026	1.59594	8.216745	9.812685	0	0	1.13675	10.949435
CARRY-ON TRAILER CORP	931 INDUSTRIAL BLVD	MEXIA	TEXAS	76667	0	10.7145	10.7145	0	0	0	10.7145
MAVERICK TUBE LLC DBA TENARISCONROE	699 FM 3083	CONROE	TEXAS	77301	0.423225	10.1492388	10.5724638	0	0	0	10.5724638
ACME FINISHING CO INC	1595 E OAKTON ST	ELK GROVE VILLAGE	Illinois	60007	2.089	8.356	10.445	0	0	0	10.445
STATE INDUSTRIES INC	500 TENNESSEE WALTZ PK	ASHLAND CITY	TENNESSEE	37015	0.104	10.3115	10.4155	0	0	0	10.4155
ANDERSON TULLY LUMBER CO WALTERSVILLE LUMBER MILL	1725 N WASHINGTON ST	VICKSBURG	MISSISSIPPI	39181	10.4095	0	10.4095	0		0	10.4095
3M CO - CORDOVA	22614 RT 84 N	CORDOVA	Illinois	61242	0.7	0.065	0.765	9.5	0	5.55112E-16	10.265
NUCOR CORP VULCRAFT/NUCOR COLD FINISH DIV	1601 W OMAHA AVE	NORFOLK	Nebraska	68701	0.26	10	10.26	0		0	10.26
SILGAN CAN CO	2120 NC HWY N UNIT A	MAXTON	North Carolina	28364	3.2155	6.97	10.1855	0	0	0	10.1855
SYCAMORE SYSTEMS LLC	449 N CALIFORNIA ST	SYCAMORE	ILLINOIS	60178	0	10.144	10.144	0		0	10.144
ASHLEY INDUSTRIAL MOLDING INC	310 S WABASH	ASHLEY	Indiana	46705	1.05	9.05	10.1	0	0	0	10.1
BERENFIELD CONTAINERS SW LTD	3300 N HUTCHINSON ST	WHITE HALL	Arkansas	71602	0	10.0855	10.0855	0	0	0	10.0855
STANLEY WORKS HAND TOOLS DIV	600 MYRTLE ST	NEW BRITAIN	Connecticut	06052	0.997	8.972	9.969	0	0	0	9.969
SILGAN CONTAINERS MANAUFACTURING CORP	520 W 2ND ST	OCONOMOWOC	Wisconsin	53066	1.65	8.3	9.95	0	0	0	9.95
RR DONNELLEY & SONS CO	1145 CONWELL AVE	WILLARD	Ohio	44890	7.5445	2.3705	9.915	0		0	9.915

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AKZO NOBEL COATINGS INC	1629 VANDERBILT RD	BIRMINGHAM	Alabama	35234	9.755	0.14	9.895	0	0	0	9.895
CAN CORP OF AMERICA INC	326 JUNE AVE	BLANDON	Pennsylvania	19510	2.6565	7.2325	9.889	0	0	0	9.889
NUCOR CORP VULCRAFT DIV	1501 W DARLINGTON ST	FLORENCE	South Carolina	29501	8.9355	0.8415	9.777	0	0	0	9.777
SAFETY-KLEEN SYSTEMS INC	130 A FRONTAGE RD	LEXINGTON	South Carolina	29073	0	9.7255	9.7255	0	0	0	9.7255
NUCOR CORP VULCRAFT DIV	7205 GAULT AVE N	FORT PAYNE	Alabama	35967	6.1415	3.55	9.6915	0	0	0	9.6915
YKK AP AMERICA INC	332 FIRETOWER RD	DUBLIN	Georgia	31021	9.3205	0.2955	9.616	0	0	0	9.616
QUAD/GRAPHICS INC	N63 W23075 STATE HWY 74	SUSSEX	Wisconsin	53089	8.62	0.975	9.595	0		0	9.595
SIGNODE	7701 W 71ST ST	BRIDGEVIEW	Illinois	60455	0.95	8.55	9.5	0	0	0	9.5
SQUARE D CO	1601 MERCER RD	LEXINGTON	Kentucky	40511	0	9.4845	9.4845	0		0	9.4845
NUCOR VULCRAFT GROUP SAINT JOE DIV	6610 COUNTY RD 60	SAINT JOE	Indiana	46785	3.5585	2.813	6.3715	0		3.0555	9.427
REXAM BEVERAGE CAN CO FAIRFIELD PLANT	2433 CROCKER CIR	FAIRFIELD	California	94533	5.4255	3.9445	9.37	0	0	0	9.37
KUBIN-NICHOLSON CORP	8448 N 87TH ST	MILWAUKEE	Wisconsin	53224	9.296	0	9.296	0		0	9.296
NATIONAL COATINGS INC	604 US HWY 150 E	GALESBURG	ILLINOIS	61401	9.247	0	9.247	0	0	0	9.247
SILGAN CONTAINERS MANUFACTURING CORP	2115 SW LOWER LAKE RD	SAINT JOSEPH	Missouri	64504	5.4375	3.5775	9.015	0	0	0	9.015
GREIF PACKAGING LLC	6000 JEFFERSON HWY	NEW ORLEANS	Louisiana	70123	3.396	5.312	8.708	0	0	0	8.708
ALLIANCE INDUSTRIES WAUPACA	N 2467 VAUGHAN RD	WAUPACA	Wisconsin	54981	0.8605	7.7445	8.605	0	0	0	8.605
COOK COMPOSITES & POLYMERS CO	340 RAILROAD ST	SAUKVILLE	Wisconsin	53080	0.866	0.336	1.202	0	0	7.374	8.576
LA-Z-BOY TENNESSEE	500 WALNUT GROVE RD	DAYTON	Tennessee	37321	0	8.57306025	8.57306025	0	0	0	8.57306025
ESCO CORP	9098 EASTSIDE DR EXT	NEWTON	Mississippi	39345	8.5565	0	8.5565	0	0	0	8.5565
HEXION SPECIALTY CHEMICALS INC	2525 S COMBEE RD	LAKELAND	Florida	33801	8.39	0.0045	8.3945	0	0	0.0655	8.46
CNH AMERICA LLC	600 E PEORIA ST	GOODFIELD	ILLINOIS	61742	0.125	8.3055	8.4305	0		0	8.4305
WHITING DOOR MANUFACTURING CORP	113 CEDAR ST	AKRON	New York	14001	0	8.413	8.413	0	0	0	8.413
CIRCLE GRAPHICS INC	120 9TH AVE	LONGMONT	Colorado	80501	3	1.85	4.85	0	0	3.54	8.39
BALL AEROSOL & SPECIALTY CONTAINER INC	1717 GIFFORD RD	ELGIN	Illinois	60120	0.85	7.5	8.35	0	0	0	8.35
SILGAN CAN CO	12-773 ST RT 110	NAPOLEON	Ohio	43545	2.3235	6.014	8.3375	0	0	0	8.3375
DOW CHEMICAL CO FREEPORT FACILITY	2301 N BRAZOSPORT BLVD	FREEPORT	Texas	77541	0.4605	0.003	0.4635	2.7385	0	5.1075	8.3095
SHIELDCOAT TECHNOLOGIES INC (DBA CYBERSHIELD OF TEXAS)	2602 SPENCE ST	LUFKIN	Texas	75904	8.303	0	8.303	0	0	0	8.303
KAWNEER CO INC	600 KAWNEER DR	SPRINGDALE	Arkansas	72764	3.3635	4.8495	8.213	0	0	0	8.213
AM GENERAL LLC	13200 MCKINLEY HWY	MISHAWAKA	INDIANA	46545	0	8.1875	8.1875	0	0	0	8.1875

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
CNH AMERICA LLC	1930 DES MOINES AVE	BURLINGTON	Iowa	52601	0.175	8	8.175	0		0	8.175
SUPERIOR INDUSTRIES INTERNATIONAL ARKANSAS LLC	1901 E BORICK DR	FAYETTEVILLE	ARKANSAS	72701	0	7.3	7.3	0		0.64	7.94
SILGAN CONTAINERS MANUFACTURING CORP	1416 INDIANHEAD DR	MENOMONIE	Wisconsin	54751	1.6	6.25	7.85	0	0	0	7.85
CROWN AEROSOL PACKAGING	3737 E EXCHANGE AVE	AURORA	Illinois	60504	7.0285	0.808	7.8365	0	0	0	7.8365
CARRY-ON TRAILER CORP	1965 HWY 30	MISSOURI VALLEY	Iowa	51555	0	7.834	7.834	0	0	0	7.834
BROAN-NUTONE LLC	926 W STATE ST	HARTFORD	Wisconsin	53027	0.1135	7.6235	7.737	0		0	7.737
ROLL COATER	858 E HUPP RD	LA PORTE	Indiana	46350	0	7.7325	7.7325	0	0	0	7.7325
VON HOFFMANN GRAPHICS INC	1005 COMMERCIAL DR	OWENSVILLE	Missouri	65066	6.5635	1.1015	7.665	0		0	7.665
GMVM-LANSING GRAND RIVER ASSEMBLY	920 TOWNSEND ST MAIL CO	LANSING	Michigan	48921	3.45	4.1	7.55	0		0.0195	7.5695
GREIF INDUSTRIAL PACKAGING & SERVICES	7604 RAILROAD AVE	WINFIELD	Kansas	67156	0.7535	6.7795	7.533	0	0	0	7.533
HUTCHENS INDUSTRIES INC MANSFIELD FACILITY	898 E COMMERCIAL	MANSFIELD	MISSOURI	65704	0	7.505	7.505	0		0	7.505
3M CO - MENOMONIE	1425 STOKKE PKWY	MENOMONIE	Wisconsin	54751	0	0	0	0	0	7.5	7.5
CARRY-ON TRAILER CORP	5300 WESTMORELAND RD	WINNEMUCCA	NEVADA	89445	0	7.4985	7.4985	0	0	0	7.4985
AKZO NOBEL SURFACE CHEMISTRY LLC	15200 ALMEDA RD	HOUSTON	Texas	77053	0.445	0.145	0.59	0	0	6.845	7.435
ELECTROPRIME INC	63 DIXIE HWY	ROSSFORD	Ohio	43460	0	7.4105	7.4105	0		0	7.4105
DEXTER AXLE	500 SE 27TH	EL RENO	OKLAHOMA	73036	0	7.409	7.409	0	0	0	7.409
EQUISTAR CHEMICALS BAYPORT CHEMICALS PLANT	5761 UNDERWOOD RD	PASADENA	Texas	77507	6.7145	0.689	7.4035	0		0	7.4035
MICHELIN NORTH AMERICA INC	5101 21ST ST	TUSCALOOSA	Alabama	35401	0.003	0.004	0.007	0	0	7.35	7.357
U.S. AIR FORCE TINKER AFB OK	7701 ARNOLD ST SUITE 204	TINKER A F B	Oklahoma	73145	1.3	6	7.3	0	0	0.05	7.35
NAHAN PRINTING INC	7000 SAUKVIEW DR	SAINT CLOUD	Minnesota	56303	7.061195	0.276025	7.33722	0	0	8.88178E-16	7.33722
CHRYSLER BELVIDERE ASSEMBLY PLANT	3000 W CHRYSLER DR	BELVIDERE	Illinois	61008	0.8	6.5	7.3	0		0.0075	7.3075
TECNOCAP LLC	2100 GRISWOLD NE	WARREN	Ohio	44483	1.5755	5.7295	7.305	0	0	0	7.305
AFTON CHEMICAL CORP	725 CANNON BRIDGE RD	ORANGEBURG	South Carolina	29115	2.813	0.6965	3.5095	0.3	0	3.479	7.2885
GENERAL MOTORS WENTZVILLE ASSEMBLY	1500 E RT A	WENTZVILLE	Missouri	63385	1.25	6	7.25	0		0	7.25
GENERAL MOTORS CORP LORDSTOWN COMPLEX	2300 HALLOCK-YOUNG RD	LORDSTOWN	Ohio	44481	3.15	0.75	3.9	0		3.35	7.25
ROLL COATER INC	4502 FREEDOM WAY	WEIRTON	West Virginia	26062	0	7.2295	7.2295	0	0	0	7.2295
WIX FILTRATION CORP - ALLEN PLANT	2900 NW BLVD	GASTONIA	North Carolina	28052	0.0025	7.2	7.2025	0	0	0	7.2025
ALCOA INC - WARRICK OPERATIONS	HWYS 66 & 61	NEWBURGH	Indiana	47629	0	7	7	0.14	0	0	7.14
RR DONNELLEY CRAWFORDSVILLE	1009 SLOAN ST	CRAWFORDSVILLE	Indiana	47933	6.805	0.3175	7.1225	0		0	7.1225

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KITZINGER COOPERAGE CORP	2529 E NORWICH AVE	SAINT FRANCIS	Wisconsin	53235	0	7.09505	7.09505	0		0	7.09505
JOHN DEERE DES MOINES WORKS	825 SW IRVINEDALE DR	ANKENY	IOWA	50023	0	7.0485	7.0485	0	0	0	7.0485
AVERY DENNISON - IBMD LENOIR	950 GERMAN ST	LENOIR	North Carolina	28645	5.725	1.3205	7.0455	0	0	0	7.0455
BRIGHTSMITH LLC	120 ENTERPRISE AVE	MORRISVILLE	Pennsylvania	19067	0.06	0.205	0.265	0	0	6.7285	6.9935
SILGAN CAN CO	500 NW LOOP 286 SUITE 10	PARIS	Texas	75460	4.034	2.919	6.953	0	0	0	6.953
ENKEI AMERICA INC	2900 W INWOOD DR	COLUMBUS	Indiana	47201	0	6.95	6.95	0	0	0	6.95
CARDONE INDUSTRIES	5660 RISING SUN AVE	PHILADELPHIA	Pennsylvania	19120	1.367	5.5745	6.9415	0	0	0	6.9415
MAUSER CORP	14 CONVERY BLVD	WOODBRIDGE	New Jersey	07095	0.0585	6.772	6.8305	0	0	0	6.8305
HAMMER PACKAGING CORP	200 LUCIUS GORDON DR	WEST HENRIETTA	New York	14586	0	6.7935	6.7935	0		0	6.7935
BRIGGS & STRATTON YARD POWER PRODUCTS MCDONOUGH OPERATIONS	535 MACON RD	MC DONOUGH	GEORGIA	30253	0	6.7395	6.7395	0		0	6.7395
SUPERIOR INDUSTRIES INTERNATIONAL ARKANSAS LLC	1301 N DIXIELAND RD	ROGERS	ARKANSAS	72756	0.0025	6.7325	6.735	0		0	6.735
AAP ST MARYS CORP	1100 MCKINLEY RD	SAINT MARYS	Ohio	45885	0.0245	6.707	6.7315	0	0	0	6.7315
BERENFIELD CONTAINERS INC	31 RAILROAD ST	CLARENDON	Pennsylvania	16313	0.073365	6.65362	6.726985	0	0	0	6.726985
SENECA FOODS CORP CAN PLANT	3709 MILL ST	MARION	New York	14505	0	6.6935	6.6935	0	0	0	6.6935
RR DONNELLEY LANCASTER EAST	216 GREENFIELD RD	LANCASTER	Pennsylvania	17601	6.2035	0.434	6.6375	0		0	6.6375
CREE INC	4600 SILICON DR	DURHAM	North Carolina	27703	0	6.601	6.601	0		0	6.601
HUSQVARNA CONSUMER OUTDOOR PRODUCTS	172 OLD ELLOREE RD	ORANGEBURG	South Carolina	29116	0.1325	6.4275	6.56	0		0	6.56
OWENS CORNING VETROTEX LLC	4837 HWY 81 S	STARR	South Carolina	29684	0.656	5.903	6.559	0	0	0	6.559
WHEELING MACHINE PRODUCTS DIV PINE BLUFF	5411 INDUSTRIAL DR S	PINE BLUFF	ARKANSAS	71602	6.5	0	6.5	0	0	0	6.5
SILGAN CONTAINERS MANUFACTURIN G CORP	3591 MAPLE DR	FORT DODGE	IOWA	50501	0.00028	6.4915	6.49178	0		0	6.49178
SKOLNIK INDUSTRIES	4900 S KILBOURN AVE	CHICAGO	ILLINOIS	60632	0.65	5.8	6.45	0		0	6.45
NISSAN NORTH AMERICA INC CANTON MS	300 NISSAN DR	CANTON	Mississippi	39046	2.534	3.8215	6.3555	0	0	0	6.3555
SILGAN CONTAINERS MANUFACTURING CORP	2501 165TH ST	HAMMOND	Indiana	46320	0	6.331	6.331	0	0	0	6.331
SAPA EXTRUSIONS INC	2500 ALUMAX RD	YANKTON	South Dakota	57078	0	6.31004485	6.31004485	0	0	0	6.31004485
BRADFORD WHITE CORP	200 LAFAYETTE ST	MIDDLEVILLE	Michigan	49333	0	6.2995	6.2995	0	0	0	6.2995
MAYTAG CORP CLEVELAND COOKING PRODUCTS PLANT 1	740 KING EDWARD AVE SE	CLEVELAND	Tennessee	37311	0	6.25	6.25	0	0	0	6.25
EFCO CORP	1000 COUNTY RD	MONETT	Missouri	65708	0.958	5.2355	6.1935	0	0	0	6.1935
HUNTER DOUGLAS TUPELO CENTER	RT 2 LEE INDUSTRIAL PARK	SHANNON	Mississippi	38868	0.2935	5.870515	6.164015	0	0	0	6.164015

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NAVISTAR INC	6125 URBANA RD	SPRINGFIELD	Ohio	45502	0.6	5.5	6.1	0.02	0	0.032	6.152
SILGAN CAN CO	6200 FRANKLIN BLVD SUITE	SACRAMENTO	California	95824	5.1925	0.8925	6.085	0		0	6.085
THE COLEMAN CO INC	3600 N HYDRAULIC	WICHITA	KANSAS	67219	0.001	6.05	6.051	0	0	0	6.051
AK STEEL CORP - ZANESVI LLE WORKS	1724 LINDEN AVE	ZANESVILLE	Ohio	43701	0	4.7	4.7	0	0	1.35	6.05
BOBCAT CO (MELROE)	210 1ST AVE NE	GWINNER	NORTH DAKOT	58040	0	5.964	5.964	0		0	5.964
PACKAGING DYNAMICS INC BAGCRAFT/PAPERCON DIV	3400 BAGCRAFT BLVD	BAXTER SPRINGS	Kansas	66713	5.9425	0	5.9425	0		0	5.9425
CHRYSLER WARREN TRUCK ASSEMBLY PLANT (PART)	21500 MOUND RD	WARREN	Michigan	48091	5.5	0.415	5.915	0		0.0095	5.9245
QUEBECOR WORLD INC WINCHESTER VIRGINIA	160 CENTURY LN STONEWA	WINCHESTER	Virginia	22603	5.48138	0.2558	5.73718	0	0	0.166475	5.903655
GREIF PACKAGING LLC	2400 COOPER AVE	MERCED	California	95348	4.5705	1.2955	5.866	0	0	0	5.866
SCHAEFFER MANUFACTURING	102 BARTON ST	SAINT LOUIS	Missouri	63104	5.84243	0	5.84243	0		0	5.84243
WORTHINGTON CYLINDERS WISCONSI N LLC	300 E BREED ST	CHILTON	Wisconsin	53014	0.8835	4.948	5.8315	0	0	0	5.8315
SILGAN CONTAINERS MANUFACTURING CORP	400 N 15TH ST	ROCHELLE	Illinois	61068	4.3695	1.4365	5.806	0	0	0	5.806
TTM TECHNOLOGIES INC	710 N 600 W	LOGAN	Utah	84321	0.432	3.888	4.32	0		1.484	5.804
NAZDAR SHAWNEE	8501 HEDGE LN TERRACE	SHAWNEE	Kansas	66227	1.7235	4.0215	5.745	0	0	0	5.745
ALCOA HOME EXTERIORS INC	2615 CAMPBELL RD	SIDNEY	Ohio	45365	0.8075	4.225	5.0325	0		0.7	5.7325
TACO INC - CRANSTON	1160 CRANSTON ST	CRANSTON	RHODE ISLAND	02920	0.0575	5.662	5.7195	0	0	0	5.7195
METOKOTE CORP PLANT 15	312 SAVANNAH	CEDAR FALLS	Iowa	50613	0	5.66847	5.66847	0	0	0	5.66847
INX DIGITAL INK CO	405 INDUSTRIAL WAY	DIXON	California	95620	5.621	0	5.621	0	0	0	5.621
NOVOLYTE TECHNOLOGIES	111 W IRENE RD	ZACHARY	Louisiana	70791	5.05	0.495	5.545	0.075	0	0	5.62
PRECOAT METALS	25 NORTHGATE INDUSTRIA	GRANITE CITY	Illinois	62040	4.516	1.0955	5.6115	0	0	0	5.6115
DUPONT PONTCHARTRAIN WORKS	586 HWY 44	LA PLACE	Louisiana	70068	0.006	0	0.006	0	0	5.601	5.607
SILGAN CONTAINERS MANUFACTURING CORP	135 NATIONAL RD	EDISON	New Jersey	08817	4.45	1.1	5.55	0	0	0	5.55
KNS COMPANYS INC	475 RANDY RD	CAROL STREAM	Illinois	60188	1.099	4.397	5.496	0		0	5.496
LOGAN ALUMINUM INC	US HWY 431 N	RUSSELLVILLE	Kentucky	42276	0.0355	5.3625	5.398	0	0	0	5.398
DU PONT ELECTRONICS MICROCIRCU ITS INDUSTRIES LTD	HWY 686 KM 23	MANATI	PUERTO RICO	00674	0	0.0725	0.0725	0	0	5.3235	5.396
NOV TUBOSCOPE NAVASOTA	9574 FM 1227	NAVASOTA	Texas	77868	4.911	0.48	5.391	0	0	0	5.391
AJAX METAL PROCESSING INC	4651 BELLEVUE AVE	DETROIT	MICHIGAN	48207	0	5.384	5.384	0	0	0	5.384
FIBERMARK NORTH AMERICA INC	5492 BOSTWICK ST	LOWVILLE	New York	13367	0.083	5.2795	5.3625	0		0	5.3625
PPG INDUSTRIES,INC-SPRINGDALE COMPLEX	125 COLFAX ST	SPRINGDALE	Pennsylvania	15144	5.2425	0.062	5.3045	0	0	0	5.3045

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BATESVILLE MANUFACTURING INC -DOLL PLANT	1000 E PEARL ST	BATESVILLE	Indiana	47006	0.265	5.032	5.297	0	0	0	5.297
AUTOALLIANCE INTERNATIONAL INC	1 INTERNATIONAL DR	FLAT ROCK	Michigan	48134	0.48	4.8	5.28	0		0	5.28
ARMSTRONG HARDWOOD FLOORING CO	565 HARTCO DR	ONEIDA	Tennessee	37841	0	5.22175	5.22175	0	0	0	5.22175
US ARMY LAKE CITY ARMY AMMUNITION PLANT	INTERSECTION OF MO HW	INDEPENDENCE	Missouri	64051	1.302	3.864	5.166	0	0	0	5.166
RUSKIN CO	HWY 27 N	GENEVA	Alabama	36340	0.019	5.0965	5.1155	0	0	0	5.1155
PELLA CORP CARROLL OPERATIONS	1750 E US HWY 30 E	CARROLL	IOWA	51401	0	5.05	5.05	0		0	5.05
GREIF PACKAGING LLC	695 LOUIS DR	WARMINSTER	Pennsylvania	18974	2.1455	1.451	3.5965	0	0	1.4455	5.042
HYDRO ALUMINUM NORTH AMERICA INC	808 COUNTY RD	MONETT	MISSOURI	65708	0.252	4.7845	5.0365	0	0	0	5.0365
RR DONNELLEY LANCASTER WEST	1375 HARRISBURG PIKE	LANCASTER	Pennsylvania	17601	4.5877	0.272	4.8597	0		0	4.8597
PRECOAT METALS	16402 JACINTOPORT BLVD	HOUSTON	Texas	77015	4.5625	0.2525	4.815	0	0	0	4.815
PHOENIX CONTAINER INC	1202 AIRPORT RD	NORTH BRUNSWICK	New Jersey	08902	1.871	2.902	4.773	0	0	0	4.773
SILGAN CONTAINER MANUFACTURING CORP	3250 PATTERSON RD	RIVERBANK	California	95367	0.2825	4.4455	4.728	0	0	0	4.728
FORD MOTOR CO TWIN CITIES ASSEMBLY PLANT	966 S MISSISSIPPI RIVER BL	SAINT PAUL	Minnesota	55116	0.39	4.2	4.59	0		0.13	4.72
CROWN AEROSOL PACKAGING	4TH ST & PARK AVE	FARIBAULT	Minnesota	55021	3.029	1.6865	4.7155	0	0	0	4.7155
HYUNDAI MOTOR MANUFACTURING ALABAMA LLC	700 HYUNDAI BLVD	MONTGOMERY	Alabama	36105	2.7715	1.9425	4.714	0		0	4.714
COLOR COMMUNICATIONS INC	4242 W FILLMORE	CHICAGO	Illinois	60624	0.81	3.84	4.65	0		0	4.65
PRECOAT METALS	4301 S SPRING AVE	SAINT LOUIS	Missouri	63116	1.073	3.5665	4.6395	0	0	0	4.6395
PRIME TANNING CO - HARTLAND	9 MAIN ST	HARTLAND	Maine	04943	0.0915	4.4955	4.587	0	0	0	4.587
RR DONNELLEY-WETMORE PLANT	1645 W SAM HOUSTON PKV	HOUSTON	TEXAS	77043	4.5675	0.011	4.5785	0		0	4.5785
VOLVO TRUCKS NORTH AMERICA	4881 COUGAR TRAIL RD	DUBLIN	VIRGINIA	24084	2.15	2.4	4.55	0	0	0	4.55
R R DONNELLEY & SONS CO DANVILLE DIV	JOHN HILL BAILEY INDL PAR	DANVILLE	Kentucky	40422	4.208	0.2945	4.5025	0	0	0	4.5025
NESTLE PURINA PETCARE	1000 HAMILTON RD	WEIRTON	West Virginia	26062	1.2665	3.2185	4.485	0	0	0	4.485
IMPRESS USA INC	936 BARRACUDA ST	TERMINAL ISLAND	California	90731	4.1	0.375	4.475	0	0	0	4.475
BROWN PRINTING CO	2300 BROWN AVE	WASECA	Minnesota	56093	4.4155	0.0585	4.474	0		0	4.474
CURTIS METAL FINISHING CO	6645 SIMS DR	STERLING HEIGHTS	Michigan	48313	3.19	1.2715	4.4615	0		0	4.4615
ARVINMERITOR HEAVY VEHICLE SYSTEMS LLC	801 RAILROAD AVE	YORK	South Carolina	29745	0.001	4.4215	4.4225	0	0	0	4.4225
ENDICOTT INTERCONNECT TECHNOLOGIES INC	1093 CLARK ST	ENDICOTT	New York	13760	0.25	4.1155	4.3655	0.032	0	0	4.3975
WORLDCOLOR	451 INTERNATIONAL BLVD	CLARKSVILLE	Tennessee	37040	3.7745	0.612	4.3865	0		0	4.3865
MERIX CORP	1521 POPLAR LN	FOREST GROVE	Oregon	97116	0.0835	4.1895	4.273	0		0	4.273
INLAND LABEL & MARKETING	2009 W AVE S	LA CROSSE	Wisconsin	54601	2.0245	2.209	4.2335	0	0	0	4.2335

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
SAPA EXTRUDER INC	2905 OLD OAKWOOD RD	GAINESVILLE	Georgia	30504	0	4.226	4.226	0	0	0	4.226
CARRY-ON TRAILER CORP	159 INDUSTRIAL PARK RD	MONTROSS	VIRGINIA	22520	0	4.1765	4.1765	0	0	0	4.1765
GENIE INDUSTRIES SOUTH CAMPUS	18700 NE 65TH ST	REDMOND	Washington	98052	0.23425	3.9122	4.14645	0		0	4.14645
SEQUA COATINGS CORP-PRECOAT M ETALS DIV	US HWY 12 AT RT 249	PORTAGE	Indiana	46368	0.284	3.8295	4.1135	0	0	0	4.1135
BROWN PRINTING CO	11595 MCCONNELL RD	WOODSTOCK	Illinois	60098	3.915	0.09	4.005	0		0	4.005
METAL COATERS MISSISSIPPI	951 PRISOCK RD	JACKSON	Mississippi	39272	0	3.9925	3.9925	0	0	0	3.9925
BALL METAL FOOD CONTAINER CORP	300 W GREGER RD	OAKDALE	California	95361	0.134	3.85	3.984	0	0	0	3.984
HIRSH INDUSTRIES INC	1525 MCKEE RD	DOVER	Delaware	19904	0.0025	3.9815	3.984	0		0	3.984
SILGAN CONTAINERS MANUFACTURING CORP	N90 W14600 COMMERCE DR	MENOMONEE FALLS	Wisconsin	53051	0	3.95	3.95	0	0	0	3.95
BETCO CORP	1001 BROWN AVE	TOLEDO	Ohio	43607	3.885	0	3.885	0		0	3.885
QUEBECOR WORLD DIRECT-PETTY	420 W INDUSTRIAL AVE	EFFINGHAM	Illinois	62401	3.43	0.4	3.83	0		0	3.83
MAGNA MIRRORS CORP - NEWAYGO	700 S PARK DR	NEWAYGO	MICHIGAN	49337	1.1175	2.689	3.8065	0	0	0	3.8065
GMTG - SHREVEPORT ASSEMBLY	7600 GENERAL MOTORS BL	SHREVEPORT	Louisiana	71129	0.095	3.65	3.745	0	0	0	3.745
VAN CAN CO	10837 ETIWANDA AVE	FONTANA	California	92337	3.2	0.5	3.7	0	0	0	3.7
CROWN FOOD PACKAGING	10200 N LOMBARD ST	PORTLAND	Oregon	97203	1.583	2.0475	3.6305	0	0	0	3.6305
TAIYO AMERICA INC	2675 ANTLER DR	CARSON CITY	Nevada	89701	0.005	1.29	1.295	0	0	2.3295	3.6245
BROWN PRINTING CO	668 GRAVEL PIKE	EAST GREENVILLE	Pennsylvania	18041	3.423	0.1185	3.5415	0	0	0.0075	3.549
RR DONNELLEY & SONS CO	6821 E COUNTY RD 1100 N	MATTOON	ILLINOIS	61938	3.2385	0.2265	3.465	0	0	0	3.465
BRILLION IRON WORKS INC	200 PARK AVE	BRILLION	Wisconsin	54110	2.4496	0.85945	3.30905	0		0.125	3.43405
OMG AMERICAS	TWO MILE RUN RD	FRANKLIN	Pennsylvania	16323	0.025	0.259	0.284	0	0	3.143	3.427
TITAN COATINGS INC	2025 EXCHANGE PL	BESSEMER	Alabama	35023	3.42	0	3.42	0	0	0	3.42
TTM PRINTED CIRCUIT GROUP - S TAFFORD DIV	4 OLD MONSON RD	STAFFORD	Connecticut	06075	0	3.3675	3.3675	0		0	3.3675
TORO CO	200 SIME AVE	TOMAH	Wisconsin	54660	0	3.331	3.331	0		0	3.331
ALERIS ROLLED PRODUCTS INC	1372 KY HWY 1957	LEWISPORT	Kentucky	42351	0.125	3.1985	3.3235	0	0	0	3.3235
AVERY DENNISON INDUSTRIAL PRODUCTS DIV	17700 FOLTZ PKWY	STRONGSVILLE	Ohio	44149	0.431	2.885	3.316	0	0	0	3.316
RADIATOR SPECIALTY CO	600 RADIATOR RD	INDIAN TRAIL	North Carolina	28079	2.1845	0	2.1845	0	0	1.13	3.3145
CENTURY INDUSTRIAL COATINGS I NC	HWY 69 S	JACKSONVILLE	Texas	75766	0.074	1.4035	1.4775	0	0	1.8115	3.289
SILGAN CONTAINERS MANUFACTURING CORP	8673 LYONS-MARENGO RD	LYONS	New York	14489	0.5625	2.7	3.2625	0	0	0	3.2625
GM SPRING HILL MANUFACTURING	100 SATURN PKWY MAIL DR	SPRING HILL	Tennessee	37174	0.0065	3.25	3.2565	0		0	3.2565
QUAD/GRAPHICS INC	555 S 108TH ST	WEST ALLIS	WISCONSIN	53214	3.17	0.085	3.255	0		0	3.255

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Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
BATESVILLE MANUFACTURING INC	310 CROWN RD	BATESVILLE	Mississippi	38606	0.488	2.7645	3.2525	0	0	0	3.2525
PRECOAT METALS	3399 DAVEY ALLISON BLVD	HUEYTOWN	Alabama	35023	2.5065	0.725	3.2315	0	0	0	3.2315
MIDDLEBURY HARDWOOD PRODUCTS	101 JOAN DR	MIDDLEBURY	INDIANA	46540	0	3.2215	3.2215	0	0	0	3.2215
WORLDCOLOR LEBANON DIV	760 FUJITEC DR	LEBANON	Ohio	45036	3.1125	0.0735	3.186	0		0	3.186
CADON PLATING CO	3715 11TH ST	WYANDOTTE	Michigan	48192	1.6414	1.495375	3.136775	0	0	0	3.136775
SONOCO PHOENIX - PRESIDENTS ISLAND	2755 HARBOR AVE	MEMPHIS	Tennessee	38113	0	3.122	3.122	0	0	0	3.122
RR DONNELLEY STRASBURG DIV	ONE SHENANDOAH VALLEY	STRASBURG	Virginia	22657	2.95	0.15	3.1	0		0.0025	3.1025
BASF CORP - CLEAR LAKE PLANT	11200 BAY AREA BLVD	PASADENA	Texas	77507	3.0356	0.043567767	3.079167767	0		0	3.079167767
KAWASAKI MOTORS MANUFACTURING CORP USA	6600 NW 27TH ST	LINCOLN	Nebraska	68524	0.2995	2.6515	2.951	0		0.125	3.076
SPRAYLAT CORP CA	3465 S LA CIENAGA BLVD	LOS ANGELES	California	90016	1.5375	1.5375	3.075	0		0	3.075
U.S. AIR FORCE ROBINS AFB GA	775 MACON ST BUILDING 15	ROBINS AFB	Georgia	31098	2.4135	0.379	2.7925	0	0	0.2715	3.064
RR DONNELLEY LOS ANGELES MANUFACTURING	19681 PACIFIC GATEWAY D	TORRANCE	California	90502	2.9545	0.069	3.0235	0		0	3.0235
JELD-WEN	600 JELD-WEN RD	CRAIGSVILLE	WEST VIRGINIA	26205	0.1395	2.882	3.0215	0		0	3.0215
BENJAMIN MOORE & CO JOHNSTOWN	UNION AVE EXTENSION	JOHNSTOWN	New York	12095	0.0148	0.000011	0.014811	0	0	2.9644	2.979211
ST CHARLES OPERATIONS (TAFT/STAR) UNION CARBIDE CORP	355 LA HWY 3142 (GATE 1)	TAFT	Louisiana	70057	0.2455	1.21	1.4555	1.485	0	0	2.9405
VERTIS COMMUNICATIONS	4051 FONDORF DR	COLUMBUS	Ohio	43228	2.5835	0.301	2.8845	0	0	0	2.8845
DOW CHEMICAL CO	1790 BUILDING	MIDLAND	Michigan	48667	2.75	0.1	2.85	0.0015	0	0	2.8515
QUAD/GRAPHICS INC	N11896 HWY 175 PO BOX 27	LOMIRA	WISCONSIN	53048	2.5685	0.2745	2.843	0		0	2.843
TOYOTA MOTOR MANUFACTURING TEX AS INC	1 LONE STAR PASS	SAN ANTONIO	Texas	78264	2.39455575	0.42551085	2.8200666	0	0	0	2.8200666
GM MLCG FAIRFAX ASSEMBLY	3201 FAIRFAX TRAFFICWAY	KANSAS CITY	Kansas	66115	0.032	2.75	2.782	0		0	2.782
SOLIANT LLC	1872 HWY 9 BYPASS W	LANCASTER	South Carolina	29721	0.554	2.204	2.758	0		0	2.758
KIA MOTORS MANUFACTURING OF GEORGIA	7777 KIA PKWY	WEST POINT	GEORGIA	31833	0.0525	2.694	2.7465	0	0	0	2.7465
APOLLO COLORS INC	1550 MOUND RD	ROCKDALE	Illinois	60436	0	0	0	0		2.705	2.705
VERTIS COMMUNICATIONS	10911 GRANITE ST	CHARLOTTE	North Carolina	28273	2.3815	0.276	2.6575	0	0	0	2.6575
ABC COMPOUNDING CO INC	6970 JONESBORO RD	MORROW	Georgia	30260	0.0025	0.375	0.3775	0.0025	0	2.2555	2.6355
ITW DYMON	805 E OLD 56 HWY	OLATHE	Kansas	66061	0.7835	1.8285	2.612	0	0	0	2.612
FORD MOTOR CO - OHIO ASSEMBLY PLANT	650 MILLER RD	AVON LAKE	Ohio	44012	2.4	0.195	2.595	0		0	2.595
ARR-MAZ CUSTOM CHEMICALS	4800 STATE RD 60 E	MULBERRY	Florida	33860	0.101	2.4835	2.5845	0		0	2.5845
BON L MANUFACTURING CO	HWY 53 BONNELL RD	CARTHAGE	Tennessee	37030	0.5795	1.6995	2.279	0	0.2945	0.007	2.5805
DERRICK CORP	3350 UNION RD	CHEEKTOWAGA	New York	14225	0	2.58	2.58	0	0	0	2.58

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Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
TYCO FIRE SUPPRESSION & BUILDING PRODUCTS	1 STANTON ST	MARINETTE	Wisconsin	54143	0.0035	2.555	2.5585	0		0	2.5585
IC OF OKLAHOMA LLC	2322 N MINGO RD	TULSA	Oklahoma	74116	0	2.55	2.55	0		0	2.55
BWAY CORP BWAY PACKAGING DIV	8200 BROADWELL RD	CINCINNATI	Ohio	45244	1.65079	0.8941	2.54489	0		0	2.54489
BRUNSWICK CORP MERCURY MARINE DIV	W6250 PIONEER RD	FOND DU LAC	Wisconsin	54935	0.2525	2.271	2.5235	0		0	2.5235
ACCESS BUSINESS GROUP LLC	7575 FULTON ST E	ADA	Michigan	49355	2.3755	0.128	2.5035	0		0	2.5035
MISSION KLEENSWEEP PRODUCTS INC	2434 BIRKDALE ST	LOS ANGELES	California	90031	2.5	0	2.5	0		0	2.5
ROHM & HAAS CHEMICALS LLC	200 RT 413	BRISTOL	Pennsylvania	19007	0.05715	0.19785	0.255	0	0	2.214	2.469
POWER PARTNERS INC	200 NEWTON BRIDGE RD	ATHENS	Georgia	30607	0	2.4385	2.4385	0		0	2.4385
AMERICAN COLOR GRAPHICS	810 E S ST	MARENGO	Iowa	52301	2.2715	0.1575	2.429	0		0	2.429
CENTRIA	530 N SECOND ST	CAMBRIDGE	Ohio	43725	1.209	1.2115	2.4205	0	0	0	2.4205
CUMMINS POWER GENERATION	1400 73RD AVE NE	FRIDLEY	Minnesota	55432	0.12	2.3	2.42	0		0	2.42
HEWLETT-PACKARD CARIBE BV SITE	HWY 110 N KM 5.1	AGUADILLA	Puerto Rico	00605	0.125	2.248	2.373	0	0	0	2.373
MOTOR CASTINGS CO	1323 S 65TH	MILWAUKEE	Wisconsin	53214	0	1.159	1.159	0	0	1.213	2.372
VERTIS INC RNS SPRINGFIELD DIV	245 BENTON DR	EAST LONGMEADO	MASSACHUSET	01028	2.311	0.0535	2.3645	0	0	0	2.3645
CADMUS SPECIALTY PUBLICATIONS	2901 BYRDHILL RD	RICHMOND	VIRGINIA	23228	2.242785	0.104675	2.34746	0		0	2.34746
ROPPE CORP	1602 N UNION ST	FOSTORIA	Ohio	44830	0.125	2.22	2.345	0		0	2.345
CCL CONTAINER AEROSOL DIV	ONE LLODIO DR	HERMITAGE	Pennsylvania	16148	0.1835	2.1485	2.332	0	0	0	2.332
AMERICAN COLOR GRAPHICS - LUFKIN	3001 ATKINSON DR	LUFKIN	Texas	75901	2.2015	0.1025	2.304	0		0	2.304
IVC SOUTH	875 PROGRESS CENTER AV	LAWRENCEVILLE	Georgia	30043	0.4575	1.8305	2.288	0		0	2.288
NCP COATINGS INC	225 FORT ST	NILES	Michigan	49120	2.275	0	2.275	0	0	0	2.275
DENSO MANUFACTURING TENNESSEE INC	1720, 1725, 1755 ROBERT C	MARYVILLE	Tennesee	37801	0	2.2585	2.2585	0	0	0	2.2585
3M CO - HUTCHINSON	905/915 ADAMS ST SE	HUTCHINSON	Minnesota	55350	0	2.2255	2.2255	0	0	0	2.2255
SABIC INNOVATIVE PLASTICS MT VERNON LLC	1 LEXAN LN	MOUNT VERNON	Indiana	47620	1.3	0.8	2.1	0.125	0	0	2.225
HONDA MANUFACTURING OF INDIANA LLC	2755 N MICHIGAN AVE	GREENSBURG	Indiana	47240	1.7	0.5	2.2	0	0	0.0025	2.2025
GATES CORP	1450 MONTANA RD	IOLA	KANSAS	66749	0	0.0023	0.0023	0	0	2.1605	2.1628
GREIF PACKAGING LLC	10850 STRANG RD	LA PORTE	Texas	77571	1.6775	0.462	2.1395	0		0	2.1395
VANEX INC	1700 S SHAWNEE ST	MOUNT VERNON	Illinois	62864	0	2.1145	2.1145	0		0	2.1145
RED SPOT WESTLAND INC	550 S EDWIN ST	WESTLAND	Michigan	48186	1.192	0.912	2.104	0	0	0	2.104
BENCHMARK ENERGY PRODUCTS LLC	4113 W INDUSTRIAL AVE	MIDLAND	Texas	79703	0.191	1.912	2.103	0		0	2.103
VERTIS	7619 DOANE DR	MANASSAS	VIRGINIA	20109	1.9855	0.065	2.0505	0		0	2.0505

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BRENNTAG SOUTHWEST INC LANC ASTER	704 E WINTERGREEN RD	LANCASTER	Texas	75134	0.0225	0.02	0.0425	0	0	2	2.0425
HANNA STEEL CORP	3812 COMMERCE AVE	FAIRFIELD	Alabama	35064	0.77	1.1105	1.8805	0	0	0.16	2.0405
SAPA INC COATINGS DIVSION	5325 NE SKYPORT WAY	PORTLAND	Oregon	97218	1.6348493	0.38930365	2.02415295	0	0	0	2.02415295
CLEVELAND STEEL CONTAINER - NI LES	115 ERIE ST	NILES	Ohio	44446	0.0025	2.0185	2.021	0	0	0	2.021
WORLD COLOR PRESS	50 JOHN HANCOCK RD	TAUNTON	Massachusetts	02780	1.605	0.032	1.637	0	0	0.3745	2.0115
DUPONT YERKES PLANT	3115 RIVER RD	BUFFALO	New York	14207	0.753	1.2515	2.0045	0	0	0	2.0045
CLEVELAND STEEL CONTAINER CORP	350 MILL ST	QUAKERTOWN	PENNSYLVANI	18951	0.0145	1.9805	1.995	0	0	0	1.995
KEYMARK CORP	1188 CAYADUTTA ST RT 334	FONDA	New York	12068	0.007	1.9795	1.9865	0	0	0	1.9865
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	901 N GREENWOOD AVE	KANKAKEE	Illinois	60901	0.8285	1.155	1.9835	0	0	0	1.9835
PPG INDUSTRIES ARCHITECTURAL FINISHES	1020 OLYMPIC DR	BATAVIA	Illinois	60510	0	0.786	0.786	0	0	1.178	1.964
ZEP INC	1310 SEABOARD INDUSTRI	ATLANTA	Georgia	30318	0.117	0.2185	0.3355	0.078		1.547	1.9605
ASTRO COATINGS INC	27 MAIN ST	STRUTHERS	Ohio	44471	0.5915	1.3605	1.952	0	0	0	1.952
FORD LOUISVILLE ASSEMBLY	2000 FERN VALLEY RD	LOUISVILLE	Kentucky	40213	0.215	1.6	1.815	0		0.13	1.945
REICHHOLD INC	425 S PACE BLVD	PENSACOLA	Florida	32502	0.169	1.7665	1.9355	0		0	1.9355
VERTIS COMMUNICATIONS	4646 S GRADY AVE	TAMPA	FLORIDA	33611	1.7675	0.165	1.9325	0	0	0	1.9325
CONSOLIDATED SYSTEMS INC	650 ROSEWOOD DR	COLUMBIA	South Carolina	29201	0	1.925	1.925	0	0	0	1.925
SC JOHNSON & SON INC WAXDALE FACILITY	8311 16TH ST	STURTEVANT	Wisconsin	53177	0.125	0.375	0.5	0		1.425	1.925
GATES CORP - CHARLESTON	1300 S PLANT RD	CHARLESTON	Missouri	63834	0	0.0056	0.0056	0	0	1.8995	1.9051
WARREN UNILUBE INC	1200 S 8TH ST	WEST MEMPHIS	Arkansas	72301	1.892	0.007	1.899	0	0	0	1.899
IMPRESS USA INC	3030 BIRCH DR HALF MOON	WEIRTON	West Virginia	26062	0.0065	1.8665	1.873	0	0	0	1.873
DURA COAT PRODUCTS INC	26655 PEOPLES RD	MADISON	Alabama	35756	1.64203	0.21697	1.859	0	0	0	1.859
AKZONOBEL AEROSPACE COATINGS	1 E WATER ST	WAUKEGAN	Illinois	60085	0.916	0.918	1.834	0	0	0	1.834
GENERAL MOTORS MLCG DETROIT-HAMTRAMCK ASSEM BLY CENTER	2500 E GENERAL MOTORS	DETROIT	Michigan	48211	1.6	0.19	1.79	0		0.027	1.817
PRO LINE PRINTING / RR DONNELLEY	365 PARR CIR	RENO	Nevada	89512	1.759	0.041	1.8	0		0	1.8
EASTMAN CHEMICAL CO TENNESSEE OPERATIONS	100 EASTMAN RD	KINGSPORT	Tennessee	37662	0.8855	0.8405	1.726	0.0675	0	0.002	1.7955
BALL METAL FOOD CONTAINER CORP	1200 S CRUTCHER ST	SPRINGDALE	Arkansas	72764	0.09	1.7	1.79	0	0	0	1.79
COLOR CORP OF AMERICA	1630 W HILL ST	LOUISVILLE	Kentucky	40210	0.009	1.756	1.765	0	0	0	1.765
RHODIA INC	2ND ST & BLUEBALL AVE	MARCUS HOOK	Pennsylvania	19061	0.201	0.0005	0.2015	0		1.562	1.7635
CAMACO COLUMBUS MANUFACTURING	1851 E 32ND AVE	COLUMBUS	Nebraska	68601	0	1.753	1.753	0		0	1.753

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RR DONNELLEY PINEVILLE	10519 INDUSTRIAL DR	PINEVILLE	North Carolina	28134	1.6305	0.0865	1.717	0		0	1.717
STEELSCAPE INC	7001 ALLISON-BONNET MEN	FAIRFIELD	Alabama	35064	0.003895	1.709215	1.71311	0	0	0	1.71311
SILGAN CONTAINERS MANUFACTURING CORP	2200 WILBUR AVE	ANTIOCH	California	94509	0	1.7065	1.7065	0	0	0	1.7065
FUJIFILM NORTH AMERICA CORP	20 W 14TH AVE	NORTH KANSAS CIT	Missouri	64116	0	1.683	1.683	0	0	0	1.683
U S CHEMICAL	316 HART ST	WATERTOWN	Wisconsin	53094	0.00011	0.00003	0.00014	0		1.6775	1.67764
EASTMAN KODAK CO EASTMAN BUSINESS PARK	1669 LAKE AVE	ROCHESTER	New York	14652	0.001	0.0035	0.0045	1.19	0	0.438	1.6325
DAIMLERCHRYSLER CORP TOLEDO ASSEMBLY PLANT	4000 STICKNEY AVE	TOLEDO	Ohio	43612	0.50765	1.1	1.60765	0	0	0.0025	1.61015
STP PRODUCTS MANUFACTURING CO	477 LEXINGTON AVE	PAINESVILLE	Ohio	44077	0.81	0	0.81	0	0	0.772	1.582
HUNTSMAN PETROCHEMICAL LLC	5451 JEFFERSON CHEMICA	CONROE	Texas	77301	0	0	0	0	0	1.5735	1.5735
RR DONNELLEY VON HOFFMANN CORP	321 WILSON DR	JEFFERSON CITY	Missouri	65109	1.534445	0.03795	1.572395	0		0	1.572395
J L CLARK INC	923 23RD AVE	ROCKFORD	Illinois	61104	0.26	1.2795	1.5395	0	0	0	1.5395
DOW CHEMICAL CO - LOUISIANA OPERATIONS	21255 LA HWY 1 S	PLAQUEMINE	Louisiana	70765	1.538	0	1.538	0	0	0	1.538
WORLDCOLOR - DYERSBURG DIV	2030 SYLVAN RD	DYERSBURG	Tennessee	38024	1.4305	0.0985	1.529	0		0	1.529
RANBAR ELECTRICAL MATERIALS INC	RTE 993 ONE MILE W OF RT	MANOR	Pennsylvania	15665	0	0.006	0.006	0	0	1.4975	1.5035
SILGAN WHITE CAP CORP	350 JAYCEE DR VALMONT I	HAZLETON	Pennsylvania	18201	0.75	0.75	1.5	0	0	0	1.5
TEXAS FINISHING CO	1801 SURVEYOR BLVD	CARROLLTON	Texas	75006	0	1.4565	1.4565	0		0	1.4565
CARESTREAM HEALTH COLORADO	2000 HOWARD SMITH AVE V	WINDSOR	Colorado	80550	0.002	0	0.002	1.4505	0	1.73472E-18	1.4525
CHRYSLER STERLING HEIGHTS ASSEMBLY PLANT	38111 VAN DYKE	STERLING HEIGHTS	Michigan	48312	0.55	0.9	1.45	0		0	1.45
WORLDCOLOR STILLWATER (WAS QUEBECOR WORLD - STILLWATER DIV)	100 W AIRPORT RD	STILLWATER	Oklahoma	74075	1.2965	0.1515	1.448	0	0	0	1.448
THIRD COAST PACKAGING INC PEARLAND	1871 MYKAWA	PEARLAND	Texas	77581	0	0	0	0	0	1.431	1.431
RR DONNELLEY	100 QUALITY CT	CHARLESTOWN	Indiana	47111	1.362	0.0635	1.4255	0		0	1.4255
BAYOU COS INC	5200 CURTIS LN	NEW IBERIA	LOUISIANA	70560	1.4245	0	1.4245	0	0	0	1.4245
NICHOLS ALUMINUM ALABAMA INC	2001 HWY 20 W	DECATUR	Alabama	35601	1.135	0.279	1.414	0		0	1.414
GMC TRUCK GROUP ARLINGTON ASSEMBLY PLANT	2525 E ABRAMS ST	ARLINGTON	Texas	76010	0.36	1.05	1.41	0		0	1.41
CARDINAL ALUMINUM CO PLAN T 3	4005 OAKLAWN DR	LOUISVILLE	Kentucky	40219	0.0485	1.354	1.4025	0	0	0	1.4025
WHEELING CORRUGATING CO - BEECH BOTTOM PLANT	2481 RIVER RD	WELLSBURG	West Virginia	26070	0	1.4	1.4	0	0	0	1.4
OHIO ART CO	ONE TOY ST	BRYAN	Ohio	43506	0.944	0.444	1.388	0	0	0	1.388
PRO LINE PRINTING ARLINGTON	401 N GREAT SW PKWY	ARLINGTON	Texas	76011	1.25	0.125	1.375	0		0	1.375

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	372 CLEVELAND ST	ROCHESTER	Pennsylvania	15074	0.523	0.8515	1.3745	0	0	0	1.3745
GFX INTERNATIONAL	333 BARRON BLVD	GRAYSLAKE	Illinois	60030	0	0.82	0.82	0		0.55	1.37
HUNTSMAN PETROCHEMICAL LLC	3892 US HWY 90	DAYTON	Texas	77535	0.001	0.001	0.002	0	0	1.368	1.37
CHROMASOURCE INC	2433 S CR 600 E	COLUMBIA CITY	Indiana	46725	0	1.338	1.338	0	0	0	1.338
VEYANCE TECHNOLOGIES INC	400 N GOODYEAR RD	MOUNT PLEASANT	Iowa	52641	0.0005	0	0.0005	0		1.3175	1.318
SHEBOYGAN PAINT CO	608 CANAL ST	CEDARTOWN	Georgia	30125	0.635	0.677	1.312	0	0	0	1.312
COOK COMPOSITES & POLYMERS CO	1415 STEELE AVE SW	GRAND RAPIDS	Michigan	49507	1.061	0.251	1.312	0	0	0	1.312
ICL-IP AMERICA INC	11636 HUNTINGTON	GALLIPOLIS FERRY	West Virginia	25515	0.005715	0.344885	0.3506	0.9545	0	0	1.3051
RR DONNELLEY & SONS CO	60 SECURITY DR	AVON	Connecticut	06001	1.258	0.0295	1.2875	0		0	1.2875
MASCO RETAIL CABINET GROUP LLC	423 HOPEWELL RD	WAVERLY	Ohio	45690	0.0055	1.1675	1.173	0	0	0.1105	1.2835
CLEVELAND STEEL CONTAINER - PE OTONE FACILITY	117 E LINCOLN ST	PEOTONE	Illinois	60468	0.053	1.214	1.267	0	0	0	1.267
CATERPILLAR INC	3701 STATE RD 26 E	LAFAYETTE	Indiana	47905	0.04	1.2155	1.2555	0	0	0	1.2555
LION COPOLYMER LLC	5955 SCENIC HWY	BATON ROUGE	Louisiana	70805	0	0	0	0.0015	0	1.25	1.2515
GOODYEAR TIRE & RUBBER CO. AKRON TECHNICAL CENTER	200 S. MARTHA AVE	AKRON	Ohio	44309	0	0	0	0	0	1.25	1.25
GENTEK BUILDING PRODUCTS	11 CRAGWOOD RD	AVENEL	New Jersey	07001	0.122	1.126	1.248	0	0	0	1.248
SUN CHEMICAL CORP	2445 PRODUCTION DR	SAINT CHARLES	Illinois	60174	0.185	1.049	1.234	0	0	0	1.234
PPG ARCHITECTURAL FINISHES EAST POINT	1377 OAKLEIGH DR	EAST POINT	Georgia	30344	0	0.691	0.691	0	0	0.541	1.232
AKZO NOBEL COATINGS INC	1313 WINDSOR AVE	COLUMBUS	Ohio	43211	0.7885	0.4365	1.225	0	0	0	1.225
SPIRALKOTE FLEXIBLE PACKAGING	1200 CENTRAL FLORIDA PK	ORLANDO	FLORIDA	32837	0	1.2105	1.2105	0	0	0	1.2105
SPRAYLAT CORP IL	1701 E 122-ND ST	CHICAGO	Illinois	60633	0.06	1.141	1.201	0	0	0	1.201
KIK (HOUSTON) INC	2921 CORDER ST	HOUSTON	Texas	77054	1.19	0	1.19	0		0	1.19
CP CONVERTERS INC	15 GRUMBACHER RD	YORK	PENNSYLVANI	17402	1.17007	0	1.17007	0	0	0	1.17007
RED SPOT PAINT & VARNISH CO INC	1016 E COLUMBIA ST	EVANSVILLE	Indiana	47711	0.6865	0.4695	1.156	0	0	0	1.156
JOHN DEERE SEEDING & CYLINDER	501 RIVER DR	MOLINE	Illinois	61265	0	1.15	1.15	0	0	0	1.15
VEYANCE TECHNOLOGIES INC	2701 W OMAHA AVE	NORFOLK	Nebraska	68701	0.03668	0.108535	0.145215	0	0	1.000835	1.14605
BJ CHEMICAL SERVICES	707 N LEECH	HOBBS	New Mexico	88240	0.014	0.00335	0.01735	0		1.12405	1.1414
ARANDELL CORP	N82 W13118 LEON RD	MENOMONEE FALLS	Wisconsin	53051	1.094	0.0255	1.1195	0	0	0	1.1195
CHEMCOAT INC	2790 CANFIELDS LN	MONTOURSVILLE	Pennsylvania	17754	0.125	0	0.125	0	0	0.986	1.111
W W HENRY	150 MOONEY DR	BOURBONNAIS	Illinois	60914	1.1105	0	1.1105	0	0	0	1.1105

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
DUBOIS CHEMICALS INC	3630 E KEMPER RD	SHARONVILLE	Ohio	45241	0	0	0	0		1.11	1.11
BEAULIEU OF AMERICA PLANT 560-MODEL	950 RIVERBEND RD	DALTON	Georgia	30721	0	1.1095	1.1095	0		0	1.1095
TESORO REFINING & MARKETING CO - MANDAN REFINERY	900 OLD RED TRAIL NE	MANDAN	North Dakota	58554	1.1	0.0005	1.1005	0	0	0	1.1005
IVC INDUSTRIAL COATINGS INC	2245-50 VALLEY AVE	INDIANAPOLIS	Indiana	46218	0.21965	0.87855	1.0982	0	0	0	1.0982
VANGUARD PAINTS & FINISHES INC	1409 GREENE ST	MARIETTA	Ohio	45750	1.078	0	1.078	0	0	0	1.078
WINSLOW-BROWNING INC	215 BROWNSVILLE AVE	LIBERTY	Indiana	47353	1.077	0	1.077	0	0	0	1.077
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	701 SHILOH RD	GARLAND	Texas	75042	0.5915	0.4765	1.068	0		0	1.068
GENERAL DYNAMICS ORDNANCE & TACTICAL SYSTEMS GARLAND	1200 N GLENBROOK	GARLAND	Texas	75040	0.002985	0.000005	0.00299	0	0	1.06475	1.06774
POLYMERIC IMAGING INC	117 E 14TH AVE	NORTH KANSAS CIT	Missouri	64116	0	1.0665	1.0665	0	0	0	1.0665
3M CO - BROWNWOOD	4501 HWY 377 S	BROWNWOOD	Texas	76801	0.0435	1	1.0435	0	0	0.006	1.0495
HB FULLER	12110 HARLAND DR NE	COVINGTON	Georgia	30014	0.5815	0.2815	0.863	0		0.1855	1.0485
COMPLEMENTARY COATINGS CORP	4701 O'DONNELL ST	BALTIMORE	Maryland	21224	1.029	0	1.029	0	0	0	1.029
UNITED PAINT & CHEMICAL	24671 TELEGRAPH RD	SOUTHFIELD	Michigan	48034	1.023	0	1.023	0	0	0	1.023
COOK COMPOSITES & POLYMERS CO	2434 HOLMES RD	HOUSTON	Texas	77051	1.013	0.006	1.019	0	0	0	1.019
TTM TECHNOLOGIES INC	234 CASHMAN DR	CHIPPEWA FALLS	Wisconsin	54729	0	1.002	1.002	0		0	1.002
GENERAL MOTORS LLC BOWLING GREEN ASSEMBLY PLANT	600 CORVETTE DR	BOWLING GREEN	Kentucky	42101	0.1	0.9	1	0		0	1
TTM TECHNOLOGIES-SANTA CLARA	407 MATHEW ST	SANTA CLARA	California	95050	0	0.9985	0.9985	0		0	0.9985
NICHOLS ALUMINUM DAVENPORT	1725 ROCKINGHAM RD	DAVENPORT	Iowa	52802	0.2795	0.717	0.9965	0		0	0.9965
THREE RIVERS ALUMINUM CO	71 PROGRESS AVE	CRANBERRY TOWN	Pennsylvania	16066	0.3575	0.637	0.9945	0	0	0	0.9945
LEVLAD	9200 MASON AVE	CHATSWORTH	California	91311	0.000185	0	0.000185	0		0.9875	0.987685
SONY ELECTRONICS INC	4275 W MAIN ST	DOTHAN	Alabama	36305	0	0	0	0	0	0.983	0.983
CANBERRA CORP	3610 HOLLAND-SYLVANIA R	TOLEDO	Ohio	43615	0.6	0.375	0.975	0		0	0.975
PPG INDUSTRIES OHIO INC (CL)	3800 W 143 ST	CLEVELAND	Ohio	44111	0.4135	0.554	0.9675	0	0	0	0.9675
TEXAS INSTRUMENTS INC	12201 SW FWY MS600	STAFFORD	Texas	77477	0.0025	0.125	0.1275	0	0	0.825	0.9525
B-WAY PACKAGING INC	6 LITHO RD	TRENTON	New Jersey	08648	0.095	0.857	0.952	0	0	0	0.952
GATES CORP	1650 ROWE PKWY	POPLAR BLUFF	MISSOURI	63901	0	0.0005	0.0005	0	0	0.948	0.9485
WESTERN METAL DECORATING CO	8875 INDUSTRIAL AVE	RANCHO CUCAMON	CALIFORNIA	91730	0.55	0.375	0.925	0	0	0	0.925
HILLYARD INDUSTRIES INC	402 N 3TH ST	SAINT JOSEPH	Missouri	64501	0.3575	0.563	0.9205	0		0	0.9205

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
U.S. POLYMERS ACCUREZ LLC	300 E PRIMM ST	SAINT LOUIS	Missouri	63111	0.0045	0.0025	0.007	0		0.8995	0.9065
FORBO ADHESIVES LLC	7440 W DUPONT RD	MORRIS	Illinois	60450	0.896	0	0.896	0		0	0.896
NAPCO INC	125 MCFANN RD	VALENCIA	Pennsylvania	16059	0.817	0.076	0.893	0	0	0	0.893
CRYSTAL FINISHING SYSTEMS INC	2608 ROSS AVE	SCHOFIELD	Wisconsin	54476	0	0.89296195	0.89296195	0	0	0	0.89296195
HUNT REFINING CO A CORP	1855 FAIRLAWN RD	TUSCALOOSA	Alabama	35401	0.8905	0	0.8905	0	0	0	0.8905
POLARTEC LLC	46 STAFFORD ST	LAWRENCE	MASSACHUSE	1841	0.89	0	0.89	0		0	0.89
SUN CHEMICAL CORP	1380 FORD RD	MAUMEE	Ohio	43537	0.133	0.7545	0.8875	0	0	0	0.8875
EXXONMOBIL CHEMICAL BATON ROUGE CHEMICAL PLANT	4999 SCENIC HWY	BATON ROUGE	Louisiana	70805	0.6	0	0.6	0.285	0	1.11022E-16	0.885
HOVENSA LLC	1 ESTATE HOPE	CHRISTIANSTED	Virgin Islands	00820	0.702	0	0.702	0.1805	0	0	0.8825
FINISHES UNLIMITED INC	482 WHEELER RD	SUGAR GROVE	Illinois	60554	0.438	0.438	0.876	0		0	0.876
UNIVAR USA INC HOUSTON FM 529	11235 FM 529	HOUSTON	TEXAS	77041	0.375	0.5	0.875	0	0	0	0.875
UNIVERSAL CHEMICALS & COATINGS INC	1124 ELMHURST RD	ELK GROVE VILLAGE	Illinois	60007	0	0.8735	0.8735	0	0	0	0.8735
ARMSTRONG WORLD INDUSTRIES INC	4115 N PERKINS RD	STILLWATER	Oklahoma	74075	0.33403	0.52419	0.85822	0	0	0	0.85822
BRENNTAG SOUTHWEST INC HOUS TON	14826 HOOPER RD	HOUSTON	Texas	77047	0.0125	0.0125	0.025	0	0	0.83	0.855
MITSUBISHI MOTORS NORTH AMERICA INC	100 N MITSUBISHI MOTORW	NORMAL	Illinois	61761	0.843	0.0055	0.8485	0	0	0	0.8485
CROWN CORK & SEAL CO (USA) INC CROWN CLOSURES DIV	940 MILL PARK DR	LANCASTER	Ohio	43130	0	0.8195	0.8195	0	0	0	0.8195
DPIX LLC	1635 AEROPLAZA DR	COLORADO SPRING	COLORADO	80916	0.3395	0.1355	0.475	0	0	0.3375	0.8125
SONOCO PRODUCTS CO	1854 CENTRAL FLORIDA PK	ORLANDO	Florida	32837	0.59	0.22	0.81	0	0	0	0.81
NEXTEER AUTOMOTIVE CORP	3900 HOLLAND RD	SAGINAW	Michigan	48601	0.08	0.72	0.8	0		0	0.8
FIVE STAR COATINGS GROUP	36616 89TH ST	TWIN LAKES	WISCONSIN	53181	0	0.798	0.798	0	0	0	0.798
PEORIA DISPOSAL CO #1	4349 W SOUTHPORT RD	PEORIA	Illinois	61615	0.7925	0	0.7925	0.0005		1.11022E-16	0.793
TRELLEBORG OFFSHORE US RANKIN ROAD FACILITY	1902 RANKIN RD	HOUSTON	Texas	77073	0.785	0	0.785	0	0	0	0.785
SILGAN CONTAINERS MANUFACTURING CORP	12130 LYNN AVE S	SAVAGE	Minnesota	55378	0	0.785	0.785	0	0	0	0.785
KAWNEER CO INC	500 E 12TH ST	BLOOMSBURG	Pennsylvania	17815	0.1305	0.645	0.7755	0	0	0	0.7755
ASHLAND DISTRIBUTION CO GARLAND TX	3101 WOOD DR	GARLAND	Texas	75041	0.152	0.035	0.187	0	0	0.5845	0.7715
TCI COATINGS INC	4501 BRADLEY ST	LUBBOCK	Texas	79415	0.7665	0	0.7665	0		0	0.7665
STEEL DYNAMICS INC	5134 LOOP RD	JEFFERSONVILLE	Indiana	47130	0	0.763	0.763	0	0	0	0.763
WORWAG COATINGS LLC NA	3420 KOSSUTH ST	LAFAYETTE	Indiana	47905	0.6285	0.125	0.7535	0	0	0	0.7535
ROHM & HAAS ELECTRONIC MATERIA LS LLC	455 FOREST ST	MARLBOROUGH	Massachusetts	01752	0.0025	0.0025	0.005	0		0.7465	0.7515

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
RUST-OLEUM CORP	8105 95TH ST	PLEASANT PRAIRIE	Wisconsin	53158	0.375	0.375	0.75	0	0	0	0.75
BASF CORP	1175 MARTIN ST	GREENVILLE	Ohio	45331	0.095	0.155	0.25	0	0	0.5	0.75
PARKER HANNIFIN	400 S ST	MC COOK	Nebraska	69001	0	0	0	0	0	0.741685	0.741685
SYNDICATE SYSTEMS INC	402 N MAIN ST	MIDDLEBURY	Indiana	46540	0	0.733	0.733	0	0	0	0.733
MERCK SHARP & DOHME CORP	2778 SE SIDE HWY	ELKTON	Virginia	22827	0.21	0.17	0.38	0.335	0	0.015	0.73
KODAK COLORADO DIV	9952 EASTMAN PARK DR	WINDSOR	Colorado	80551	0	0	0	0.7255	0	0	0.7255
UNIVAR USA INC ROMULUS BRANCH	13395 HURON RIVER DR	ROMULUS	Michigan	48174	0.0105	0.0275	0.038	0		0.6745	0.7125
MARCUS PAINT CO	235 E MARKET ST	LOUISVILLE	Kentucky	40202	0.705	0.0025	0.7075	0	0	0	0.7075
SUPERIOR OIL CO INC RECLAIMED ENERGY DIV	1500 WESTERN AVE	CONNERSVILLE	Indiana	47331	0.05	0.025	0.075	0	0	0.632	0.707
GREIF INDUSTRIAL PACKAGING & SERVICES LLC	8250 ALMERIA AVE	FONTANA	California	92335	0.06325	0.6398	0.70305	0	0	0	0.70305
WATSON STANDARD CO HARWICK PLANT	616 HITE RD	HARWICK	Pennsylvania	15049	0.5685	0.125	0.6935	0	0	0	0.6935
WESTERN EXTRUSIONS CORP	1735 SANDY LAKE RD	CARROLLTON	Texas	75006	0.125	0.565	0.69	0.0025	0	1.11022E-16	0.6925
WEST PENN OIL CO, INC130130	2305 MARKET ST EXT	WARREN	Pennsylvania	16365	0.678	0	0.678	0		0	0.678
LOCKHEED MARTIN AERONAUTICS CO	1011 LOCKHEED WAY MZ 66	PALMDALE	California	93599	0.069	0.445	0.514	0		0.163	0.677
TEXAS TILE MANUFACTURING LLC	1705 N OLIVER	HOUSTON	Texas	77007	0.001	0.671	0.672	0		0	0.672
NALCO CO PLANT 106	7701 US HWY 90A	SUGAR LAND	Texas	77478	0	0	0	0		0.669	0.669
SASOL NORTH AMERICA INC LAKE CHARLES CHEMICAL COMPLEX	2201 OLD SPANISH TRAIL	WESTLAKE	Louisiana	70669	0.547	0.1215	0.6685	0	0	0	0.6685
METALS USA BUILDING PRODUCTS	227 S TOWN E BLVD	MESQUITE	Texas	75149	0.332	0.331	0.663	0	0	0	0.663
KAWNEER CO INC	7200 DOE AVE	VISALIA	California	93291	0.049	0.609	0.658	0	0	0	0.658
BASF CORP	361 SHEEP PASTURE RD	EAST SETAUKET	NEW YORK	11733	0.008	0	0.008	0	0	0.65	0.658
ROLL COATER INC	5888 E COUNTY RD 180	BLYTHEVILLE	Arkansas	72315	0	0.6505	0.6505	0	0	0	0.6505
PRECOAT METALS	6754 SANTA BARBARA CT	ELKRIDGE	Maryland	21075	0	0.634	0.634	0	0	0	0.634
STEELSCAPE	222 W KALAMA RIVER RD	KALAMA	Washington	98625	0.003865	0.62815	0.632015	0	0	0	0.632015
TRINKOTE INDUSTRIAL FINISHES INC	1800 PARK PL AVE	FORT WORTH	Texas	76110	0	0.628	0.628	0	0	0	0.628
TRELLEBORG COATED SYSTEMS US INC / GRACE ADVANCED MATERIALS	715 RAILROAD AVE & HWY 1	RUTHERFORDTON	North Carolina	28139	0	0.00625	0.00625	0	0	0.6215	0.62775
SANFORD LP LIQUID MANUFACTURING & TECHNOLOGY CENTER	831 VOLUNTEER PKWY	MANCHESTER	TENNESSEE	37355	0.125	0.125	0.25	0.0025	0.375	0	0.6275
FLINT GROUP NORTH AMERICA CORP	2675 HENKLE DR	LEBANON	Ohio	45036	0.604	0.004	0.608	0	0	0	0.608
RYCOLINE PRODUCTS LLC	5540 NW HWY	CHICAGO	Illinois	60630	0.091	0.5155	0.6065	0	0	0	0.6065

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
GLASS COATINGS & CONCEPTS	300 LAWTON AVE	MONROE	Ohio	45050	0.5905	0.002	0.5925	0		0	0.5925
ALERIS ROLLED PRODUCTS INC	1 REYNOLDS RD	ASHVILLE	Ohio	43103	0.119	0.4695	0.5885	0	0	0	0.5885
ENGINEERED POLYMER SOLUTIONS I NC D/B/A VALSPAR COATINGS	90 CARSON RD	BIRMINGHAM	Alabama	35215	0.217	0.3715	0.5885	0	0	0	0.5885
CELLU TISSUE/CITYFOREST LLC	1215 WORDEN AVE E	LADYSMITH	Wisconsin	54848	0	0	0	0.5865		0	0.5865
ASHLAND DISTRIBUTION	8500 S WILLOW SPRINGS R	WILLOW SPRINGS	Illinois	60480	0.536	0.05	0.586	0	0	0	0.586
ROLL COATER INC	2604 RIVER RD	HAWESVILLE	Kentucky	42348	0	0.58	0.58	0	0	0	0.58
DIAMOND VOGEL PAINTS	5111 E 36TH ST N	TULSA	Oklahoma	74115	0.0115	0.568	0.5795	0	0	0	0.5795
HERCULES INC KENEDY TEXAS	ONE MILL ST	KENEDY	Texas	78119	0.09493	0.03923	0.13416	0		0.44255	0.57671
COMPLEX CHEMICALS CO INC	MADISON PARISH INDUSTR	TALLULAH	Louisiana	71282	0.3	0.225	0.525	0.0515		0	0.5765
PRIOR COATED METALS	2233 26TH ST SW	ALLENTOWN	Pennsylvania	18103	0	0.568	0.568	0	0	0	0.568
DUCKBACK PRODUCTS	2644 HEGAN LN	CHICO	California	95928	0.5605	0	0.5605	0	0	0	0.5605
KLINGER PAINT CO INC	5555 WILLOW CREEK DR SV	CEDAR RAPIDS	IOWA	52404	0.559	0.00084	0.55984	0	0	0	0.55984
CLARIANT CORP - MOUNT HOLLY WEST PLANT	625 E CATAWBA AVE	MOUNT HOLLY	North Carolina	28120	0	0.0555	0.0555	0		0.5	0.5555
SOUTHERN CLAY PRODUCTS INC	1335 S 13TH ST	LOUISVILLE	Kentucky	40210	0.0025	0.125	0.1275	0		0.425	0.5525
FLINT HILLS RESOURCES LP	13775 CLARK RD	ROSEMOUNT	Minnesota	55068	0.55	0	0.55	0	0	0	0.55
HYDRITE CHEMICAL CO	114 N MAIN ST	COTTAGE GROVE	Wisconsin	53527	0	0.55	0.55	0	0	0	0.55
REICHHOLD INC	249 ST LOUIS AVE	VALLEY PARK	Missouri	63088	0.261075	0.2888	0.549875	0		5E-05	0.549925
DUPONT FORT MADISON PLANT	801 - 35TH ST	FORT MADISON	Iowa	52627	0	0.544	0.544	0	0	0	0.544
SPARTAN CHEMICAL CO INC	1110 SPARTAN DR	MAUMEE	Ohio	43537	0.0675	0	0.0675	0		0.4645	0.532
CENTRIA	500 PERTH DR NEW ECONC	AMBRIDGE	Pennsylvania	15003	0	0.5315	0.5315	0	0	0	0.5315
PARISER INDUSTRIES INC	91 MICHIGAN AVE	PATERSON	New Jersey	07503	0.5275	0	0.5275	0		0	0.5275
APOLLO CHEMICAL	2001 WILLOW SPRINGS LN	BURLINGTON	North Carolina	27215	0.230495	0.000002	0.230497	0		0.296825	0.527322
MARY KAY INC	1330 REGAL ROW	DALLAS	Texas	75247	0.00026	0	0.00026	0		0.5265	0.52676
DUPONT MOUNT CLEMENS PLANT	400 GROESBECK HWY	MOUNT CLEMENS	Michigan	48043	0.0025	0.524	0.5265	0	0	0	0.5265
MAXIM INTEGRATED PRODUCTS INC	9651 WESTOVER HILLS BLV	SAN ANTONIO	Texas	78251	0	0.517	0.517	0	0	0	0.517
ALERIS ROLLED PRODUCTS INC	3321 DURHAM RD	ROXBORO	North Carolina	27573	0.0025	0.5105	0.513	0	0	0	0.513
ARROW GROUP INDUSTRIES INC	1 THIRD AVE	HASKELL	New Jersey	07420	0.0025	0.1925	0.195	0	0	0.3165	0.5115
PLAZE INC	105 BOLTE LN	SAINT CLAIR	Missouri	63077	0.509	0	0.509	0	0	0	0.509
TERNIUM USA INC	2500 RON BEAN BLVD	SHREVEPORT	Louisiana	71115	0.0125	0.496	0.5085	0	0	0	0.5085
CLARIANT CORP MARTIN PLANT	788 CHERT QUARRY RD	MARTIN	South Carolina	29836	0.125	0.0025	0.1275	0.375	0	0	0.5025

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
ARCADIA INC	3225 E WASHINGTON BLVD	VERNON	California	90023	0.125	0.375	0.5	0		0	0.5
SILBOND CORP	9901 SAND CREEK HWY	WESTON	Michigan	49289	0.375	0.125	0.5	0	0	0	0.5
FERRO GLASS & COLOR CORP	W WYLIE AVE	WASHINGTON	Pennsylvania	15301	0.125	0.375	0.5	0	0	0	0.5
EVONIK DEGUSSA CORP TIPPECANOE LABORATORIES	1650 LILLY RD	LAFAYETTE	Indiana	47909	0.375	0.125	0.5	0	0	0	0.5
FORMULA CORP	4432 C ST NE	AUBURN	WASHINGTON	98002	0.125	0	0.125	0		0.375	0.5
BEHR PROCESS CORP ALLENTOWN	7529 MORRIS CT BLDG 500	ALLENTOWN	Pennsylvania	18106	0.0066	0.0113	0.0179	0	0.482	0	0.4999
TRAD NA INC	210 BILL BRYAN BLVD	HOPKINSVILLE	Kentucky	42240	0	0.48455	0.48455	0		0	0.48455
CLEAN HARBORS EL DORADO LLC	309 AMERICAN CIR UNION	EL DORADO	Arkansas	71730	0	0.0098	0.0098	0	0	0.474515	0.484315
FULLER BRUSH CO	ONE FULLER WAY	GREAT BEND	Kansas	67530	0.161	0.3215	0.4825	0		0	0.4825
TYSON FRESH MEATS INC	HWY 35/IBP AVE	DAKOTA CITY	NEBRASKA	68731	0.005	0.005	0.01	0.245	0.2205	8.67362E-18	0.4755
NAZDAR CHICAGO	1087 N N BRANCH ST	CHICAGO	Illinois	60622	0.142	0.3315	0.4735	0	0	0	0.4735
SNAP-ON TOOLS MANUFACTURING CO	2600 US HWY 18 E	ALGONA	Iowa	50511	0.0055	0.465	0.4705	0		0.0025	0.473
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	5400 23RD AVE	MOLINE	Illinois	61265	0.207	0.263	0.47	0	0	0	0.47
SHERWIN-WILLIAMS CO	2802 W MILLER RD	GARLAND	Texas	75041	0.0025	0.0275	0.03	0	0	0.439	0.469
CLEVELAND STEEL CONTAINER CORP - STREETSBORO PLANT	10048 AURORA-HUDSON RI	STREETSBORO	Ohio	44241	0.0045	0.4635	0.468	0	0	0	0.468
ROCK TENN CO	2301 S 21ST ST	CLINTON	Iowa	52732	0	0.466	0.466	0		0	0.466
HEXION SPECIALTY CHEMICALS INC	8600 W 71ST ST	BEDFORD PARK	Illinois	60501	0	0.458	0.458	0		0	0.458
VISTA PAINT CORP	2020 E ORANGETHORPE AV	FULLERTON	California	92831	0.4065	0	0.4065	0	0	0.0405	0.447
UNIVAR USA INC SALEM BRANCH	COLONIAL RD	SALEM	Massachusetts	01970	0.001	0.001	0.002	0	0	0.4405	0.4425
SOUTHWEST DISTRIBUTING CO	539 S DREW ST	MESA	Arizona	85210	0.0005	0	0.0005	0	0	0.442	0.4425
FORREST PAINT CO	1011 MCKINLEY ST	EUGENE	Oregon	97402	0.1755	0.2615	0.437	0	0	0	0.437
SEYMOUR OF SYCAMORE INC	917 CROSBY AVE	SYCAMORE	ILLINOIS	60178	0.3785	0.0555	0.434	0	0	0	0.434
NB COATINGS INC	2701 E 170TH ST	LANSING	Illinois	60438	0.4065	0.00175	0.40825	0	0	0.0235	0.43175
PFI INC	9215 SANTA FE SPRINGS RI	SANTA FE SPRINGS	California	90670	0.43	0	0.43	0	0	0	0.43
RODDA PAINT CO	6123 N MARINE DR	PORTLAND	Oregon	97203	0.427	0.0025	0.4295	0	0	0	0.4295
NELCO PRODUCTS INC	1107 E KIMBERLY	ANAHEIM	California	92801	0.033	0.395	0.428	0	0	0	0.428
ELEMENTIS SPECIALTIES	400 CLAREMONT AVE	JERSEY CITY	New Jersey	07304	0.1125	0.3155	0.428	0	0	0	0.428
NASCOTE INDUSTRIES	18310 ENTERPRISE AVE	NASHVILLE	Illinois	62263	0.149425	0.278235	0.42766	0	0	0	0.42766

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
ASHLAND DISTRIBUTION	3300 BALL ST	BIRMINGHAM	Alabama	35234	0.3735	0.048	0.4215	0		0	0.4215
GEMINI COATINGS INC	2300 HOLLOWAY DR	EL RENO	OKLAHOMA	73036	0.4005	0.0025	0.403	0.0025	0	0	0.4055
BEHR PROCESS CORP - CHICAGO	270 STATE ST	CHICAGO HEIGHTS	Illinois	60411	0.0291	0.0496	0.0787	0	0.326	0	0.4047
MAGNABLEND INC-CENTRAL PLANT	1601 W HWY 287 BYPASS	WAXAHACHIE	Texas	75165	0.0025	0	0.0025	0		0.4	0.4025
BRADLEY COATINGS GROUP	608 W CRAWFORD AVE	CONNELLSVILLE	Pennsylvania	15425	0.28171	0	0.28171	0	0	0.11381	0.39552
ROLLEX CORP	800 CHASE AVE	ELK GROVE VILLAGE	Illinois	60007	0	0.3955	0.3955	0		0	0.3955
NALCO CO TULSA PLANT 102	6717 S 61ST W AVE	TULSA	Oklahoma	74131	0	0	0	0	0	0.3935	0.3935
INCHEM CORP	800 CEL-RIVER RD	ROCK HILL	South Carolina	29730	0.0025	0.125	0.1275	0		0.264	0.3915
SIKA CORP SIKA SARNAFIL DIV	100 DAN RD	CANTON	Massachusetts	02021	0	0.3895	0.3895	0	0	0	0.3895
IMS ENGINEERED PRODUCTS LLC	ONE INNOVATION DR	DES PLAINES	ILLINOIS	60016	0.0025	0.375	0.3775	0		0.0025	0.38
ZSCHIMMER & SCHWARZ	70 GA HWY 22 W	MILLEDGEVILLE	GEORGIA	31061	0.0025	0.375	0.3775	0		0	0.3775
INTERNATIONAL PAINT LLC	6001 ANTOINE DR	HOUSTON	Texas	77091	0.0025	0.375	0.3775	0	0	0	0.3775
QUEST CHEMICAL CORP	12255 FM 529	HOUSTON	Texas	77041	0.375	0	0.375	0	0	0	0.375
TOWER PRODUCTS INC	2703 FREEMANSBURG AVE	EASTON	Pennsylvania	18045	0.375	0	0.375	0		0	0.375
PATRIOT PAINT LLC	304 S BLAINE PIKE	PORTLAND	INDIANA	47371	0.375	0	0.375	0	0	0	0.375
BRYCE CO LLC	450 S BENTON ST	SEARCY	ARKANSAS	72143	0.125	0.125	0.25	0	0	0.125	0.375
JASPER RUBBER PRODUCTS INC	1010 FIRST AVE	JASPER	Indiana	47546	0	0	0	0		0.375	0.375
MARCHEM TECHNOLOGIES LLC	20851 S SANTA FE AVE	LONG BEACH	California	90810	0	0	0	0		0.375	0.375
FUCHS LUBRICANTS CO-CORPORATE OFFICE	17050 S LATHROP AVE	HARVEY	Illinois	60426	0.3715	0	0.3715	0	0	0	0.3715
FLINT GROUP NORTH AMERICA CORP	104 NATIONAL DR	ANNISTON	Alabama	36207	0.185	0.185	0.37	0		0	0.37
METAL COATERS OF CALIFORNIA INC	9133 CENTER AVE	RANCHO CUCAMON	California	91730	0.033515	0.33515	0.368665	0	0	5.55112E-17	0.368665
TYSON FRESH MEATS INC JOSLIN IL	HWY 92 & I-88 28424 38TH A	HILLSDALE	Illinois	61257	0.015	0.0025	0.0175	0.11	0.03	0.21	0.3675
MIDWEST METAL COATINGS	9 KONZEN CT	GRANITE CITY	ILLINOIS	62040	0.3	0.067	0.367	0	0	0	0.367
IVC INDUSTRIAL COATINGS INC	1825 E NATIONAL AVE	BRAZIL	INDIANA	47834	0.07321	0.29284	0.36605	0	0	5.55112E-17	0.36605
AKZONOBEL COATINGS INC	120 FRANKLIN RD	PONTIAC	Michigan	48341	0.0915	0.0075	0.099	0		0.2635	0.3625
COMBE PRODUCTS INC	EL DUQUE INDUSTRIAL PAR	NAGUABO	Puerto Rico	00718	0	0	0	0		0.3615	0.3615
CELLO PROFESSIONAL PRODUCTS	1354 OLD POST RD	HAVRE DE GRACE	Maryland	21078	0.3525	0.0015	0.354	0		0	0.354
EXXONMOBIL REFINING & SUPPLY BATON ROUGE REFINERY	4045 SCENIC HWY	BATON ROUGE	Louisiana	70805	0.16	0.0015	0.1615	0.19	0	0	0.3515
FORD MOTOR CO CHICAGO ASSEMBLY	12600 S TORRENCE AVE	CHICAGO	Illinois	60633	0.35	0	0.35	0		0	0.35

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
SHERWIN-WILLIAMS CO	180 CANAL ST	TERRE HAUTE	Indiana	47808	0.0235	0.06	0.0835	0	0	0.2665	0.35
LONGABERGER CO	5565 RAIDERS RD	FRAZEYSBURG	Ohio	43822	0.2105	0.01425	0.22475	0	0	0.125	0.34975
INEOS OXIDE A DIV OF INEOS AMERICAS LLC	21255A HWY 1 S	PLAQUEMINE	Louisiana	70765	0.318275	0.02926	0.347535	0	0	5.55112E-17	0.347535
QUEST SPECIALTY COATINGS LLC MENOMONEE FALLS	N92 W14701 ANTHONY AVE	MENOMONEE FALLS	WISCONSIN	53051	0.3475	0	0.3475	0	0	0	0.3475
INX INTERNATIONAL INK CO	1000 MAPLE AVE	HOMEWOOD	Illinois	60430	0.00566	0	0.00566	0		0.3395	0.34516
PACKAGING CORP OF AMERICA COUNCE MILL	HWY 57	COUNCE	Tennessee	38326	0.0215	0	0.0215	0.32	0	2.08167E-17	0.3415
DIVERSIFIED COATING SYSTEMS INC	309 ECHELON RD	GREENVILLE SOUTH	SOUTH CAROL	29605	0.0035	0.334	0.3375	0	0	0	0.3375
SIERRA CORP	11400 W 47TH ST	MINNETONKA	Minnesota	55343	0.336	0	0.336	0	0	0	0.336
SHERWIN-WILLIAMS AUTOMOTIVE FINISHES CORP	395 BOGGS LN - S	RICHMOND	Kentucky	40475	0.3175	0.0185	0.336	0	0	0	0.336
BECKER SPECIALTY CORP	2500 DELTA LN	ELK GROVE VILLAGE	Illinois	60007	0.0275	0.3075	0.335	0	0	0	0.335
AMERIMAX HOME PRODUCTS INC	450 RICHARDSON DR	LANCASTER	Pennsylvania	17603	0.0095	0.323	0.3325	0	0	0	0.3325
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	411 N DARLING	FREMONT	Michigan	49412	0.31	0.021	0.331	0	0	0	0.331
GATES CORP	630 US HWY 150 E	GALESBURG	Illinois	61401	0	0	0	0		0.329	0.329
ENGLERT INC	1200 AMBOY AVE	PERTH AMBOY	NEW JERSEY	08861	0.1315	0.187	0.3185	0		0	0.3185
ENERGIZER BATTERY MANUFACTURING INC	75 SWANTON RD	SAINT ALBANS	Vermont	05478	0.0025	0.157	0.1595	0	0	0.157	0.3165
AMERIMAX COATED PRODUCTS	215 PHILLIPS 324 RD	HELENA	ARKANSAS	72342	0	0.30835	0.30835	0	0	0	0.30835
CURTIS METAL FINISHING CO	9917 N ALPINE	MACHESNEY PARK	Illinois	61115	0.22	0.0875	0.3075	0		0	0.3075
LINETEC	725 S 75TH AVE	WAUSAU	Wisconsin	54401	0.0205	0.2815	0.302	0	0	0	0.302
FORD MOTOR CO MICHIGAN ASSEMBLY PLANT	38303 MICHIGAN AVE	WAYNE	Michigan	48184	0.0015	0.3	0.3015	0		0	0.3015
ET PRODUCTS CO INC	747 DOUGLAS RD	BREMEN	Indiana	46506	0	0.3	0.3	0		0	0.3
AMERICAN METALS CORP	1000 CROCKER RD	WESTLAKE	Ohio	44145	0	0.296	0.296	0	0	0	0.296
MAXIM INTEGRATED PRODUCTS INC	3725 N FIRST ST	SAN JOSE	California	95134	0	0.295	0.295	0	0	0	0.295
ATMI MATERIALS LTD	706 HOUSTON CLINTON DR	BURNET	Texas	78611	0.050745	0.000765	0.05151	0	0	0.23997	0.29148
MUTI-PACK LLC	8372 N STEVEN RD	MILWAUKEE	Wisconsin	53223	0.29	0	0.29	0		0	0.29
VIDEOJET TECHNOLOGIES INC	1855 ESTES AVE	ELK GROVE VILLAGE	Illinois	60007	0	0.287	0.287	0	0	0	0.287
TRITECH COATINGS CORP	1378 KINGSLAND AVE	PAGEDALE	Missouri	63133	0.194	0.0925	0.2865	0	0	0	0.2865
ENTHONE INC	350 FRONTAGE RD	WEST HAVEN	Connecticut	06516	0.005595	0.279675	0.28527	0	0	0	0.28527
SHERWIN-WILLIAMS CO	2150 W SAND LAKE RD	ORLANDO	Florida	32809	0	0.002	0.002	0	0	0.2765	0.2785
SUMTER COATINGS INC	2410 HWY 15S	SUMTER	South Carolina	29150	0.058	0.1755	0.2335	0	0	0.0425	0.276

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SPRAYLAT CORP	716 S COLUMBUS AVE	MOUNT VERNON	New York	10550	0.0135	0.2605	0.274	0		0	0.274
INTEL CORP	4100 SARA RD MS RR5-491	RIO RANCHO	New Mexico	87124	0.0025	0.2705	0.273	0		0	0.273
STANDARD PAINTS INC	940 S 6TH AVE	MANSFIELD	Texas	76063	0	0.239	0.239	0	0	0.03	0.269
QUANTUM MARKETING INC	3606 CRAFTSMAN BLVD	LAKELAND	Florida	33803	0.268	0	0.268	0		0	0.268
PPG ARCHITECTURAL FINISHES INC	400 S 13TH ST	LOUISVILLE	Kentucky	40203	0	0.2655	0.2655	0		0.0015	0.267
SERIGRAPH INC	3801 E DECORAH RD	WEST BEND	Wisconsin	53095	0.0325	0.232	0.2645	0		0	0.2645
HENKEL CORP	23343 SHERWOOD AVE	WARREN	Michigan	48091	0.125	0.125	0.25	0		0.0125	0.2625
IVC INDUSTRIAL COATINGS INC	550-560 W CENTENNIAL BL	CASA GRANDE	Arizona	85222	0.0520125	0.20805	0.2600625	0		0	0.2600625
MASCO RETAIL CABINET GROUP SAYRE PENNSYLVANIA PLANT	217 LAMOKA RD	SAYRE	PENNSYLVANI	18840	0	0.26	0.26	0		0	0.26
ASHLAND DISTRIBUTION CO	395 JAMES AVE	SAINT PAUL	Minnesota	55102	0.2475	0.012	0.2595	0	0	0	0.2595
ASHLAND DISTRIBUTION CO	350 ROOSEVELT AVE	CARTERET	New Jersey	07008	0.2305	0.029	0.2595	0		0	0.2595
HENTZEN COATINGS,INC BATAVIA FACILITY	1500 LATHEM ST	BATAVIA	Illinois	60510	0.23381	0.025645	0.259455	0	0	0	0.259455
PPG INDUSTRIES ARCHITECTURAL FINISHES	1886 LYNNBURY WOODS R	DOVER	Delaware	19904	0.0025	0.0025	0.005	0		0.25	0.255
BACHMAN SERVICES INC	2220 S PROSPECT	OKLAHOMA CITY	Oklahoma	73129	0.125	0.125	0.25	0	0	0.0025	0.2525
BF GOODRICH TIRE MANUFACTURING	18906 US 24 E	WOODBURN	Indiana	46797	0.0025	0.125	0.1275	0	0	0.125	0.2525
MOC PRODUCTS CO INC	12306 MONTAGUE ST	PACOIMA	California	91331	0.125	0.0025	0.1275	0	0	0.125	0.2525
ASHLAND DISTRIBUTION CO	1610 E HIGHLAND RD	TWINSBURG	Ohio	44087	0.2295	0.021	0.2505	0	0	0	0.2505
RESEARCH SOLVENTS & CHEMICALS INC	402 INDUSTRIAL PARK DR	PELHAM	Alabama	35124	0.125	0.125	0.25	0		0	0.25
MISCO PRODUCTS CORP	1048 STINSON DR	READING	Pennsylvania	19605	0.125	0.125	0.25	0		0	0.25
METAL COATERS OF GEORGIA	1150 MARIETTA INDUSTRIA	MARIETTA	Georgia	30062	0.0035	0.2465	0.25	0	0	0	0.25
MAGNI INDUSTRIES INC	10250 TOEBBEN DR	INDEPENDENCE	KENTUCKY	41051	0.125	0.125	0.25	0	0	0	0.25
KEYSTONE ANILINE CORP	2165 HWY 292	INMAN	South Carolina	29349	0.125	0.125	0.25	0	0	0	0.25
EQUILON CARSON TERMINAL	20945 S WILMINGTON AVE	CARSON	California	90810	0.125	0.125	0.25	0		0	0.25
CHEMICAL SPECIALISTS & DEVELOPMENT INC	9733 MEADOR RD	CONROE	Texas	77303	0.125	0.125	0.25	0	0	0	0.25
BECKER SPECIALTY CORP	15310 ARROW BLVD	FONTANA	California	92335	0.125	0.125	0.25	0	0	0	0.25
YENKIN-MAJESTIC PAINT CORPORAT ION	1920 LEONARD AVE	COLUMBUS	Ohio	43219	0.125	0.125	0.25	0	0	0	0.25
MALCO PRODUCTS INC	361 FAIRVIEW AVE	BARBERTON	Ohio	44203	0.125	0.125	0.25	0	0	0	0.25
HEXION SPECIALTY CHEMICALS INC	400 E COTTAGE PL	CARPENTERSVILLE	Illinois	60110	0.025	0.221	0.246	0	0	0.004	0.25
PREMIER INK SYSTEMS INC	10420 N STATE ST	HARRISON	Ohio	45030	0.125	0	0.125	0		0.125	0.25
BRYCE CO LLC	4505 OLD LAMAR AVE	MEMPHIS	Tennessee	38118	0	0.125	0.125	0	0	0.125	0.25

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AMERICAN COLORS INC DISPERSION PLANT SANDUSKY OHIO	1110 EDGEWATER AVE	SANDUSKY	OHIO	44870	0.125	0	0.125	0	0	0.125	0.25
DUPONT FAYETTEVILLE PLANT	22828 NC HWY 87 W	FAYETTEVILLE	NORTH CAROL	28306	0.247	0	0.247	0	0	0	0.247
CAR PRODUCTS INC	630 BEAULIEU ST	HOLYOKE	Massachusetts	01040	0.238	0	0.238	0		0	0.238
WORLDCOLOR ATGLEN	4581 LOWER VALLEY RD	ATGLEN	Pennsylvania	19310	0.2285	0.0095	0.238	0	0	0	0.238
KIK-SOCAL INC	9028 DICE RD	SANTA FE SPRINGS	California	90670	0.2365	0	0.2365	0		0	0.2365
BERGQUIST CO	301 WASHINGTON ST	CANNON FALLS	Minnesota	55009	0.069	0.167	0.236	0	0	0	0.236
DYCO PAINTS INC	5850 ULMERTON RD	CLEARWATER	Florida	33760	0	0.236	0.236	0	0	0	0.236
SUN CHEMICAL CORP	3301 HUNTING PARK AVE	PHILADELPHIA	Pennsylvania	19132	0.035	0.199	0.234	0	0	0	0.234
CHEMTURA CORP - TAFT PLANT	471 HWY 3142	KILLONA	Louisiana	70066	0.069	0.163	0.232	0	0	0	0.232
CHRYSLER GROUP LLC STERLING STAMPING PLANT (PART)	35777 VAN DYKE	STERLING HEIGHTS	Michigan	48312	0.228	0	0.228	0	0	0	0.228
PPG INDUSTRIES OHIO INC CIRCLEVILLE OH	559 PITTSBURGH RD	CIRCLEVILLE	Ohio	43113	0.055	0.171	0.226	0	0	0	0.226
CERTIFIED ENAMELING INC	3342 EMERY ST	LOS ANGELES	California	90023	0.0025	0.22	0.2225	0		0	0.2225
ACTEGA KELSTAR INC	1050 TAYLORS LN	CINNAMINSON	New Jersey	08077	0.003	0.0085	0.0115	0	0	0.211	0.2225
PERMA-PIPE OIL & GAS	5008-11 CURTIS LN	NEW IBERIA	Louisiana	70560	0.22	0	0.22	0		0	0.22
RHODIA INC	577 BANKHEAD HWY	WINDER	Georgia	30680	0.16	0.056	0.216	0		0	0.216
COLWELL INC	231 S PROGRESS DR E	KENDALLVILLE	Indiana	46755	0.195	0.02	0.215	0	0	0	0.215
SYNGENTA CROP PROTECTION INC SAINT GABRIEL FACILITY	3905 HWY 75	SAINT GABRIEL	Louisiana	70776	0.106	0.1065	0.2125	0	0	0	0.2125
ASHLAND DISTRIBUTION CO	4550 NE EXPRESSWAY	DORAVILLE	Georgia	30340	0.158	0.0535	0.2115	0		0	0.2115
FLINT GROUP NORTH AMERICA	4675 W PARK DR	ATLANTA	Georgia	30339	0.105	0.105	0.21	0	0	0	0.21
WARREN OIL CO - NC	2340 US 301 N	DUNN	North Carolina	28335	0.2075	0.0005	0.208	0	0	0	0.208
BOEING COMMERCIAL AIRPLANE GROUP - RENTON	8TH & LOGAN AVE N	RENTON	Washington	98055	0.086	0.1115	0.1975	0		0.0075	0.205
UNION CARBIDE CORP SOUTH CHARLESTON FACILITY	437 MACCORKLE AVE SW	SOUTH CHARLESTO	West Virginia	25303	0.139	0.0655	0.2045	0		0	0.2045
FIRST AMERICAN RESOURCES CO	2030 RIVERVIEW INDUSTRI	MABLETON	Georgia	30126	0	0.203	0.203	0		0	0.203
BOEING COMMERCIAL AIRPLANE GROUP NORTH BOEING FIELD (PART)	7500 E MARGINAL WAY S	SEATTLE	Washington	98108	0.059	0.1005	0.1595	0	0.04	0	0.1995
RUDD CO INC	1141 NW 50TH ST	SEATTLE	Washington	98107	0.185	0.0125	0.1975	0	0	0	0.1975
UNIVERSAL CHEMICALS & COATINGS INC	1975 FOX LN	ELGIN	ILLINOIS	60123	0	0.196	0.196	0	0	0	0.196
INTEL CORP - RONLER ACRES CAMPUS	2501 NW 229TH ST	HILLSBORO	Oregon	97124	0.0025	0.19	0.1925	0		0	0.1925

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
U.S. NAVY NAVAL AIR STATION JACKSONVILLE	6500 ROOSEVELT BLVD BU	JACKSONVILLE	FLORIDA	32212	0.07	0.045	0.115	0.05	0	0.025	0.19
HADCO (SANMINA) CORP - OWEGO DIV	1200 TAYLOR RD	OWEGO	New York	13827	0.0045	0.1725	0.177	0		0.0109	0.1879
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	1991 S WHEELING RD	WHEELING	Illinois	60090	0.0635	0.1165	0.18	0		0	0.18
QUAD GRAPHICS NASHVILLE	2947 BRICK CHURCH PIKE	NASHVILLE	TENNESSEE	37207	0.1585	0.0185	0.177	0	0	0	0.177
LAMBERTI USA INC WHARTON CHEMICAL COMPLEX	HWY 59 AT COUNTY RD 212	HUNGERFORD	Texas	77448	0.0405	0	0.0405	0.0455	0	0.0905	0.1765
SILGAN WHITE CAP CORP	1701 WILLIAMSBURG PIKE	RICHMOND	Indiana	47375	0.05	0.125	0.175	0	0	0	0.175
BYK USA INC	524 S CHERRY ST	WALLINGFORD	Connecticut	06492	0.17	0.004	0.174	0		0	0.174
ASHLAND DISTRIBUTION CO	11109 S CHOCTAW DR	BATON ROUGE	Louisiana	70815	0.1625	0.011	0.1735	0	0	0	0.1735
CHAMPION TECHNOLOGIES INC	115 PROCTOR	ODESSA	Texas	79762	0.1615	0.008	0.1695	0	0	0	0.1695
ASHLAND DISTRIBUTION	7710 POLK ST	SAINT LOUIS	Missouri	63111	0.1685	0	0.1685	0		0	0.1685
KAY CHEMICAL CO	8300 CAPITAL DR	GREENSBORO	North Carolina	27409	0.0075	0.1575	0.165	0		0	0.165
AMREP INC	990 INDUSTRIAL PARK DR	MARIETTA	Georgia	30062	0.054	0.1085	0.1625	0	0	0	0.1625
SUPERIOR SOLVENTS & CHEMICALS	320 NORTHPOINTE DR	FAIRFIELD	Ohio	45014	0.02254	0	0.02254	0	0	0.138295	0.160835
ANCHOR PAINT MANUFACTURING CO INC	6707 E 14TH ST	TULSA	Oklahoma	74112	0.16	0	0.16	0		0	0.16
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	1717 ENGLISH RD	HIGH POINT	North Carolina	27261	0.0635	0.0965	0.16	0	0	0	0.16
INTEL CORP	4500 S DOBSON RD MAIL ST	CHANDLER	Arizona	85248	0.0025	0.154	0.1565	0		0	0.1565
SHERWIN-WILLIAMS CO	1891 DUFFY RD	FERNLEY	Nevada	89408	0.0005	0.002	0.0025	0	0	0.152	0.1545
SUPERIOR SOLVENTS & CHEMICALS	4211 BRAMERS LN	LOUISVILLE	Kentucky	40216	0.0045	0	0.0045	0	0	0.147585	0.152085
PLAZE INC	113 BOLTE LN	SAINT CLAIR	Missouri	63077	0.152	0	0.152	0	0	0	0.152
BAKER PETROLITE CORP	9100 W 21ST ST	SAND SPRINGS	Oklahoma	74063	0.123525	0.013275	0.1368	0	0	0.014705	0.151505
MID-STATES PAINT & CHEMICAL CO	9315 WATSON INDUSTRIAL	CRESTWOOD	Missouri	63126	0.151	0	0.151	0		0	0.151
SONOCO FLEXIBLE PACKAGING	6502 S US HWY 31 N	EDINBURGH	Indiana	46124	0	0.14951	0.14951	0	0	0	0.14951
CENTRAL MOTOR WHEEL OF AMERICA (DBA CMWA)	125 WHEAT DR	PARIS	Kentucky	40361	0	0.1475	0.1475	0	0	0	0.1475
GOJO INDUSTRIES INC	3783 STATE RD	CUYAHOGA FALLS	OHIO	44223	0.0015	0.0001295	0.0016295	0		0.1442	0.1458295
CHASE PRODUCTS CO	2727 GARDNER RD	BROADVIEW	Illinois	60155	0.0005	0.145	0.1455	0	0	0	0.1455
DAVIS-FROST INC	3420 CANDLER'S MOUNTAIN	LYNCHBURG	VIRGINIA	24506	0.1415	0	0.1415	0	0	0	0.1415
BLENTECH CORP	1305 RYE ST	HOUSTON	Texas	77029	0.0125	0.0025	0.015	0	0	0.125	0.14
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	3050 HANFORD DR	LEBANON	Pennsylvania	17046	0.0635	0.0725	0.136	0	0	0	0.136

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
ISP SYNTHETIC ELASTOMERS LP	1615 MAIN ST	PORT NECHES	TEXAS	77651	0	0.132	0.132	0	0	0	0.132
ASHLAND DISTRIBUTION	2351 CHANNEL AVE	MEMPHIS	Tennessee	38113	0.1215	0.0085	0.13	0	0	0	0.13
POWER SERVICE PRODUCTS INC	513 PEASTER HWY	WEATHERFORD	Texas	76086	0.125	0.0025	0.1275	0	0	0	0.1275
UNITED LABORATORIES INC	320 37TH AVE	SAINT CHARLES	Illinois	60174	0.125	0.0025	0.1275	0	0	0	0.1275
RESEARCH SOLVENTS & CHEMICALS INC	133 BAIN DR	LA VERGNE	Tennessee	37086	0.125	0.0025	0.1275	0		0	0.1275
PERMATEX SOLON	6875 PARKLAND BLVD	SOLON	Ohio	44139	0.0025	0.125	0.1275	0		0	0.1275
ONESOURCE COIL COATERS	5110 140TH AVE	CLEARWATER	FLORIDA	33760	0.0025	0.125	0.1275	0	0	0	0.1275
OAKLEY INC	1 ICON	FOOTHILL RANCH	California	92610	0.0025	0.125	0.1275	0	0	0	0.1275
NICCA USA INC	1044 S NELSON RD	FOUNTAIN INN	South Carolina	29644	0.0025	0.125	0.1275	0		0	0.1275
WESTERN TUBE & CONDUIT CORP	2001 E DOMINGUEZ ST	LONG BEACH	CALIFORNIA	90810	0.0025	0.125	0.1275	0	0	0	0.1275
BRENNTAG GREAT LAKES LLC	14765 W BOBOLINK AVE	MENOMONEE FALLS	Wisconsin	53051	0.0025	0.125	0.1275	0	0	0	0.1275
RR STREET & CO INC	2353 S BLUE ISLAND AVE	CHICAGO	Illinois	60608	0.0025	0.125	0.1275	0	0	0	0.1275
BASF CORP	3455 SOUTHPORT RD	SPARTANBURG	South Carolina	29302	0.125	0.0025	0.1275	0		0	0.1275
GE WATER & PROCESS TECHNOLOGIES ORANGE FACILITY	3901 WILLIAMS DR	ORANGE	Texas	77630	0.125	0.0025	0.1275	0		0	0.1275
CHEMICALS INC	12321 HATCHERVILLE RD	BAYTOWN	Texas	77520	0.125	0.0025	0.1275	0		0	0.1275
COASTAL CHEMICAL CO LLC	3520 VETERANS MEMORIAL	ABBEVILLE	Louisiana	70510	0.125	0.0025	0.1275	0	0	0	0.1275
DELTA HOUSTON	334 TIDAL RD	DEER PARK	Texas	77536	0.125	0.0025	0.1275	0		0	0.1275
ELANTAS PDG INC	5200 N SECOND ST	SAINT LOUIS	Missouri	63147	0.0025	0.125	0.1275	0		0	0.1275
ELECTRO PLATE CIRCUITRY INC	1430 CENTURY DR	CARROLLTON	TEXAS	75006	0.0025	0.125	0.1275	0		0	0.1275
JOHNSON BRYCE INC	276 S PKWY W	MEMPHIS	TENNESSEE	38109	0	0.0025	0.0025	0	0	0.125	0.1275
ASHLAND DISTRIBUTION CO	3930 GLENWOOD DR	CHARLOTTE	North Carolina	28208	0.083	0.0425	0.1255	0	0	0	0.1255
WEBB CHEMICAL SERVICE CORP	2708 JARMAN	MUSKEGON HEIGHT	MICHIGAN	49444	0.08	0	0.08	0		0.0455	0.1255
CERAM-TRAZ CORP CERAMIC INDL COATINGS (DBA)	325 HWY 81	OSSEO	Minnesota	55369	0.125	0	0.125	0	0	0	0.125
COLUMBIA PAINT CORP	641 JACKSON AVE	HUNTINGTON	West Virginia	25704	0.125	0	0.125	0	0	0	0.125
CLEANING SYSTEMS INC	1997 AMERICAN BLVD	DE PERE	Wisconsin	54115	0.125	0	0.125	0		0	0.125
CHEMETALL US INC	13177 HURON RIVER DR	ROMULUS	Michigan	48174	0	0.125	0.125	0	0	0	0.125
EXXONMOBIL OIL CORP - TORRANCE REFINERY	3700 W 190TH ST	TORRANCE	CALIFORNIA	90509	0.125	0	0.125	0		0	0.125
BERRYMAN PRODUCTS INC	3800 E RANDOL MILL RD	ARLINGTON	Texas	76011	0.125	0	0.125	0		0	0.125
AMERICAN JETWAY CORP	34136 MYRTLE	WAYNE	MICHIGAN	48184	0.125	0	0.125	0	0	0	0.125
AKZO NOBEL COATINGS INC	1431 PROGRESS AVE	HIGH POINT	North Carolina	27261	0.125	0	0.125	0	0	0	0.125

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
GOLD KEY PROCESSING INC	14910 MADISON RD	MIDDLEFIELD	OHIO	44062	0.125	0	0.125	0	0	0	0.125
ACTON TECHNOLOGIES INC	100 THOMPSON ST	PITTSTON	Pennsylvania	18640	0.125	0	0.125	0		0	0.125
GOLD EAGLE CO	4400 S KILDARE AVE	CHICAGO	Illinois	60632	0.125	0	0.125	0	0	0	0.125
AKCROS CHEMICALS INC	500 JERSEY AVE	NEW BRUNSWICK	New Jersey	08901	0	0.125	0.125	0		0	0.125
WM BARR & CO INC	2170 BUOY ST	MEMPHIS	TENNESSEE	38113	0	0.125	0.125	0	0	0	0.125
INVISTA SARL - ORANGE SITE	3055A FM 1006	ORANGE	TEXAS	77630	0.125	0	0.125	0	0	0	0.125
KALCOR COATINGS CO	37721 STEVENS BLVD	WILLOUGHBY	Ohio	44094	0.125	0	0.125	0	0	0	0.125
MAGNABLEND INC LIQUID PLANT	100 W STERRETT RD	WAXAHACHIE	Texas	75165	0.125	0	0.125	0	0	0	0.125
MAINTEX INC	13300 E NELSON AVE	CITY OF INDUSTRY	California	91746	0.125	0	0.125	0		0	0.125
NORTHERN COATINGS & CHEMICAL CO INC	705 6TH AVE	MENOMINEE	Michigan	49858	0.125	0	0.125	0	0	0	0.125
PPG INDUSTRIES INC	500 PITTSBURGH AVE	MCCARRAN	Nevada	89434	0	0.125	0.125	0	0	0	0.125
SICPA SECURINK CORP	8000 RESEARCH WAY	SPRINGFIELD	Virginia	22153	0.125	0	0.125	0	0	0	0.125
TNEMEC CO INC	123 W 23RD AVE	NORTH KANSAS CIT	Missouri	64116	0	0.125	0.125	0	0	0	0.125
TRANS CHEMICAL INC	419 E DE SOTO AVE	SAINT LOUIS	Missouri	63147	0.125	0	0.125	0	0	0	0.125
TYSON FRESH MEATS INC	HWY 50 W	HOLCOMB	Kansas	67851	0.125	0	0.125	0	0	0	0.125
DANLIN INDUSTRIES CORP	23737 HWY 47	THOMAS	Oklahoma	73669	0.125	0	0.125	0		0	0.125
HERCULES INC	1111 HERCULES RD	HOPEWELL	Virginia	23860	0.125	0	0.125	0		0	0.125
FLUID ROUTING SOLUTIONS	1921 N BROAD ST	LEXINGTON	Tennessee	38351	0	0	0	0		0.125	0.125
WATSON LABORATORIES INC UTAH	575, 577, 579 CHIPETA WAY	SALT LAKE CITY	Utah	84108	0.124456	0	0.124456	0		0	0.124456
TECHNICAL CHEMICAL CO	3327 PIPELINE RD	CLEBURNE	Texas	76033	0.123	0	0.123	0		0	0.123
CYTEC INDUSTRIES INC LANGLEY PLANT	403 CARLINE RD	LANGLEY	South Carolina	29834	0.1075	0.0155	0.123	0		0	0.123
AEP INDUSTRIES INC	1201 S PINE HILL RD	GRIFFIN	Georgia	30224	0.00275	0.12	0.12275	0		0	0.12275
ASHLAND INC - EVENDALE	2788 GLENDALE-MILFORD R	EVENDALE	Ohio	45241	0.0815	0.04	0.1215	0		0	0.1215
FRAZEE INDUSTRIES	6625 MIRAMAR RD	SAN DIEGO	California	92121	0	0.12	0.12	0	0	0	0.12
ARDEX LABORATORIES INC	2050 BYBERRY RD	PHILADELPHIA	Pennsylvania	19116	0.119	0	0.119	0		0	0.119
STOUSE INC	300 NEW CENTURY PKWY	NEW CENTURY	Kansas	66031	0.118	0	0.118	0		0	0.118
SUPERIOR OIL CO INC	400 W REGENT ST	INDIANAPOLIS	Indiana	46225	0.007465	0	0.007465	0	0	0.107	0.114465
PILOT CHEMICAL CO	11623 N HOUSTON ROSSLY	HOUSTON	Texas	77086	0.11	0.0005	0.1105	0	0	0.0005	0.111
ELECTRONICS FOR IMAGING INC	1260 JAMES L HART PKWY	YPSILANTI	Michigan	48197	0.11	0	0.11	0	0	0	0.11
VEYANCE TECHNOLOGIES INC	4021 N 56TH ST	LINCOLN	Nebraska	68504	7.5E-09	2.5E-09	0.00000001	0		0.10956147	0.10956148

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
TEXAS INSTRUMENTS INC	13500 N CENTRAL EXPRESS	DALLAS	Texas	75243	0	0.1095	0.1095	0	0	0	0.1095
DELTA LABORATORIES INC	3710 COUNTY RD 326 W	OCALA	Florida	34475	0.108	0.0005	0.1085	0	0	0	0.1085
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	347 CENTRAL AVE	BOWLING GREEN	Kentucky	42101	0.065	0.043	0.108	0	0	0	0.108
CAROLINA SOLVENTS INC	2274 1ST ST SE	HICKORY	North Carolina	28602	0.1015	0.0025	0.104	0.0025	0	0	0.1065
SKF SEALING SOLUTIONS	900 N STATE ST	ELGIN	Illinois	60123	0	0	0	0	0	0.1065	0.1065
CHAMPION TECHNOLOGIES INC	350 CENTAURUS RD	CORPUS CHRISTI	Texas	78405	0.05455	0.0016	0.05615	0	0	0.05	0.10615
SHERWIN-WILLIAMS CO	636 E 40TH ST	HOLLAND	Michigan	49423	0.1045	0.0015	0.106	0	0	0	0.106
ACCURATE DISPERSIONS	192 W 155TH ST	SOUTH HOLLAND	Illinois	60473	0.0825	0.021	0.1035	0		0	0.1035
CCI MANUFACTURING IL CORP	15550 CANAL BANK RD	LEMONT	Illinois	60439	0	0.1035	0.1035	0	0	0	0.1035
ASHLAND DISTRIBUTION CO	200 NE 181ST ST	MIAMI	Florida	33162	0.0755	0.0265	0.102	0		0	0.102
TWINCO ROMAX	3100 W MILL RD	MILWAUKEE	WISCONSIN	53209	0.0995	0.00116	0.10066	0		0	0.10066
ASHLAND DISTRIBUTION CO	20915 S WILMINGTON AVE	CARSON	California	90810	0.0905	0.0095	0.1	0		0	0.1
ARCH CHEMICALS INC	HWY 933	BRANDENBURG	Kentucky	40108	0.042	0.058	0.1	0	0	0	0.1
BUZZI UNICEM USA - GREENCASTLE PLANT	3301 S COUNTY RD 150 W	GREENCASTLE	Indiana	46135	0.0225	0.0775	0.1	0	0	0	0.1
BRENNTAG PACIFIC INC	10747 PATTERSON PL	SANTA FE SPRINGS	California	90670	0.0955	0.0045	0.1	0		0	0.1
HARCROS CHEMICALS INC	5200 SPEAKER RD	KANSAS CITY	Kansas	66106	0.0245	0.0725	0.097	0.0005		0.002	0.0995
CE BRADLEY LABORATORIES INC	55 BENNETT DR	BRATTLEBORO	Vermont	05301	0.0985	0	0.0985	0	0	0	0.0985
OLDCASTLE BUILDING ENVELOPE TENNESSEE FACILITY	920 POTTERTOWN RD	MIDWAY	Tennessee	37809	0	0.0945	0.0945	0	0	0	0.0945
ALLEGHENY PETROLEUM PRODUCTS CO	999 AIRBRAKE AVE	WILMERDING	Pennsylvania	15148	0.019	0.0755	0.0945	0	0	0	0.0945
SHERWIN-WILLIAMS CO	1025 HOWARD ST	GREENSBORO	North Carolina	27403	0.0065	0.0145	0.021	0		0.0725	0.0935
CPJ TECHNOLOGIES	200 TANNER DR	TAYLORS	South Carolina	29687	0.034	0.058	0.092	0		0	0.092
TNEMEC CO INC	2300 EDGEWATER AVE	BALTIMORE	Maryland	21222	0	0.09	0.09	0	0	0	0.09
STEELSCAPE INC RANCHO	11200 ARROW RT	RANCHO CUCAMON	California	91730	0.0031	0.086845	0.089945	0	0	0	0.089945
ATHEA LABORATORIES INC	7855 N FAULKNER RD	MILWAUKEE	Wisconsin	53224	0.08874	0.00006	0.0888	0		0	0.0888
COSMETIC LABORATORIES OF AMERICA	20245 SUNBURST ST	CHATSWORTH	California	91311	0	0.002	0.002	0		0.085	0.087
MRCG-KRAFTMAID P3	150 GRAND VALLEY AVE	ORWELL	Ohio	44076	0	0.069	0.069	0	0	0.0175	0.0865
ASHLAND DISTRIBUTION CO	2461 CROCKER CIR	FAIRFIELD	California	94533	0.0845	0.001	0.0855	0	0	0	0.0855
ASHLAND DISTRIBUTION CO	5420 SPEAKER RD	KANSAS CITY	Kansas	66106	0.0755	0.0085	0.084	0	0	0	0.084
AKZO NOBEL COATINGS INC	1000 INDUSTRIAL PARK DR	CLINTON	Mississippi	39056	0.082	0	0.082	0	0	0	0.082

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
ASHLAND DISTRIBUTION	400 MAIN ST	TEWKSBURY	Massachusetts	01876	0.075	0.0045	0.0795	0	0	0	0.0795
MATTHEWS INTERNATIONAL CORP	101 FAIRVIEW AVE	PITTSBURGH	Pennsylvania	15238	0.0565	0.021	0.0775	0	0	0	0.0775
ICI PAINTS PUERTO RICO INC	65 INFANTERIA KM 134	CAROLINA	Puerto Rico	00985	0.050405	0.02682	0.077225	0	0	0	0.077225
CORSICANA TECHNOLOGIES INC	2733 E HWY 31	CORSICANA	Texas	75109	0.01949	0.05759	0.07708	0	0	6.7015E-05	0.077147015
CHEMICAL SOLVENTS JENNINGS ROAD FACILITY	3751 JENNINGS RD	CLEVELAND	Ohio	44109	0.071	0.00296	0.07396	0	0	0.0025	0.07646
IMPERIAL PAINT CO INC	2526 NW YEON AVE	PORTLAND	OREGON	97210	0	0.076	0.076	0		0	0.076
AKZO NOBEL COATINGS INC	1660 CROSS ST SE	SALEM	Oregon	97302	0.045	0.02915	0.07415	0		0	0.07415
WHITFORD CORP	47 PARK AVE	ELVERSON	Pennsylvania	19520	0.069255	0.003645	0.0729	0	0	1.38778E-17	0.0729
CHAMPION TECHNOLOGIES INC	304 IDA RD	BROUSSARD	Louisiana	70518	0.071	0.001	0.072	0	0	0	0.072
PPG INDUSTRIES OHIO INC - DELAWARE	760 PITTSBURGH DR	DELAWARE	Ohio	43015	0.0695	0.00006	0.06956	0		0	0.06956
WARSAW CHEMICAL CO INC	390 ARGONNE RD	WARSAW	Indiana	46580	0.0465	0.0225	0.069	0		0	0.069
LUBRIZOL	9550 W 55TH ST	MC COOK	Illinois	60525	0	0.067	0.067	0	0	0	0.067
CARDINAL INDUSTRIAL FINISHES	1329 POTRERO AVE	SOUTH EL MONTE	California	91733	0.0475	0.0195	0.067	0		0	0.067
ADCO CLEANING PRODUCTS LLC	900 W MAIN ST	SEDALIA	Missouri	65301	0.022	0.0445	0.0665	0	0	0	0.0665
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	901 W UNION ST	MONTEBELLO	California	90640	0.0635	0.002	0.0655	0	0	0	0.0655
MRCG-KRAFTMAID P1	16052 INDUSTRIAL PKWY	MIDDLEFIELD	Ohio	44062	0	0.0555	0.0555	0	0	0.01	0.0655
KEY POLYMER	17 SHEPARD ST LAWRENCE	LAWRENCE	Massachusetts	01843	0	0.01365	0.01365	0		0.0507	0.06435
VEOLIA ES TECHNICAL SOLUTIONS LLC	125 FACTORY LN	MIDDLESEX	New Jersey	08846	0.045	0.0145	0.0595	0		0.001	0.0605
WARREN STAMPING PLANT (PART)	22800 MOUND RD	WARREN	Michigan	48091	0.06	0	0.06	0	0	0	0.06
KARCHER NORTH AMERICA- PROCHEM	325 S PRICE RD	CHANDLER	Arizona	85224	0.0595	0	0.0595	0		0	0.0595
ABC COMPOUNDING CO OF TEXAS INC	1102 AVE J E	GRAND PRAIRIE	Texas	75050	0.0025	0.0565	0.059	0	0	0	0.059
AMPHENOL APC INC	91 NORTHEASTERN BLVD	NASHUA	New Hampshire	03062	0.0025	0.0549235	0.0574235	0		0	0.0574235
MINUTEMAN INTERNATIONAL MULTI-CLEAN DIV	600 CARDIGAN RD	SHOREVIEW	Minnesota	55126	0.0545	0.0025	0.057	0		0	0.057
ECOLAB INC	3001 CHANNAHON RD	JOLIET	Illinois	60436	0.044	0.013	0.057	0		0	0.057
CHEVRON PRODUCTS CO PASCAGOULA REFINERY	250 INDUSTRIAL RD	PASCAGOULA	MISSISSIPPI	39581	0.055	0	0.055	0	0	0	0.055
UNIVAR USA INC	2600 S GARFIELD AVE	COMMERCE	California	90040	0.0505	0.004	0.0545	0	0	0	0.0545
CLEVELAND STEEL CONTAINER - KILGORE	5005 ELDER LAKE RD	KILGORE	TEXAS	75662	0.0025	0.052	0.0545	0	0	0	0.0545
HARLEY-DAVIDSON MOTOR CO OPERATIONS INC	1425 EDEN RD	YORK	Pennsylvania	17402	0.02725	0.0271	0.05435	0		0	0.05435
3M CO - NEVADA	2120 E AUSTIN BLVD	NEVADA	Missouri	64772	0.004	0.05	0.054	0		0	0.054

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
UNIVAR USA INC - TOLEDO BRANCH	30450 TRACY RD	WALBRIDGE	Ohio	43465	0.017	0.0365	0.0535	0		0	0.0535
CLOROX PRODUCTS MANUFACTURING CO	2600 HUNTINGTON DR	FAIRFIELD	California	94533	0.053	0.0005	0.0535	0		0	0.0535
ROCKLINE INDUSTRIES	1113 MARYLAND AVE	SHEBOYGAN	Wisconsin	53081	0.0535	0	0.0535	0		0	0.0535
FRANKLIN INTERNATIONAL	2020 BRUCK ST	COLUMBUS	Ohio	43207	0.0055	0.048	0.0535	0		0	0.0535
ECOLAB INC	942 BAKER RD	MARTINSBURG	West Virginia	25405	0.0385	0.0145	0.053	0		0	0.053
ECOLAB INC	261 HWY 155 S	MC DONOUGH	Georgia	30253	0.0155	0.037	0.0525	0		0	0.0525
NEWMAN TECHNOLOGY INC	100 CAIRNS RD	MANSFIELD	OHIO	44903	0	0.0025	0.0025	0		0.049	0.0515
HANNA STEEL CORP	220 HANNA DR	PEKIN	Illinois	61554	0.0025	0.04811	0.05061	0	0	0	0.05061
BENJAMIN MOORE & CO PELL CITY	109 BAMBERG DR	PELL CITY	Alabama	35125	0.04945	0.00055	0.05	0	0	0	0.05
DYSTAR LP	209 WATLINGTON INDUSTR	REIDSVILLE	North Carolina	27320	0.035	0.015	0.05	0		0	0.05
CONOCOPHILLIPS OKLAHOMA CITY PRODUCTS TERMINAL	4600 NE 10TH ST	OKLAHOMA CITY	Oklahoma	73117	0.0025	0.0475	0.05	0		0	0.05
CHAMPION TECHNOLOGIES INC	3130 FM 521	FRESNO	Texas	77545	0.0495	0.0001	0.0496	0	0	0	0.0496
VALERO REFINING CO - TENNESSEE LLC	2385 RIVERPORT RD	MEMPHIS	TENNESSEE	38109	0.0495	0	0.0495	0		0	0.0495
AIR PRODUCTS & CHEMICALS INC	412 N MAIN ST	CALVERT CITY	Kentucky	42029	0	0.049	0.049	0	0	0	0.049
BARTON SOLVENTS INC BETTENDORF	204 36TH ST	BETTENDORF	Iowa	52722	0.0115	0.0375	0.049	0		0	0.049
UNIVAR USA INC HAMILTON BRANCH	12 STANDEN DR	HAMILTON	Ohio	45015	0.013	0.036	0.049	0		0	0.049
EXCEL-POLYMERS LLC	HWY 353 S PO BOX 377	JONESBOROUGH	Tennessee	37659	0	0.0485	0.0485	0	0	0	0.0485
GRAPHIC CONTROLS LLC	400 EXCHANGE ST	BUFFALO	New York	14204	0.048	0	0.048	0		0	0.048
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	546 W ABBOTT ST	INDIANAPOLIS	Indiana	46225	0	0.0465	0.0465	0	0	0	0.0465
LUBRIZOL CORP	29400 LAKELAND BLVD	WICKLIFFE	Ohio	44092	0.0455	0	0.0455	0	0	0	0.0455
RECKITT BENCKISER	799 RT 206 & HILLSBOROUG	HILLSBOROUGH	New Jersey	08844	0.0445	0.001	0.0455	0		0	0.0455
BRENNTAG SOUTHEAST INC	2000 E PETTIGREW ST	DURHAM	North Carolina	27703	0.028	0.016	0.044	0	0	0	0.044
WATSON STANDARD CO (NEVILLE ISLAND PLANT)	2895 GRAND AVE	NEVILLE ISLAND	Pennsylvania	15225	0.038	0.006	0.044	0	0	0	0.044
UNIVAR USA INC DALLAS DAN MORTON FACILITY	3636 DAN MORTON DR	DALLAS	Texas	75236	0.0165	0.027	0.0435	0	0	0	0.0435
HARCROS CHEMICALS INC	4606 NEW W DR	PASADENA	Texas	77507	0.015	0.0255	0.0405	0	0.0025	0	0.043
CUSTOM SYNTHESIS LLC	1704 DENVER RD	ANDERSON	South Carolina	29625	0.0025	0.04	0.0425	0	0	0	0.0425
ASHLAND DISTRIBUTION CO	5125 W HANNA AVE	TAMPA	Florida	33634	0.0015	0.0405	0.042	0	0	0	0.042
BARTON SOLVENTS INC KANSAS CITY	901 S 66TH TERRACE	KANSAS CITY	Kansas	66111	0.009	0.0325	0.0415	0	0	0	0.0415
SHERWIN-WILLIAMS CO	630 E 13TH	ANDOVER	Kansas	67002	0.0315	0.0095	0.041	0	0	0	0.041

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
BRENNTAG SOUTHWEST INC SAND SPRINGS	206 E MORROW RD	SAND SPRINGS	Oklahoma	74063	0.02	0.02	0.04	0	0	0	0.04
RECTICEL INTERIORS NORTH AMERICA LLC	1420 INDUSTRIAL PARK DR	TUSCALOOSA	Alabama	35401	0.0005	0.0395	0.04	0	0	0	0.04
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	2000 WESTHALL ST	PITTSBURGH	Pennsylvania	15233	0.032	0.0075	0.0395	0	0	0	0.0395
AIR PRODUCTS PERFORMANCE MANUFACTURING INC	337 VINCENT DR	MILTON	Wisconsin	53563	0.0025	0.037	0.0395	0		0	0.0395
BIOLAB INC	1735 DOGWOOD DR	CONYERS	Georgia	30012	0.03915	0	0.03915	0	0	0	0.03915
HUNTSMAN ADVANCED MATERIALS AMERICAS INC	555 HUNTSMAN RD	MC INTOSH	Alabama	36553	0.0125	0.0263	0.0388	0		0	0.0388
BASF CORP	100 INDUSTRIAL BLVD	SEAFORD	Delaware	19973	0.0025	0	0.0025	0		0.036	0.0385
CLEARWATER INTERNATIONAL LLC	100 INDUSTRIAL DR (BLDG	LEETSDALE	Pennsylvania	15056	0	0	0	0		0.038	0.038
RICHARDSAPEX INC	4202-24 MAIN ST	PHILADELPHIA	Pennsylvania	19127	0.02673425	0	0.02673425	0		0.0103555	0.03708975
KEMIRA WATER SOLUTIONS INC	1 CYANAMID RD	MOBILE	Alabama	36614	0.013	0.0235	0.0365	0		0	0.0365
CONOCOPHILLIPS CO EAST ST LOUIS TERMINAL	3300 MISSISSIPPI AVE	CAHOKIA	Illinois	62206	0	0.0355	0.0355	0	0	0	0.0355
CONTINENTAL CEMENT CO LLC	10107 HWY 79	HANNIBAL	Missouri	63401	0.0351	0.000025	0.035125	0	0	0	0.035125
SI GROUP INC	1000 MAIN ST	ROTTERDAM JUNCT	New York	12150	0	0.0245	0.0245	0.0095	0	0	0.034
BRENNTAG NORTHEAST INC	81 W HULLER LN	READING	Pennsylvania	19605	0.01975	0.014	0.03375	0	0	0	0.03375
UNIVAR USA INC BERKELEY	8925 SEEGER INDUSTRIAL I	BERKELEY	Missouri	63134	0.0295	0.0035	0.033	0	0	0	0.033
VEOLIA ES TECHNICAL SOLUTIONS LLC	7 MOBILE AVE	SAUGET	ILLINOIS	62201	0.0015	0.0015	0.003	0	0	0.03	0.033
TRANSTAR AUTOBODY TECHNOLOGIES	2040 HEISERMAN DR	BRIGHTON	Michigan	48114	0.016435	0.01611	0.032545	0	0	0	0.032545
VALSPAR REFINISH	210 CROSBY ST	PICAYUNE	Mississippi	39466	0	0.0315	0.0315	0	0	0	0.0315
DUPONT PARLIN PLANT	CHEESEQUAKE RD	PARLIN	New Jersey	08859	0.004	0.027	0.031	0	0	0	0.031
ASHLAND DISTRIBUTION	2011 TURNER ST	LANSING	Michigan	48906	0.026	0.005	0.031	0		0	0.031
AMERICAN COATINGS INC	10625 MAHAFFEY RD	TOMBALL	Texas	77375	0.0085	0.022	0.0305	0	0	0	0.0305
COOK COMPOSITES & POLYMERS C O	13511 MAIN ST	LEMONT	Illinois	60439	0.0075	0.0225	0.03	0	0	0	0.03
BERNER CHEESE CORP	2034 E FACTORY RD	DAKOTA	Illinois	61018	0	0	0	0		0.03	0.03
GEORGIA-PACIFIC CHEMICALS LLC	1429 E LUFKIN AVE	LUFKIN	Texas	75901	0.0285	0.001	0.0295	0		0	0.0295
ECOLAB	18383 E RAILROAD ST	CITY OF INDUSTRY	California	91748	0.015	0.0145	0.0295	0		0	0.0295
VERSO PAPER BUCKSPORT MILL	RIVER RD	BUCKSPORT	MAINE	4416	0.0003	0	0.0003	0.018		0.0112	0.0295
BARTON SOLVENTS INC DES MOINES	1970 NE BROADWAY	DES MOINES	Iowa	50313	0.004	0.025	0.029	0	0	0	0.029
KWAL-HOWELLS INC (DBA KWAL PAINT INC)	2430 ALBERT BROADFOOT	BONHAM	Texas	75418	0	0.029	0.029	0	0	0	0.029
SHERWIN-WILLIAMS CO	113 STAGE COACH TRAIL	GREENSBORO	North Carolina	27409	0.0045	0.024	0.0285	0	0	0	0.0285

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
BARTON SOLVENTS INC WEST BEND	800 RAIL WAY	WEST BEND	Wisconsin	53095	0.0015	0.0265	0.028	0	0	0	0.028
ASHLAND DISTRIBUTION CO	8901 OLD GALVESTON RD	HOUSTON	Texas	77034	0.0055	0.022	0.0275	0		0	0.0275
VEOLIA ES TECHNICAL SOLUTIONS LLC PORT ARTHUR FACILITY	HWY 73, 35 MILES W OF TA	PORT ARTHUR	Texas	77640	0.026735	0.00006	0.026795	0	0	3.46945E-18	0.026795
DIC IMAGING PRODUCTS USA LLC	7335 S 10TH ST	OAK CREEK	Wisconsin	53154	0.0025	0.0235	0.026	0	0	0	0.026
NORTHERN LABS INC WEST DRIVE	5800 W DR	MANITOWOC	Wisconsin	54220	0.025225	0	0.025225	0		0	0.025225
SUN CHEMICAL CORP	135 W LAKE ST	NORTHLAKE	ILLINOIS	60164	0.0035	0.021	0.0245	0	0	0	0.0245
BARTON SOLVENTS INC COUNCIL BLUFFS	2135 9TH AVE	COUNCIL BLUFFS	Iowa	51502	0.0015	0.0215	0.023	0		0	0.023
VALERO THREE RIVERS REFINERY	301 LEROY ST	THREE RIVERS	Texas	78071	0.023	0	0.023	0	0	0	0.023
BARTON SOLVENTS INC WICHITA	201 S CEDAR	VALLEY CENTER	Kansas	67147	0.01	0.013	0.023	0	0	0	0.023
DAUBERT CHEMICAL CO	4700 S CENTRAL AVE	CHICAGO	Illinois	60638	0.009615	0.013335	0.02295	0	0	0	0.02295
ARLON INC ADHESIVES & FILMS DIV	2811 S HARBOR BLVD	SANTA ANA	California	92704	0	0.0225	0.0225	0	0	0	0.0225
KBP COIL COATERS INC	3600 E 44TH AVE	DENVER	Colorado	80216	0	0.0225	0.0225	0	0	0	0.0225
GAGE PRODUCTS CO	625 WANDA AVE	FERNDALE	Michigan	48220	0	0.0215	0.0215	0	0	0	0.0215
PROCTER & GAMBLE HAIR CARE LLC	2200 LOWER MUSCATINE R	IOWA CITY	Iowa	52240	0.0065	0.01	0.0165	0		0.005	0.0215
SHERWIN-WILLIAMS CO	11700 S COTTAGE GROVE	CHICAGO	Illinois	60628	0	0	0	0	0	0.0215	0.0215
BASF CORP	1 JAMES ST	BELVIDERE	New Jersey	07823	0	0.02	0.02	0	0	0.001	0.021
HERITAGE-WTI INC	1250 ST GEORGE ST	EAST LIVERPOOL	Ohio	43920	0.005	0.000065	0.005065	0		0.0155	0.020565
EXCEL POLYMERS LLC	14330 KINSMAN RD	BURTON	OHIO	44021	0	0.02	0.02	0	0	0	0.02
3M CO - SPRINGFIELD	3211 E CHESTNUT EXPY	SPRINGFIELD	Missouri	65802	0	0.02	0.02	0	0	0	0.02
AFTON CHEMICAL CORP	501 MONSANTO AVE	SAUGET	ILLINOIS	62201	0.005	0.015	0.02	0		0	0.02
PRIDE SOLVENTS & CHEMICAL CO OF NEW JERSEY	211 RANDOLPH AVE	AVENEL	New Jersey	07001	0.005	0.015	0.02	0	0	0	0.02
UNIVAR USA INC - TOLEDO SOUTH BRANCH	4051 S AVE	TOLEDO	Ohio	43615	0.009	0.01	0.019	0		0	0.019
ECOLAB INC	2305 SHERWIN ST	GARLAND	Texas	75041	0.0085	0.01	0.0185	0		0	0.0185
STEEL DYNAMICS INC	4500 COUNTY RD 59	BUTLER	Indiana	46721	0	0.0185	0.0185	0	0	0	0.0185
UNIVAR USA INC JACKSONVILLE FA CILITY	155 ELLIS RD S	JACKSONVILLE	Florida	32254	0.0145	0.0035	0.018	0	0	0	0.018
ZEP COMMERCIAL	350 JOE FRANK HARRIS PK	EMERSON	Georgia	30137	0	0.018	0.018	0	0	0	0.018
TAKASAGO INTERNATIONAL CORP (USA)	267 UNION ST	NORTHVALE	New Jersey	07647	0.017325	0.000295	0.01762	0		0	0.01762
SHERWIN-WILLIAMS CO	6795 S MAIN ST	MORROW	Georgia	30260	0.005	0.0125	0.0175	0	0	0	0.0175
DAVIES IMPERIAL COATINGS INC	1275 STATE ST	HAMMOND	Indiana	46320	0.0175	0	0.0175	0		0	0.0175
SHERWIN-WILLIAMS CO	2121 NEW WORLD DR	COLUMBUS	Ohio	43207	0.009	0.0085	0.0175	0	0	0	0.0175

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
UNIVAR USA INC	21600 DRAKE RD	STRONGSVILLE	Ohio	44136	0.0085	0.009	0.0175	0		0	0.0175
HENKEL CORP	421 LONDON RD	DELAWARE	Ohio	43015	0	0.0165	0.0165	0		0	0.0165
RUST-OLEUM CORP IN MD	16410 INDUSTRIAL LN	WILLIAMSPORT	MARYLAND	21795	0.0085	0.008	0.0165	0	0	0	0.0165
AVERY DENNISON PFD	650 W 67TH AVE	SCHERERVILLE	Indiana	46375	0.015	0.001	0.016	0	0	0	0.016
HOLLY OAK CHEMICAL INC	101 CASE ST	FOUNTAIN INN	South Carolina	29644	0.0153	0	0.0153	0		0	0.0153
ASHLAND DISTRIBUTION CO	1842 ENTERPRISE PKWY	TWINSBURG	Ohio	44087	0.002	0.013	0.015	0	0	0	0.015
PRIDE SOLVENT & CHEMICAL CO OF NY INC	6 LONG ISLAND AVE	HOLTSVILLE	New York	11742	0.0035	0.011	0.0145	0	0	0	0.0145
ETHOX CHEMICALS LLC	1801 PERIMETER RD	GREENVILLE	South Carolina	29605	0.0025	0.012	0.0145	0		0	0.0145
UNIVAR USA INC - INDIANAPOLIS	7425 E 30TH ST	INDIANAPOLIS	Indiana	46219	0.0035	0.011	0.0145	0		0	0.0145
SIMONIZ USA INC	201 BOSTON TURNPIKE	BOLTON	Connecticut	06043	0.0135	0.001	0.0145	0		0	0.0145
MEADWESTVACO SOUTH CAROLINA LLC	400 CROSBY RD	DERIDDER	Louisiana	70634	0	0.0145	0.0145	0	0	0	0.0145
COGNIS CORP MAULDIN PLANT	1520 OLD STAGE RD	MAULDIN	South Carolina	29662	0.006	0.008	0.014	0		0	0.014
INTERSTATE CHEMICAL CO INC	2797 FREEDLAND RD	HERMITAGE	PENNSYLVANI	16148	0.003	0.011	0.014	0		0	0.014
EXCEL POLYMERS LLC	150 S CONNELL AVE	DYERSBURG	Tennessee	38024	0	0.0135	0.0135	0	0	0	0.0135
PRC-DESOTO INTERNATIONAL INC	11601 UNITED ST	MOJAVE	California	93501	0.006	0.0075	0.0135	0	0	0	0.0135
CARBOLINE CO	900 OPELOUSAS ST	LAKE CHARLES	Louisiana	70601	0	0.0135	0.0135	0	0	0	0.0135
JOHNSONDIVERSEY INC	8311 16TH ST	STURTEVANT	Wisconsin	53177	0.001385	0.00943	0.010815	0		0.0025	0.013315
UNIVAR USA INC TAMPA FACILITY	6049 OLD 41A HWY	TAMPA	Florida	33619	0.005	0.008	0.013	0		0	0.013
PLASTI-KOTE INC	1000 LAKE RD	MEDINA	OHIO	44258	0	0.0125	0.0125	0	0	0	0.0125
GOODWIN CO	700 PROGRESS CENTER AV	LAWRENCEVILLE	Georgia	30043	0.012	0.0005	0.0125	0		0	0.0125
VARN INTERNATIONAL	1333 N KIRK RD	BATAVIA	Illinois	60510	0.0075	0.0025	0.01	0.0025	0	0	0.0125
TRUE VALUE MANUFACTURING	201 JANDUS RD	CARY	Illinois	60013	0.0025	0.00963	0.01213	0	0	0	0.01213
UNIVAR USA INC - SAN JOSE	2256 JUNCTION AVE	SAN JOSE	California	95131	0.002	0.0095	0.0115	0	0	0	0.0115
EVONIK DEGUSSA CORP	4201 DEGUSSA RD	THEODORE	Alabama	36582	0.011	0.0005	0.0115	0	0	0	0.0115
BERRIDGE MANUFACTURING CO	6515 FRATT RD	SAN ANTONIO	Texas	78218	0	0.01	0.01	0	0	0	0.01
CLEAN HARBORS ENVIRONMENTAL SERVICES INC	2247 S HWY 71	KIMBALL	Nebraska	69145	0.0065	0.0035	0.01	0	0	0	0.01
BUCKLEY OIL CO	1809 ROCK ISLAND ST	DALLAS	Texas	75207	0.0075	0.0025	0.01	0	0	0	0.01
CHEMOL CO INC	2300 RANDOLPH AVE	GREENSBORO	North Carolina	27406	0	0.009535	0.009535	0		0	0.009535
HYDRITE CHEMICAL CO	2545 BOND ST	UNIVERSITY PARK	Illinois	60466	0	0.0095	0.0095	0	0	0	0.0095
HENKEL CORP	923 MAULDIN RD	CALHOUN	Georgia	30701	0	0.0095	0.0095	0		0	0.0095

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Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
SHERWIN-WILLIAMS CO	2325 HOLLINS FERRY RD	BALTIMORE	Maryland	21230	0.004	0.0055	0.0095	0		0	0.0095
SHERWIN-WILLIAMS CO	26300 FARGO AVE	BEDFORD HEIGHTS	Ohio	44146	0.0005	0.0015	0.002	0	0	0.0075	0.0095
DSM DESOTECH INC	1101 HWY 27 S	STANLEY	North Carolina	28164	0	0.0093	0.0093	0	0	0	0.0093
MULTI-COLOR CORP	2281 S US 31	SCOTTSBURG	Indiana	47170	0	0.008625	0.008625	0		0	0.008625
MARATHON PETROLEUM CO LLC	502 10TH ST S	TEXAS CITY	Texas	77590	0	0.0085	0.0085	0	0	0	0.0085
FERRO CORP WALTON HILLS OPERATIONS	7050 KRICK RD	WALTON HILLS	OHIO	44146	0.0035	0.0005	0.004	0		0.0045	0.0085
CLOROX PRODUCTS MANUFACTURING CO	17 LAKE MIRROR RD	FOREST PARK	Georgia	30297	0.003985	0.003985	0.00797	0		0	0.00797
MALLINCKRODT BAKER INC	600 N BROAD ST	PHILLIPSBURG	New Jersey	08865	0.0075	0	0.0075	0	0	0	0.0075
US DOD USAF JOINT BASE ELMENDORF-RICHARDSON	6326 ARCTIC WARRIOR DR	ELMENDORF AFB	ALASKA	99506	0.005	0.0025	0.0075	0	0	0	0.0075
RUSTOLEUM CORP	7850 OHIO RIVER RD	LESAGE	West Virginia	25537	0.0025	0.005	0.0075	0	0	0	0.0075
INTERSTATE CHEMICAL CO INC	23247 W EAMES ST	CHANNAHON	Illinois	60410	0.002	0.0055	0.0075	0		0	0.0075
DYNALOY LLC	6445 OLIVIA LN	INDIANAPOLIS	Indiana	46226	0.0015	0.006	0.0075	0		0	0.0075
BASF CORP	1609 BIDDLE AVE	WYANDOTTE	Michigan	48192	0.0025	0.0025	0.005	0.0025		0	0.0075
NATIONAL INDUSTRIAL COATINGS INC DBA NICOAT INC	1600 GLENLAKE AVE	ITASCA	Illinois	60143	0.0005	0	0.0005	0	0	0.007	0.0075
BRULIN CORP	2920 DR ANDREW J BROWN	INDIANAPOLIS	Indiana	46205	0.0030875	0.00417	0.0072575	0		0	0.0072575
FORD MOTOR CO DEARBORN DIVERSIFIED MANUFACTURING	3001 MILLER RD	DEARBORN	Michigan	48121	0.007	0	0.007	0		0	0.007
MARATHON PETROLEUM CO LLC - SPEEDWAY IN TERMINAL	1304 OLIN AVE	INDIANAPOLIS	Indiana	46222	0.007	0	0.007	0		0	0.007
HONEYWELL-PRESTONE PRODUCTS CORP	250 HALLS MILL RD	FREEHOLD	New Jersey	07728	0.0035	0.0035	0.007	0	0	0	0.007
LANCO MANUFACTURING CORP	URBAPONTE #5	SAN LORENZO	Puerto Rico	00754	0.0068	0.00004	0.00684	0		0	0.00684
NEW DAWN MANUFACTURING CO	16001 TRADE ZONE AVE	UPPER MARLBORO	Maryland	20774	0.006732805	0	0.006732805	0		0	0.006732805
UNIVAR USA INC NORCROSS FACILI TY	2145 SKYLAND CT	NORCROSS	Georgia	30071	0.003	0.0035	0.0065	0		0	0.0065
SHERWIN-WILLIAMS CO	12401 INDUSTRIAL BLVD	VICTORVILLE	California	92392	0.003	0.0035	0.0065	0	0	0	0.0065
VERSO PAPER HOLDINGS LLC	ANDROSCOGGIN MILL RILE	JAY	Maine	04239	0.0025	0	0.0025	0.0035		0.0005	0.0065
PROCTER & GAMBLE MANUFACTURING CO	1900 KANSAS AVE	KANSAS CITY	Kansas	66105	0.005915	0.00018	0.006095	0		0	0.006095
BP PRODUCTS NORTH AMERICA WHITING	2815 INDIANAPOLIS BLVD	WHITING	Indiana	46394	0.006	0	0.006	0	0	0	0.006
CONOCOCPHILLIPS CO WICHITA TERMINAL	2400 E 37TH ST N	WICHITA	KANSAS	67219	0	0.0059	0.0059	0	0	0	0.0059
CALLAHAN CHEMICAL CO	200 INDUSTRIAL AVE	RIDGEFIELD PARK	New Jersey	07660	0.003	0.0025	0.0055	0		0	0.0055
GOODWIN CO	12361 MONARCH ST	GARDEN GROVE	California	92841	0.005	0.0005	0.0055	0		0	0.0055

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
HUBBARD-HALL INC	563 S LEONARD ST	WATERBURY	Connecticut	06708	0.0005	0.005	0.0055	0		0	0.0055
LUBRIZOL CORP PAINESVIL LE PLANT	155 FREEDOM RD	PAINESVILLE	Ohio	44077	0.0045	0.001	0.0055	0		0	0.0055
UNIVAR USA INC - BUNOLA BRANC H	328 BUNOLA RIVER RD	BUNOLA	Pennsylvania	15020	0.0025	0.003	0.0055	0	0	0	0.0055
ENTHONE INC	9809 INDUSTRIAL DR	BRIDGEVIEW	Illinois	60455	0.00053	0.004765	0.005295	0	0	0	0.005295
GE WATER & PROCESS TECHNOLOGIES	333 S LOMBARD RD	ADDISON	ILLINOIS	60101	0.0025	0.0025	0.005	0		0	0.005
SHIELD PACKAGING CO INC	50 OXFORD AVE	DUDLEY	Massachusetts	01571	0.0025	0.0025	0.005	0	0	0	0.005
SARTOMER CO INC	601 TIGHTSQUEEZE INDUS	CHATHAM	Virginia	24531	0.0025	0.0025	0.005	0		0	0.005
UNIVAR USA INC LAKEVILLE	21675 HAMBURG AVE	LAKEVILLE	Minnesota	55044	0.0025	0.0025	0.005	0	0	0	0.005
PVS NOLWOOD CHEMICALS INC	9000 HUBBELL AVE	DETROIT	MICHIGAN	48228	0.0025	0.0025	0.005	0	0	0	0.005
INTERNATIONAL PAINT LLC	640 N ROCKY RIVER DR	BEREA	OHIO	44017	0.0025	0.0025	0.005	0	0	0	0.005
INDEPENDENT INK INC	14705 S AVALON BLVD	GARDENA	California	90248	0.0025	0.0025	0.005	0	0	0	0.005
GE WATER & PROCESS TECHNOLOGIES	2118 REISER AVE SE	NEW PHILADELPHIA	OHIO	44663	0.0025	0.0025	0.005	0		0	0.005
SARTOMER CO INC	610 S BOLMAR ST	WEST CHESTER	Pennsylvania	19382	0.0025	0.0025	0.005	0		0	0.005
FORD MOTOR CO DEARBORN TOOL & DIE PLANT	3001 MILLER RD	DEARBORN	Michigan	48121	0.005	0	0.005	0		0	0.005
CR BRANDS INC	141 VENTURE BLVD	SPARTANBURG	South Carolina	29306	0.0025	0.0025	0.005	0		0	0.005
C P INC	196 S WATER	CONNERSVILLE	Indiana	47331	0.0025	0.0025	0.005	0	0	0	0.005
BRAIN POWER INC	4470 SW 74TH AVE	MIAMI	Florida	33155	0.0025	0.0025	0.005	0		0	0.005
ACTEGA RADCURE INC	5 MANSARD CT	WAYNE	New Jersey	07470	0.0025	0.0025	0.005	0	0	0	0.005
GE WATER & PROCESS TECHNOLOGIES - BAKERSFIELD	3050 PEGASUS RD	BAKERSFIELD	CALIFORNIA	93308	0.0025	0.0025	0.005	0		0	0.005
BOEING COMMERCIAL AIRPLANE GROUP PLANT 2 (PART)	7755 E MARGINAL WAY S	SEATTLE	Washington	98108	0.001	0	0.001	0	0.004	0	0.005
CENTRAL SOLUTIONS INC	401 FUNSTON RD	KANSAS CITY	Kansas	66115	0	0	0	0	0.005	0	0.005
BAKER PETROLITE BAYPORT FACILI TY	13200 BAYPARK RD	PASADENA	Texas	77507	0.0045	0.000135	0.004635	0	0	0	0.004635
EDCO PRODUCTS INC	8700 EXCELSIOR BLVD	HOPKINS	MINNESOTA	55343	0	0.0045	0.0045	0	0	0	0.0045
MEADWESTVACO SC LLC CHARLESTON CHEMICAL PLANT	5598 VIRGINIA AVE	NORTH CHARLESTO	South Carolina	29406	0.004475	0.000025	0.0045	0	0	0	0.0045
LAFARGE MIDWEST INC (INCLD SYSTECH ENVIRONMENTAL)	1400 S CEMENT RD	FREDONIA	KANSAS	66736	0.0045	0	0.0045	0	0	0	0.0045
COGNIS CORP -- CHARLOTT E PLANT	3300 WESTINGHOUSE BLVD	CHARLOTTE	North Carolina	28273	0.0045	0	0.0045	0		0	0.0045
OMNIUM	1280 IMPERIAL RD	HAMPTON	Iowa	50441	0.0015	0.0025	0.004	0	0	0	0.004
CUSTOM CHEMICAL FORMULATORS	8707 MILLERGROVE DR	SANTA FE SPRINGS	California	90670	0.004	0	0.004	0		0	0.004

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
CHEMTEX LABORATORIES INC	2725 ARMENTROUT DR	CONCORD	North Carolina	28025	0.004	0	0.004	0		0	0.004
ASHLAND DISTRIBUTION	3701 RIVER RD	TONAWANDA	New York	14150	0.001	0.003	0.004	0		0	0.004
NORLITE CORP	628 S SARATOGA ST	COHOES	New York	12047	0.003525	0.000255	0.00378	0	0	0	0.00378
PENRAY COMPANIES INC	1801 ESTES AVE	ELK GROVE VILLAGE	Illinois	60007	0.0005	0.0005	0.001	0.0025		0	0.0035
PENRAY COMPANIES INC	440 DENNISTON CT	WHEELING	Illinois	60090	0.0005	0.0005	0.001	0.0025		0	0.0035
BAKER PETROLITE	5135 BOYLAN ST	BAKERSFIELD	California	93308	0.003025	0.000435	0.00346	0	0	0	0.00346
UNIVAR USA INC DENVER	4300 HOLLY ST	DENVER	Colorado	80216	0.0025	0.0005	0.003	0	0	0	0.003
VOGEL PAINT & WAX CO INC	1020 ALBANY PL SE	ORANGE CITY	Iowa	51041	0.0025	0.0005	0.003	0	0	0	0.003
UNIVAR USA INC- CINCINNATI OH BRANCH	4600 DUES DR	CINCINNATI	Ohio	45246	0.0015	0.0015	0.003	0	0	0	0.003
SHERWIN-WILLIAMS CO	404 E MALLORY AVE	MEMPHIS	Tennessee	38109	0.001	0.002	0.003	0	0	0	0.003
3M COTTAGE GROVE CENTER	10746 INNOVATION RD	COTTAGE GROVE	Minnesota	55016	0	0.003	0.003	0	0	0	0.003
UNIVAR USA INC	3950 NW YEON AVE	PORTLAND	Oregon	97210	0.002	0.001	0.003	0	0	0	0.003
CONOCOPHILLIPS MT VERNON PRODUCTS TERMINAL	15138 HWY 96	MOUNT VERNON	Missouri	65712	0	0.00296	0.00296	0	0	0	0.00296
MACDERMID INC	1221 FARROW AVE	FERNDALE	Michigan	48220	0.00131	0.00144	0.00275	0		0	0.00275
CONOCOPHILLIPS PONCA CITY REFINERY	1000 S PINE ST	PONCA CITY	Oklahoma	74601	0.0025	0.00016	0.00266	0	0	0	0.00266
ASTRO CHEMICALS INC	126 MEMORIAL DR	SPRINGFIELD	Massachusetts	01104	0.002	0.0005	0.0025	0	0	0	0.0025
UNION SPECIALTIES INC	3 MALCOLM HOYT DR	NEWBURYPORT	Massachusetts	01950	0.0005	0.002	0.0025	0	0	0	0.0025
PPG ARCHITECURAL COATINGS HOUSTON	3530 LANG RD	HOUSTON	Texas	77092	0.0025	0	0.0025	0	0	0	0.0025
CONOCOPHILLIPS CO TREMLEY POINT TERMINAL	FOOT OF S WOOD AVE	LINDEN	New Jersey	07036	0.0025	0	0.0025	0	0	0	0.0025
ECP INC WOODRIDGE	11210 KATHERINE'S CROSS	WOODRIDGE	Illinois	60517	0.0025	0	0.0025	0		0	0.0025
MILPORT ENTERPRISES INC	2829 S 5TH CT	MILWAUKEE	Wisconsin	53207	0	0.0025	0.0025	0		0	0.0025
BRAINERD CHEMICAL CO INC	1200 N PEORIA	TULSA	OKLAHOMA	74147	0	0.0025	0.0025	0		0	0.0025
DOBER CHEMICAL CORP	14461 WAVERLY AVE	MIDLOTHIAN	Illinois	60445	0.0025	0	0.0025	0		0	0.0025
NOV TUBOSCOPE HOLMES ROAD	2811 HOLMES RD	HOUSTON	Texas	77051	0.0025	0	0.0025	0	0	0	0.0025
FINGER LAKES CHEMICAL INC	418-424 ST PAUL ST	ROCHESTER	New York	14605	0.0025	0	0.0025	0		0	0.0025
ATOTECH USA	1750 OVERVIEW DR	ROCK HILL	South Carolina	29730	0.0025	0	0.0025	0	0	0	0.0025
KEYSTONE CEMENT CO	RT 329	BATH	Pennsylvania	18014	0	0.0025	0.0025	0	0	0	0.0025
NIACET CORP	400 47TH ST	NIAGARA FALLS	New York	14304	0.0025	0	0.0025	0	0	0	0.0025
BIOLAB INC	101 S PARKER DR	ASHLEY	INDIANA	46705	0.0025	0	0.0025	0	0	0	0.0025
CR BRANDS INC	230 OLD CONVERSE RD	SPARTANBURG	South Carolina	29307	0.0025	0	0.0025	0		0	0.0025

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
WYNNEWOOD REFINING CO	906 S POWELL	WYNNEWOOD	Oklahoma	73098	0	0.0025	0.0025	0	0	0	0.0025
CHEMICAL SOLVENTS INC--DENISON FACILITY	1010 OLD DENNISON AVE	CLEVELAND	Ohio	44109	0.0025	0	0.0025	0	0	0	0.0025
BAKER PETROLITE CORP	16950 WALLISVILLE RD	HOUSTON	Texas	77049	0.0003495	0.002085	0.0024345	0	0	0	0.0024345
KING INDUSTRIES INC	SCIENCE RD	NORWALK	Connecticut	06852	0.00125	0.00115	0.0024	0		0	0.0024
CLARIANT CORP CLEAR LAKE PLANT	9502 BAYPORT BLVD - ETOX	PASADENA	Texas	77507	0.0023	0	0.0023	0		0	0.0023
HENTZEN COATINGS,INC	6937 W MILL RD	MILWAUKEE	Wisconsin	53218	0.000875	0.00131	0.002185	0	0	0	0.002185
DYNASOL INC	330 PINE ST	CANTON	Massachusetts	02021	0.00215	0	0.00215	0		0	0.00215
UNIVAR USA INC SANTA FE SPRINGS	13900 CARMENITA RD	SANTA FE SPRINGS	California	90670	0.001	0.001	0.002	0	0	0	0.002
DUPONT EKC TECHNOLOGY	2520 BARRINGTON CT	HAYWARD	California	94545	0.0005	0.0015	0.002	0		0	0.002
CALLAHAN CHEMICAL CO	18 INDUSTRIAL RD	WALPOLE	Massachusetts	02081	0.0015	0.0005	0.002	0	0	0	0.002
ASHLAND DISTRIBUTION CO	FREEPORT CENTER BUILDI	CLEARFIELD	Utah	84016	0.0005	0.0015	0.002	0	0	0	0.002
CRODA INC	315 CHERRY LN	NEW CASTLE	Delaware	19720	0.001405	0.0005	0.001905	0		0	0.001905
TARR ACQUISITION LLC	2429 N BORTHWICK AVE	PORTLAND	Oregon	97227	0.001825	0	0.001825	0	0	0	0.001825
BAKER PETROLITE-RAYNE FACILITY	135 INDUSTRIAL DR	RAYNE	Louisiana	70578	0.0005	0.001	0.0015	0		0	0.0015
VOLTAIX LLC	197 MEISTER AVE	BRANCHBURG	New Jersey	08876	0.0005	0.001	0.0015	0	0	0	0.0015
GIANT CEMENT CO	HWY 453 & I-26 (654 JUDGE	HARLEYVILLE	South Carolina	29448	0.001	0.0005	0.0015	0	0	0	0.0015
BUCKMAN LABORATORIES INC	1256 N MCLEAN BLVD	MEMPHIS	Tennessee	38108	0	0.0015	0.0015	0		0	0.0015
KELLY-MOORE PAINT CO INC	1015 COMMERCIAL ST	SAN CARLOS	California	94070	0	0.0015	0.0015	0	0	0	0.0015
HYDRITE CHEMICAL CO	7300 W BRADLEY RD	MILWAUKEE	Wisconsin	53223	0.0005	0.001	0.0015	0		0	0.0015
NALCO CO - ODESSA PLANT 114	12205 W COUNTY RD 125	ODESSA	Texas	79765	0	0	0	0	0	0.0015	0.0015
PPG ARCHITECTURAL COATINGS	6804 ENTERPRISE DR	LOUISVILLE	Kentucky	40214	0	0.0008	0.0008	0	0	0.0005	0.0013
FUJIFILM HUNT CHEMICALS USA INC	900 CARNEGIE ST	ROLLING MEADOWS	Illinois	60008	0.00105	0.0002	0.00125	0		0	0.00125
FIRST SOURCE WORLDWIDE LLC MILWAUKEE	11725 W FAIRVIEW AVE	MILWAUKEE	Wisconsin	53226	0.0011	0.00015	0.00125	0		0	0.00125
MANN DISTRIBUTION	3134 POST RD	WARWICK	Rhode Island	02886	0.00112	0	0.00112	0		0	0.00112
SHERWIN-WILLIAMS CO	14 INDUSTRIAL PARK	FLORA	Illinois	62839	0.0005	0.0005	0.001	0	0	0	0.001
MONSANTO CO	2500 WIGGINS RD	MUSCATINE	Iowa	52761	0	0.001	0.001	0	0	0	0.001
CLEAN HARBORS DEER PARK LLC	2027 INDEPENDENCE PKWY	LA PORTE	TEXAS	77571	0.001	0	0.001	0	0	0	0.001
BRENNTAG SOUTHEAST INC	11750 FRUEHAUF DR	CHARLOTTE	North Carolina	28273	0.0005	0.0005	0.001	0	0	0	0.001
BENJAMIN MOORE & CO - NEWARK	134 LISTER AVE	NEWARK	New Jersey	07105	0.001	0	0.001	0	0	0	0.001
LAFARGE NA (INCLUDING SYSTECH ENV CORP)	11435 COUNTY RD 176	PAULDING	OHIO	45879	0	0.001	0.001	0	0	0	0.001

Table B-2. 2010 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
OMNOVA SOLUTIONS INC	1455 J A COCHRAN BY-PAS	CHESTER	South Carolina	29706	0.00075	0.00002	0.00077	0		0	0.00077
NALCO CO	3901 TERRY ST	TEXARKANA	Texas	75501	0	0.0005	0.0005	0		0	0.0005
HARWICK STANDARD DISTRIBUTION CORP	60 S SEIBERLING ST	AKRON	Ohio	44305	0.0005	0	0.0005	0	0	0	0.0005
NALCO CO - EVANSVILLE PLANT 108	4900 E YELLOWSTONE HW	EVANSVILLE	WYOMING	82636	0	0	0	0	0	0.0005	0.0005
SURPASS CHEMICAL CO INC	1254 BROADWAY	ALBANY	New York	12204	0.000485	0	0.000485	0		0	0.000485
NALCO CO	812 RENAUD DR	SCOTT	Louisiana	70583	0.000011	0.0003275	0.0003385	0	0	0	0.0003385
PARKER HANNIFIN TECH SEAL DIV	2600 WILCO BLVD	WILSON	North Carolina	27893	0	0.00029	0.00029	0	0	0	0.00029
LAMBERTI SYNTHESIS USA INC	4001 N HAWTHORNE ST	CHATTANOOGA	Tennessee	37406	0.0002205	0	0.0002205	0	0	0	0.0002205
CHEMETALL US INC	1610 CLARA ST	JACKSON	Michigan	49203	0.0000441	0.0001213	0.0001654	0	0	0	0.0001654
IFF AUGUSTA LTD	3005 INTERNATIONAL BLVD	AUGUSTA	Georgia	30906	0	0.000085	0.000085	0	0	0	0.000085
RIKER PRODUCTS INC	4901 STICKNEY AVE	TOLEDO	Ohio	43612	0.000082	0	0.000082	0	0	0	0.000082
BAKER PETROLITE KILGORE BLEND PLANT	806 PALUXY ST	KILGORE	Texas	75662	0.0000212	0.0000595	0.0000807	0	0	0	0.0000807
EMERALD SERVICES INC	1825 E ALEXANDER AVE	TACOMA	Washington	98421	0	0.000005	0.000005	0	0	0.00005	0.000055
NALCO CO	125 NALCO WAY/RT 65	ELLWOOD CITY	Pennsylvania	16117	0.0000028	0.000009	0.0000118	0	0	0	0.0000118
AIR PRODUCTS PERFORMANCE MANUFACTURING INC	474 W 19TH ST	RESERVE	Louisiana	70084	0	0.000002	0.000002	0		0	0.000002

a. Releases to Surface Water reported as "On-Site Releases to Surface Water."
b. Releases to Soil is the sum of reported releases to onsite and offsite releases to land treatment and other land disposal.
c. Releases to other media include reported releases to onsite and offsite groundwater and landfills.
tpy: tons per year

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
EQ DETROIT INC	1923 FREDERICK	DETROIT	MI	48211	0	1.778	1.778	0		358.8295	360.6075
BALL METAL BEVERAGE CONTAINER CORP	8935 POCAHONTAS TRAIL	WILLIAMSBURG	VA	23185	28	145	173	0	0	0	173
BALL METAL BEVERAGE CONTAINER CORP	12340 TOWNSHIP RD 99 E	FINDLAY	OH	45840	25.5	135	160.5	0		0	160.5
BMW MANUFACTURING CO LLC	1400 HWY 101 S	GREER	SC	29651	2.4745	150.0455	152.52	0		0	152.52
REXAM BEVERAGE CAN CO RE: WINSTON SALEM PLANT	4000 OLD MILWAUKEE LN	WINSTON-SALEM	NC	27107	25.716	110.457	136.173	0	0	0.441	136.614
CROWN FOOD PACKAGING	2929 W BRIDGE ST	OWATONNA	MN	55060	31.8905	95.672	127.5625	0		0	127.5625
REXAM BEVERAGE CAN CO RE: FREMONT PLANT	2145 CEDAR	FREMONT	OH	43420	19.034	107.921	126.955	0	0	0	126.955
BALL METAL BEVERAGE CONTAINER CORP	1900 BARNES ST	REIDSVILLE	NC	27320	17	85	102	0	0	0	102
FLINT HILLS RESOURCES CORPUS CHRISTI LLC - WEST PLANT	2825 SUNTIDE RD	CORPUS CHRISTI	TX	78409	0.1435	0	0.1435	0	0	97.9	98.0435
CROWN CORK & SEAL CO (USA) INC CROWN CLOSURE DIV	3011 BIRCH DR	WEIRTON	WV	26062	34.526	57.7185	92.2445	0	0	0	92.2445
REXAM BEVERAGE CAN CO RE: BISHOPVILLE SC FACILITY	609 COUSAR ST	BISHOPVILLE	SC	29010	13.386	75.874	89.26	0	0	0.2515	89.5115
REXAM BEVERAGE CAN CO RE: KENT WA FACILITY	1220 N SECOND AVE	KENT	WA	98032	12.442	70.504	82.946	0	0	0	82.946
REXAM BEVERAGE CAN CO RE: OLIVE BRANCH FACILITY	10800 MARINA DR	OLIVE BRANCH	MS	38654	18.811	63.4835	82.2945	0	0	0.1425	82.437
BALL CONTAINER LLC - COLUMBUS CAN PLANT	350 MCCORMICK BLVD	COLUMBUS	OH	43213	12	70	82	0	0	0	82
REXAM BEVERAGE CAN CO RE: EVA STREET ST PAUL MN	139 EVA ST	SAINT PAUL	MN	55107	11.8215	66.994	78.8155	0	0	0	78.8155
REXAM BEVERAGE CAN CO RE: WHITEHOUSE PLANT	10444 WATERVILLE	WHITEHOUSE	OH	43571	24.8555	51.4725	76.328	0	0	0.301	76.629
CROWN BEVERAGE PACKAGING	GLEN & SHEPARD ST	LAWRENCE	MA	01843	17.5445	52.633	70.1775	0	0	0	70.1775
FORD MOTOR CO DEARBORN TRUCK PLANT	3001 MILLER RD	DEARBORN	MI	48121	1.15	65	66.15	0		0	66.15
PPG INDUSTRIES INC-OAK CREEK	10800 S 13TH ST	OAK CREEK	WI	53154	35.178	0.402	35.58	0	0	30.2865	65.8665
SILGAN CONTAINERS MANUFACTURING CORP	300 N FAIL RD	LA PORTE	IN	46350	12.191	53.2315	65.4225	0		0	65.4225
CROWN BEVERAGE PACKAGING	1035 E N ST	BRADLEY	IL	60915	16.211	48.633	64.844	0	0	0	64.844
CROWN BEVERAGE PACKAGING	1202 FONES RD	OLYMPIA	WA	98501	15.9915	47.975	63.9665	0	0	0	63.9665
FORD MOTOR COMPANY--KANSAS CITY ASSEMBLY PLANT	8121 E U.S. HWY 69	CLAYCOMO	MO	64119	1.55	55	56.55	0		0.0185	56.5685
CHRYSLER JEFFERSON NORTH ASSEMBLY PLANT	2101 CONNOR AVE	DETROIT	MI	48215	6	50	56	0		0.0225	56.0225
METAL CONTAINER CORPORTION - WINDSOR CAN PLANT	1201 METAL CONTAINER C	WINDSOR	CO	80550	14.5265	39.731	54.2575	0		0	54.2575
CROWN BEVERAGE PACKAGING	620 N 4TH ST	WORLAND	WY	82401	13.335	40.0055	53.3405	0	0	0	53.3405
REXAM BEVERAGE CAN CO RE: LONGVIEW FACILITY	1001 FISHER RD	LONGVIEW	TX	75604	4.823	47.662	52.485	0	0	0	52.485

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
WHIRLPOOL CORP MARION DIV	1300 MARION-AGOSTA RD	MARION	OH	43302	0.05	51.411	51.461	0		0	51.461
RR DONNELLEY	2347 KRATZER RD	HARRISONBURG	VA	22802	45.2035	3.061	48.2645	0		0	48.2645
HUNTSMAN PETROCHEMICAL LLC PORT NECHES FACILITY	6001 HWY 366	PORT NECHES	TX	77651	0.11	0	0.11	0	0	46.92	47.03
BALL CONTAINER LLC ROME CAN PLANT	110 BALL DR	ROME	GA	30161	31	13.5	44.5	0	0	0	44.5
FORD MOTOR CO KENTUCKY TRUCK PLANT	3001 CHAMBERLAIN LN	LOUISVILLE	KY	40241	3.25	41	44.25	0		0.13	44.38
METAL CONTAINER CORP - ARNOLD CAN PLANT	42 TENBROOK INDUSTRIAL	ARNOLD	MO	63010	16.3535	25.671	42.0245	0		0	42.0245
REXAM BEVERAGE CAN CO RE: PHOENIX FACILITY	211 N 51AVE	PHOENIX	AZ	85043	5.7315	36.1725	41.904	0	0	0	41.904
USS - CLAIRTON PLANT	400 STATE ST	CLAIRTON	PA	15025	41	0	41	0	0	0	41
METAL CONTAINER CORP - NEWBURGH CAN PLANT	130 BREUNIG RD	NEW WINDSOR	NY	12553	11.0015	29.428	40.4295	0		0	40.4295
HONDA OF AMERICA MANUFACTURING INC	24000 HONDA PKWY	MARYSVILLE	OH	43040	2.7	37.5	40.2	0		0.213	40.413
HONDA OF AMERICA MANUFACTURING INC	11000 STATE RT 347	EAST LIBERTY	OH	43319	2.3	36	38.3	0		0.1495	38.4495
GREIF PACKAGING LLC	7425 INDUSTRIAL RD	FLORENCE	KY	41042	3.4725	31.252	34.7245	0		2.166	36.8905
CHICAGO HEIGHTS STEEL	211 E MAIN ST	CHICAGO HEIGHTS	IL	60411	7.172	28.6875	35.8595	0	0	0	35.8595
S D WARREN CO	89 CUMBERLAND ST	WESTBROOK	ME	04098	0.00391	35.2055	35.20941	0.125	0	0	35.33441
BALL METAL BEVERAGE CONTAINER CORP	8500 W TOWER AVE	MILWAUKEE	WI	53224	27.5	7.5	35	0		0	35
ROCKY MOUNTAIN METAL CONTAINER	17755 W 32ND AVE	GOLDEN	CO	80401	26.5	7	33.5	0	0	1.4	34.9
CROWN FOOD PACKAGING	8801 CITATION RD	BALTIMORE	MD	21221	8.637	25.911	34.548	0		0	34.548
BATESVILLE MANUFACTURING INC	175 MONOGARD DR	MANCHESTER	TN	37355	1.709	32.4675	34.1765	0		0.0045	34.181
EDSAL MANUFACTURING CO INC	4400 S PACKER	CHICAGO	IL	60609	0	33.9425	33.9425	0		0	33.9425
REXAM BEVERAGE CAN CO RE : CHICAGO PLANT	1101 W 43RD ST	CHICAGO	IL	60609	6.522	26.6495	33.1715	0	0	0.0805	33.252
BALL METAL BEVERAGE CONTAINER CORP	501 N SIXTH ST	MONTICELLO	IN	47960	14.5	18.5	33	0	0	0	33
INGERSOLL-RAND CO STEELCRAFT DIV	9017 BLUE ASH RD	CINCINNATI	OH	45242	7.5	25	32.5	0	0	0	32.5
CROWN BEVERAGE PACKAGING	2501 N FRAZIER ST	CONROE	TX	77303	27.5695	4.4945	32.064	0	0	0	32.064
BALL METAL BEVERAGE CONTAINER CORP	4525 INDIANA ST	GOLDEN	CO	80403	20	11.5	31.5	0	0	0	31.5
CROWN BEVERAGE PACKAGING	12910 JESS PIRTLE BLVD	SUGAR LAND	TX	77478	27.381	4.107	31.488	0	0	0	31.488
METAL CONTAINER CORP - MIRA LOMA CAN PLANT	10980 INLAND AVE	MIRA LOMA	CA	91752	27.5195	3.656	31.1755	0		0	31.1755
NISSAN NA INC SMYRNA MANUFACTURING PLANT	983 NISSAN DR	SMYRNA	TN	37167	0.02302895	30.7183514	30.74138035	0	0	0	30.74138035
SUBARU OF INDIANA AUTOMOTIVE INC	5500 STATE RD 38E	LAFAYETTE	IN	47905	0.295	29.34	29.635	0		0	29.635
REXAM BEVERAGE CAN CO RE: CHATSWORTH FACILITY	20730 PRAIRIE ST	CHATSWORTH	CA	91311	6.4125	22.592	29.0045	0	0	0	29.0045
MERCEDES-BENZ US INTERNATIONAL INC	1 MERCEDES DR	VANCE	AL	35490	0.501	27.801	28.302	0	0	0	28.302

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NEW YORK WIRE	500 E MIDDLE ST	HANOVER	PA	17331	0	28.0405	28.0405	0	0	0	28.0405
ARKEMA COATING RESINS	340 RAILROAD ST	SAUKVILLE	WI	53080	0.6965	0.204	0.9005	0	0	27.0115	27.912
AMES TRUE TEMPER INC	1500 S CAMERON ST	HARRISBURG	PA	17104	1.381	26.2385	27.6195	0	0	0	27.6195
SENECA FOODS CORP	801 SAUK AVE	BARABOO	WI	53913	0	25.711	25.711	0	0	0.823	26.534
GM LLC POWERTRAIN FLINT ENGINE OPERATIONS	2100 BRISTOL RD	FLINT	MI	48552	0.6855	25.5	26.1855	0	0	0.255	26.4405
CROWN BEVERAGE PACKAGING	1501 ST JAMES ST	LA CROSSE	WI	54603	23.9785	1.7985	25.777	0	0	0	25.777
METAL CONTAINER CORP - JACKSONVILLE CAN PLANT	1100 N ELLIS RD	JACKSONVILLE	FL	32254	6.4585	19.1565	25.615	0		0	25.615
HONDA MANUFACTURING OF ALABAMA LLC	1800 HONDA DR	LINCOLN	AL	35096	0.4995	24.7705	25.27	0		0	25.27
GENERAL MOTORS LANSING DELTA TOWNSHIP	8175 MILLETT HWY	LANSING	MI	48917	0.55	24	24.55	0		0	24.55
THERMA-TRU CORP	601 RE JONES RD	BUTLER	IN	46721	0	24.3635	24.3635	0	0	0	24.3635
S B FOOT TANNING CO	805 BENCH ST	RED WING	MN	55066	0	24.362	24.362	0		0	24.362
CROWN BEVERAGE PACKAGING	380 CALLE FABRIL ST KM 1	CAROLINA	PR	00985	6.0485	18.1455	24.194	0	0	0	24.194
MEMC PASADENA INC	3000 N S ST	PASADENA	TX	77503	15.043	8.7685	23.8115	0	0	0.19505	24.00655
ALSTOM POWER INC CHATTANOOGA BOILERS	1119 RIVERFRONT PKWY	CHATTANOOGA	TN	37402	23.9355	0	23.9355	0	0	0	23.9355
CROWN BEVERAGE PACKAGING	100 EVANS ROW	CHERAW	SC	29520	21.161	2.715	23.876	0	0	0	23.876
BWAY CORP	3200 S KILBOURN AVE	CHICAGO	IL	60623	7.24545	15.749	22.99445	0		0	22.99445
CROWN BEVERAGE PACKAGING	195 CROWN RD	BATESVILLE	MS	38606	19.269	2.8905	22.1595	0	0	0	22.1595
MAVERICK TUBE LLC DBA TENARISCONROE	699 F.M. 3083	CONROE	TX	77301	0.95633545	5.98814565	6.9444811	0	0	14.96	21.9044811
CROWN BEVERAGE PACKAGING	400 N WALNUT ST	CRAWFORDSVILLE	IN	47933	15.725	5.872	21.597	0	0	0	21.597
WHIRLPOOL CORP FINDLAY DIV	4901 N MAIN ST	FINDLAY	OH	45840	2.1509	19.3581	21.509	0		0	21.509
BALL METAL BEVERAGE CONTAINER CORP	2400 HUNTINGTON DR	FAIRFIELD	CA	94533	9	12.5	21.5	0	0	0	21.5
SAF-HOLLAND USA INC	101 S ELM	WARRENTON	MO	63383	18.5495	2.93	21.4795	0	0	0	21.4795
JOHN DEERE DES MOINES WORKS	825 SW IRVINEDALE DR	ANKENY	IA	50023	0	21.1695	21.1695	0		0	21.1695
ALCOA INC - WARRICK OPERATIONS	HWYS 66 & 61	NEWBURGH	IN	47629	0	8.5	8.5	0.185	0	12.2	20.885
BOEING COMMERCIAL AIRPLANES - EVERETT	3003 W CASINO RD	EVERETT	WA	98204	3.45	17	20.45	0		0.0095	20.4595
AIR SYSTEM COMPONENTS LP	900 DARR PARK DR	PONCA CITY	OK	74601	0.2025	19.677	19.8795	0		0	19.8795
AGY AIKEN LLC	2556 WAGENER RD	AIKEN	SC	29801	12.247	2.269	14.516	0		5.2685	19.7845
PELLA CORP	102 MAIN ST	PELLA	IA	50219	0.125	19.3945	19.5195	0	0	0	19.5195
ITW SEXTON INC	3101 SEXTON RD	DECATUR	AL	35603	0.96278	18.29282	19.2556	0	0	0	19.2556
BALL METAL BEVERAGE CONTAINER CORP	11 ADAMS RD	SARATOGA SPRING	NY	12866	3.25	16	19.25	0	0	0	19.25

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MOBIL CHEMICAL CO	41501 WOLVERINE RD	SHAWNEE	OK	74804	0.375	18.7	19.075	0		0.0025	19.0775
GREIF PACKAGING LLC	4300 W 130TH ST	ALSIP	IL	60803	4.1295	14.601	18.7305	0	0	0	18.7305
MID-AMERICA STEEL DRUM CO IN C	8570 S CHICAGO RD	OAK CREEK	WI	53154	0	18.578	18.578	0		0	18.578
NASHVILLE WIRE PRODUCTS	1604 COUNTY HOSPITAL R	NASHVILLE	TN	37218	16.5	1.85	18.35	0		0	18.35
TOYOTA MOTOR MANUFACTURING INDIANA INC	4000 TULIP TREE DR	PRINCETON	IN	47670	12.595	5.374	17.969	0	0	0	17.969
UNION CARBIDE CORP SEADRIFT PLANT	7501 N HWY 185	SEADRIFT	TX	77983	14.188	3.478	17.666	0.0875	0	0.097	17.8505
BALL METAL BEVERAGE CONTAINER CORP	95 BALLARD RD	MIDDLETOWN	NY	10940	8	9.5	17.5	0	0	0	17.5
CARRY-ON TRAILER CORP	101 JOE HARVEY ST	LAVONIA	GA	30553	0	17.346	17.346	0	0	0	17.346
NORTH COAST CONTAINER CORP	8806 CRANE AVE	CLEVELAND	OH	44105	0	17.316	17.316	0	0	0	17.316
BALL METAL BEVERAGE CONTAINER CORP	1001 N FM 3083 E	CONROE	TX	77303	13	4.15	17.15	0	0	0	17.15
BALL METAL BEVERAGE CONTAINER CORP	4700 WHITEWAY DR	TAMPA	FL	33617	8	9	17	0	0	0	17
PENN COLOR INC	2755 BERGEY RD	HATFIELD	PA	19440	2.951	0.065805	3.016805	0	0	13.952	16.968805
MAVERICK TUBE LLC	4950 N COUNTY RD 967	BLYTHEVILLE	AR	72315	11.16161105	0	11.16161105	0	0	5.775	16.93661105
AIR SYSTEM COMPONENTS LP	3301 N MAIN ST	TARBORO	NC	27886	0.172	16.3515	16.5235	0		0.324	16.8475
CECO DOOR PRODUCTS	9159 TELECOM DR	MILAN	TN	38358	8.377	8.377	16.754	0	0	0	16.754
CNH AMERICA LLC	600 E PEORIA ST	GOODFIELD	IL	61742	1.6725	15.0505	16.723	0		0	16.723
BALL METAL BEVERAGE CONTAINER CORP	500 CRENSHAW BLVD	TORRANCE	CA	90503	16	0.65	16.65	0	0	0	16.65
KUKA TOLEDO PRODUCTION OPERATIONS	3770 STICKNEY AVE	TOLEDO	OH	43612	2.0510995	14.5	16.5510995	0	0	0.034	16.5850995
DEXTER CHASSIS GROUP PLANT 55	501 S MILLER DR	WHITE PIGEON	MI	49099	0	16.1035	16.1035	0	0	0.08	16.1835
THE KNAPHEIDE MANUFACTURING CO	1848 WESTPHALIA STRAS S	QUINCY	IL	62305	0.141	15.94	16.081	0		0	16.081
THOMAS BUILT BUSES INC	715 W FAIRFIELD RD	HIGH POINT	NC	27263	0	15.9935	15.9935	0	0	0	15.9935
MPM SILICONES LLC	3500 S STATE RT 2	FRIENDLY	WV	26146	2.1935	0.0035	2.197	10.845	0	2.922	15.964
NOVOLYTE PERFORMANCE MATERIALS	111 W IRENE RD	ZACHARY	LA	70791	4.75	0.605	5.355	10.6	0	0	15.955
AVX CORP MYRTLE BEACH	801 17TH AVE S	MYRTLE BEACH	SC	29577	1.6645	1.028	2.6925	0	0	12.8455	15.538
SILGAN WHITE CAP CORP	2201 W MARYLAND ST	EVANSVILLE	IN	47710	11.6705	3.742	15.4125	0	0	0	15.4125
EASTMAN CHEMICAL CO TEXAS OPERATIONS	300 KODAK BLVD	LONGVIEW	TX	75602	12.262	3.0575	15.3195	0	0	0	15.3195
OLDCASTLE BUILDING ENVELOPE - TEXAS FACILITY	803 AIRPORT RD	TERRELL	TX	75160	0	15.309	15.309	0	0	0	15.309
GM TRUCK GROUP FORT WAYNE ASSEMBLY	12200 LAFAYETTE CENTER	ROANOKE	IN	46783	0.7	14.5	15.2	0		0	15.2
NOVELIS CORP	390 GRISWOLD ST NE	WARREN	OH	44483	4.568	10.398	14.966	0	0	0	14.966
HITACHI AUTOMOTIVE SYSTEMS AMERICAS INC-BEREA KY	301 MAYDE RD	BEREA	KY	40403	0.0675	14.7307	14.7982	0	0	0	14.7982

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BEDFORD MATERIALS CO INC	7676 ALLEGHENY RD	MANNS CHOICE	PA	15550	1.4135	12.7915	14.205	0	0	0	14.205
ANDERSON TULLY LUMBER CO WALTERSVILLE LUMBER MILL	1725 N WASHINGTON ST	VICKSBURG	MS	39181	14.1275	0	14.1275	0		0	14.1275
SILGAN CONTAINERS MANUFACTURIN G CORP	3591 MAPLE DR	FORT DODGE	IA	50501	0.002535	13.684	13.686535	0		0	13.686535
M&B HANGERS	1313 PKWY DR SE	LEEDS	AL	35094	2.6945	10.7775	13.472	0		0	13.472
ARTIFLEX MANUFACTURING LLC GERSTCO DIV WOOSTER	1425 E BOWMAN ST	WOOSTER	OH	44691	0.401	12.9615	13.3625	0		0.0075	13.37
BALL METAL FOOD CONTAINER CORP	3010 BIRCH DR	WEIRTON	WV	26062	9.95	3.3	13.25	0	0	0	13.25
GRAPHIC PACKAGING INTERNATIONAL INC	10300 ROBERTS BLVD	FORT SMITH	AR	72916	0	13.2445	13.2445	0		0	13.2445
DECORATIVE PANELS INTERNATIONA L	2900 HILL AVE	TOLEDO	OH	43607	13.1175	0.023	13.1405	0		0	13.1405
VESTAL MANUFACTURING ENTERPRISES INC	177 INDUSTRIAL PARK RD	SWEETWATER	TN	37874	13.094	0	13.094	0		0	13.094
SIGNCRAFT SCREEN PRINT	100 A.J. HARLE DR	GALENA	IL	61036	12.185	0	12.185	0	0	0.841	13.026
HALLSTAR CO ESTER SOLUTIONS FACILITY	5851 W 73RD ST	BEDFORD PARK	IL	60638	1.1705	0.1565	1.327	0		11.6165	12.9435
SUPERIOR INDUSTRIES INTERNATIONAL ARKANSAS LLC	1301 N DIXIELAND RD	ROGERS	AR	72756	0.0025	12.8805	12.883	0.0025		1.77636E-15	12.8855
QUAD/GRAPHICS INC	N61 W23044 HARRY'S WAY	SUSSEX	WI	53089	11.55	1.3	12.85	0		0	12.85
RUSKIN CO	HWY 27 N	GENEVA	AL	36340	0.0565	12.7365	12.793	0	0	0	12.793
BEMIS MANUFACTURING CO PLANT B	300 MILL ST	SHEBOYGAN FALLS	WI	53085	0	12.7415	12.7415	0		0	12.7415
SILGAN CAN CO	12-773 ST RT 110	NAPOLEON	OH	43545	5.3645	7.366	12.7305	0	0	0	12.7305
CROWN FOOD PACKAGING	5201 ENTERPRISE BLVD	TOLEDO	OH	43612	3.1835	9.541	12.7245	0	0	0	12.7245
BERENFIELD CONTAINERS INC MASON	1229 CASTLE DR	MASON	OH	45040	0.125	12.564	12.689	0	0	0	12.689
CLEAN HARBORS LONE MOUNTAIN LLC LONE MOUNTAIN FACILITY	5 MILES E & 1 MILE N OF JU	WAYNOKA	OK	73860	0.00125	0.0004	0.00165	0		12.5485	12.55015
3M CO - GUIN	6675 US HWY 43	GUIN	AL	35563	0.001	12.5	12.501	0	0	0	12.501
BALL METAL BEVERAGE CONTAINER CORP	6600 WILL ROGERS BLVD	FORT WORTH	TX	76140	5.5	7	12.5	0	0	0	12.5
NUCOR VULCRAFT GROUP SAINT JOE DIV	6610 COUNTY RD 60	SAINT JOE	IN	46785	2.877	5.354	8.231	0		4.2115	12.4425
AKZO NOBEL COATINGS INC	1629 VANDERBILT RD	BIRMINGHAM	AL	35234	12.1875	0.175	12.3625	0	0	0	12.3625
HOWARD FINISHING LLC	32565 DEQUINDRE	MADISON HEIGHTS	MI	48071	0.0025	12.358	12.3605	0	0	0	12.3605
MEYER STEEL DRUM INC	2000 S KILBOURN AVE	CHICAGO	IL	60623	1.3505	10.927	12.2775	0		0	12.2775
NUCOR CORP VULCRAFT DIV	1501 W DARLINGTON ST	FLORENCE	SC	29501	10.9885	1.255	12.2435	0	0	0	12.2435
NUCOR VULCRAFT GROUP - GRAPELAND DIV	175 COUNTY RD 2345	GRAPELAND	TX	75844	4.282	7.922	12.204	0	0	0	12.204
PLY GEM	2615 CAMPBELL RD	SIDNEY	OH	45365	0.705	11.45	12.155	0		0	12.155
BALL CONTAINER LLC	105 E BLACKHAWK DR	FORT ATKINSON	WI	53538	3.45	8.5	11.95	0	0	0	11.95

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AMERICAN TRIM LLC	1501 W MICHIGAN ST	SIDNEY	OH	45365	0	11.892	11.892	0	0	0	11.892
QUAD/GRAPHICS INC	1900 W SUMNER ST	HARTFORD	WI	53027	11.5	0.35	11.85	0		0	11.85
SHAMROCK TECHNOLOGIES INC	FOOT OF PACIFIC ST	NEWARK	NJ	07114	0	0	0	0		11.718	11.718
WHITING DOOR MANUFACTURING CORP	113 CEDAR ST	AKRON	NY	14001	0	11.6965	11.6965	0	0	0	11.6965
CNH AMERICA LLC	1930 DES MOINES AVE	BURLINGTON	IA	52601	0.18	11	11.18	0		0	11.18
CHRYSLER BELVIDERE ASSEMBLY PLANT	3000 W CHRYSLER DR	BELVIDERE	IL	61008	1.15	10	11.15	0		0.0095	11.1595
TOPPAN INTERAMERICA INC	1131 HWY 155 S	MC DONOUGH	GA	30253	0	11.15	11.15	0	0	0	11.15
VULCRAFT OF NEW YORK INC	5362 RAILROAD ST	CHEMUNG	NY	14825	4.005	6.4505	10.4555	0	0	0.61	11.0655
SILGAN CONTAINERS MANUFACTURING CORP	400 N 15TH ST	ROCHELLE	IL	61068	7.265	3.78	11.045	0	0	0	11.045
SUPERIOR INDUSTRIES INTERNATIONAL ARKANSAS LLC	1901 E BORICK DR	FAYETTEVILLE	AR	72701	0	10.9685	10.9685	0		0.0625	11.031
VOLKSWAGEN GROUP OF AMERICA CHATTANOOGA OPERATIONS LLC	8001 VOLKSWAGEN DR	CHATTANOOGA	TN	37416	0	11.0214265	11.0214265	0	0	0	11.0214265
BALL METAL BEVERAGE CONTAINER CORP	91-320 KOMOHANA ST	KAPOLEI	HI	96707	1.95	9	10.95	0	0	0	10.95
TRADEBE TREATMENT & RECYCLING LLC	4343 KENNEDY AVE	EAST CHICAGO	IN	46312	0.4655	0	0.4655	0	0.02	10.45	10.9355
PRECOAT METALS	1095 MENDELL DAVIS DR	JACKSON	MS	39272	9.879	1.0255	10.9045	0	0	0	10.9045
CHICAGO STEEL CONTAINER CORP	1846 S KILBOURN AVE	CHICAGO	IL	60623	0.898	9.9355	10.8335	0	0	0.0535	10.887
TRILLA ST LOUIS CORP	2391 CASSENS DR	FENTON	MO	63026	1.3775	8.2505	9.628	0	0	1.2326	10.8606
METAL INDUSTRIES INC - BUSHNELL	400 W WALKER AVE	BUSHNELL	FL	33513	0.0765	10.621	10.6975	0	0	0	10.6975
STANLEY WORKS HAND TOOLS DIV	600 MYRTLE ST	NEW BRITAIN	CT	06052	1.055	9.4965	10.5515	0		0	10.5515
TYSON FRESH MEATS INC	5000 N FM 1912	AMARILLO	TX	79108	0.02	0	0.02	0	0.72	9.74	10.48
PROFESSIONAL DISPOSABLES INTERNATIONAL INC	TWO NICE-PAK PARK	ORANGEBURG	NY	10962	0.097675	0.03133	0.129005	0		10.329	10.458005
ALLIANCE INDUSTRIES WAUPACA	N 2467 VAUGHAN RD	WAUPACA	WI	54981	1.0415	9.3735	10.415	0	0	0	10.415
TRELLEBORG OFFSHORE US RANKIN ROAD FACILITY	1902 RANKIN RD	HOUSTON	TX	77073	0.5125	0	0.5125	0	0	9.7895	10.302
NUCOR CORP - VULCRAFT/NUCOR COLD FINISH DIV	1601 W OMAHA AVE	NORFOLK	NE	68701	0.25	10	10.25	0		0	10.25
THE DIAL CORP A SUBSIDIARY OF HENKEL CONSUMER GOODS	6901 MCKISSOCK AVE	SAINT LOUIS	MO	63147	0.081	0.081	0.162	0		10.0435	10.2055
KAWNEER CO INC	600 KAWNEER DR	SPRINGDALE	AR	72764	4.094	5.9025	9.9965	0	0	0	9.9965
TOYOTA MOTOR MANUFACTURING TEX AS INC	1 LONE STAR PASS	SAN ANTONIO	TX	78264	6.8057207	3.13111505	9.93683575	0	0	0	9.93683575
SILGAN CAN CO	2120 NC HWY N UNIT A	MAXTON	NC	28364	3.112	6.6775	9.7895	0	0	0	9.7895
KITZINGER COOPERAGE CORP	2529 E NORWICH AVE	SAINT FRANCIS	WI	53235	0	9.7653	9.7653	0		0	9.7653
NISSAN NORTH AMERICA INC CANTON MS	300 NISSAN DR	CANTON	MS	39046	7.6025	2.0095	9.612	0	0	0	9.612

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
ESCO CORP	9098 EASTSIDE DR EXT.	NEWTON	MS	39345	9.578	0	9.578	0	0	0	9.578
DOW CHEMICAL CO FREEPORT FACILITY	2301 N BRAZOSPORT BLVD	FREEPORT	TX	77541	0.0135	0.0015	0.015	4.191	0	5.3525	9.5585
GREIF PACKAGING LLC	6000 JEFFERSON HWY	NEW ORLEANS	LA	70123	1.433	8.1215	9.5545	0	0	0	9.5545
STATE INDUSTRIES INC	500 TENNESSEE WALTZ PK	ASHLAND CITY	TN	37015	0.094	9.3135	9.4075	0	0	0	9.4075
YKK AP AMERICA INC	1229 HWY 441 N BYPASS	DUBLIN	GA	31021	9.0285	0.3635	9.392	0	0	0	9.392
TOYOTA MOTOR MANUFACTURING KENTUCKY INC	1001 CHERRY BLOSSOM W	GEORGETOWN	KY	40324	0.1875	9.1995	9.387	0		0	9.387
KUBIN-NICHOLSON CORP	8448 N 87TH ST	MILWAUKEE	WI	53224	9.352	0	9.352	0		0	9.352
ENVIRITE OF OHIO INC	2050 CENTRAL AVE SE	CANTON	OH	44707	0	0	0	0	0	9.1835	9.1835
REXAM BEVERAGE CAN CO RE: FAIRFIELD PLANT	2433 CROCKER CIR	FAIRFIELD	CA	94533	5.29	3.871	9.161	0	0	0	9.161
GREIF INDUSTRIAL PACKAGING & SERVICES	7604 RAILROAD AVE	WINFIELD	KS	67156	2.086	7.0235	9.1095	0	0	0	9.1095
SQUARE D CO	1601 MERCER RD	LEXINGTON	KY	40511	0.098	8.994	9.092	0		0	9.092
RR DONNELLEY LANCASTER WEST	1375 HARRISBURG PIKE	LANCASTER	PA	17601	8.509	0.57335	9.08235	0		0	9.08235
GENERAL MOTORS WENTZVILLE ASSEMBLY	1500 E RT A	WENTZVILLE	MO	63385	1.05	8	9.05	0		0	9.05
BRIGGS & STRATTON POWER PRODUCTS MCDONOUGH OPERATIONS	535 MACON RD	MC DONOUGH	GA	30253	0	9.043	9.043	0		0	9.043
KEYMARK CORP OF FLORIDA	2540 KNIGHTS STATION RD	LAKELAND	FL	33810	0.45	8.549	8.999	0	0	0	8.999
SILGAN CONTAINERS MANUFACTURING CORP	2115 SW LOWER LAKE RD	SAINT JOSEPH	MO	64504	5.2455	3.728	8.9735	0	0	0	8.9735
ROYAL MOULDINGS LTD; MARION VIRGINIA	135 BEAR CREEK RD	MARION	VA	24354	0.4475	8.496	8.9435	0	0	0	8.9435
MAUSER CORP	14 CONVERY BLVD	WOODBRIDGE	NJ	07095	0.076	8.8005	8.8765	0	0	0	8.8765
KNS COS INC	475 RANDY RD	CAROL STREAM	IL	60188	1.76171	7.04684	8.80855	0		0	8.80855
SKOLNIK INDUSTRIES	4900 S KILBOURN AVE	CHICAGO	IL	60632	0.9	7.9	8.8	0	0	0	8.8
ACME FINISHING CO INC	1595 E OAKTON ST	ELK GROVE VILLAG	L	60007	1.758	7.032	8.79	0	0	0	8.79
BROAN-NUTONE LLC	926 W STATE ST	HARTFORD	WI	53027	0.1135	8.666	8.7795	0		0	8.7795
RR DONNELLEY & SONS CO	1145 CONWELL AVE	WILLARD	OH	44890	6.8885	1.856	8.7445	0		0	8.7445
CHRYSLER WARREN TRUCK ASSEMBLY PLANT (PART)	21500 MOUND RD	WARREN	MI	48091	8.5	0.155	8.655	0		0.013	8.668
GRAPHIC PACKAGING INTERNATIONAL INC	1500 N PITCHER ST	KALAMAZOO	MI	49007	0.007	8.593	8.6	0	0	0	8.6
HART & COOLEY INC	4910 MOORES MILL RD	HUNTSVILLE	AL	35811	0.5875	7.9375	8.525	0		0.004	8.529
BERENFIELD CONTAINERS SW LTD	3300 N HUTCHINSON ST	WHITE HALL	AR	71602	0	8.5085	8.5085	0	0	0	8.5085
CIRCLE GRAPHICS INC	120 9TH AVE	LONGMONT	CO	80501	3.3	1.7	5	0	0	3.505	8.505
3M CO - MENOMONIE	1425 STOKKE PKWY	MENOMONIE	WI	54751	0	0	0	0	0	8.5	8.5
PHOENIX COLOR CORP	18249 PHOENIX DR	HAGERSTOWN	MD	21742	8.5	0	8.5	0	0	0	8.5

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
FRANKLIN INVESTMENT CORP	600 ATLANTIC AVE	FRANKLIN	PA	16323	8.5	0	8.5	0		0	8.5
MOMENTIVE SPECIALTY CHEMICALS INC	2525 S COMBEE RD	LAKELAND	FL	33801	8.357	0.0005	8.3575	0	0	0	8.3575
SIGNODE	7701 W 71ST ST	BRIDGEVIEW	IL	60455	0.85	7.5	8.35	0	0	0	8.35
HAMMER PACKAGING CORP	200 LUCIUS GORDON DR	WEST HENRIETTA	NY	14586	0	8.2645	8.2645	0		0	8.2645
RR DONNELLEY LANCASTER EAST	216 GREENFIELD RD	LANCASTER	PA	17601	7.417	0.519	7.936	0		0	7.936
PRECOAT METALS	1950 E MAIN ST	GREENFIELD	IN	46140	0.026	7.817	7.843	0	0	0	7.843
ELECTROPRIME INC	63 DIXIE HWY	ROSSFORD	OH	43460	0	7.819	7.819	0		0	7.819
SILGAN CONTAINER MANUFACTURING CORP	3250 PATTERSON RD	RIVERBANK	CA	95367	0.5925	7.217	7.8095	0	0	0	7.8095
BWAY CORP	1601 VALDOSTA HWY	HOMERVILLE	GA	31634	5.993215	1.811395	7.80461	0	0	0	7.80461
SILGAN CONTAINERS MANUFACTURING CORP	1416 INDIANHEAD DR	MENOMONIE	WI	54751	1.55	6.2	7.75	0	0	0	7.75
GREIF PACKAGING LLC	695 LOUIS DR	WARMINSTER	PA	18974	3.072	2.956	6.028	0	0	1.6735	7.7015
SUPERPAC INC	1220 INDUSTRIAL BLVD	SOUTHAMPTON	PA	18966	0.038	7.5475	7.5855	0		0	7.5855
DEXTER AXLE	500 SE 27TH	EL RENO	OK	73036	0	7.514	7.514	0	0	0	7.514
AAP ST MARYS CORP	1100 MCKINLEY RD	SAINT MARYS	OH	45885	0.011	7.491	7.502	0	0	0	7.502
AJAX METAL PROCESSING INC	4651 BELLEVUE AVE	DETROIT	MI	48207	0	7.4295	7.4295	0	0	0	7.4295
TTM TECHNOLOGIES INC	710 N 600 W	LOGAN	UT	84321	0.585	5.266	5.851	0		1.5185	7.3695
TECNOCAP LLC	2100 GRISWOLD NE	WARREN	OH	44483	1.5575	5.8075	7.365	0	0	0	7.365
NATIONAL COATINGS INC	604 US HWY 150 E	GALESBURG	IL	61401	7.3525	0	7.3525	0	0	0	7.3525
DUPONT PONTCHARTRAIN WORKS	586 HWY 44	LA PLACE	LA	70068	0.0075	0	0.0075	0	0	7.2925	7.3
FORD MOTOR CO TWIN CITIES ASSEMBLY PLANT	966 S MISSISSIPPI RIVER B	SAINT PAUL	MN	55116	0.08	7	7.08	0		0.13	7.21
GM LORDSTOWN COMPLEX	2300 HALLOCK-YOUNG RD	LORDSTOWN	OH	44481	3.95	1.05	5	0		2.2	7.2
BRADFORD WHITE CORP	200 LAFAYETTE ST	MIDDLEVILLE	MI	49333	0	7.1365	7.1365	0	0	0	7.1365
QUAD GRAPHICS NASHVILLE	2947 BRICK CHURCH PIKE	NASHVILLE	TN	37207	6.36	0.742	7.102	0		0	7.102
PRECOAT METALS	858 E HUPP RD	LA PORTE	IN	46350	0.02	6.915	6.935	0	0	0	6.935
AK STEEL CORP - ZANESVI LLE WORKS	1724 LINDEN AVE	ZANESVILLE	OH	43701	0	6	6	0	0	0.9	6.9
ALLIED TUBE & CONDUIT CORP	16100 S LATHROP AVE	HARVEY	IL	60426	4.3175	2.5465	6.864	0	0	0	6.864
BROWN PRINTING CO	2300 BROWN AVE	WASECA	MN	56093	6.6725	0.089	6.7615	0		0	6.7615
CROWN EQUIPMENT CORP	2600 E STATE RD 240	GREENCASTLE	IN	46135	1.351405	5.405605	6.75701	0		8.88178E-16	6.75701
SYCAMORE SYSTEMS LLC	449 N CALIFORNIA ST	SYCAMORE	IL	60178	0	6.722	6.722	0	0	0	6.722
TEKNOR APEX TENNESSEE CO (AKA HAYWOOD CO)	751 DUPREE ST	BROWNSVILLE	TN	38012	0	6.669	6.669	0		0.0475	6.7165

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
SILGAN CAN CO	500 NW LOOP 286 SUITE 10	PARIS	TX	75460	3.412	3.2385	6.6505	0	0	0	6.6505
RR DONNELLEY CRAWFORDSVILLE	1009 SLOAN ST	CRAWFORDSVILLE	IN	47933	6.3135	0.2945	6.608	0		0	6.608
HUSQVARNA CONSUMER OUTDOOR PRODUCTS	172 OLD ELLOREE RD	ORANGEBURG	SC	29116	0.1325	6.4715	6.604	0		0	6.604
CAN CORP OF AMERICA INC	326 JUNE AVE	BLANDON	PA	19510	1.6585	4.938	6.5965	0	0	0	6.5965
LA-Z-BOY TENNESSEE	500 WALNUT GROVE RD	DAYTON	TN	37321	0	6.58324085	6.58324085	0	0	0	6.58324085
SNAP-ON TOOLS MANUFACTURING CO	2600 US HWY 18 E	ALGONA	IA	50511	0.0015	0.119	0.1205	0		6.395	6.5155
GEA BPO LLC	301 N CURRY PIKE	BLOOMINGTON	IN	47404	0	6.5	6.5	0	0	0	6.5
SILGAN CONTAINERS MANUFACTURING CORP	520 W 2ND ST	OCONOMOWOC	WI	53066	1.3	5.175	6.475	0	0	0	6.475
DUPONT CHAMBERS WORKS	RT 130	DEEPWATER	NJ	08023	0.092	0.0695	0.1615	5.9625	0	0.3305	6.4545
SCHAEFFER MANUFACTURING	102 BARTON ST	SAINT LOUIS	MO	63104	6.34465	0	6.34465	0		0.0225	6.36715
NUCOR CORP VULCRAFT DIV	7205 GAULT AVE N	FORT PAYNE	AL	35967	3.6825	2.66	6.3425	0	0	0	6.3425
NORTHLAND ALUMINUM PRODUCTS I NC	5005 COUNTY RD 25	MINNEAPOLIS	MN	55416	0	6.3187	6.3187	0	0	0	6.3187
AMERICAN FINISHING RESOURCES INC	476 CLAY ST	CHILTON	WI	53014	6.272	0	6.272	0		0	6.272
BROWN PRINTING CO	11595 MCCONNELL RD	WOODSTOCK	IL	60098	6.125	0.14	6.265	0		0	6.265
MAYTAG CORP CLEVELAND COOKING PRODUCTS PLANT 1	740 KING EDWARD AVE SE	CLEVELAND	TN	37311	0	6.264	6.264	0	0	0	6.264
AKZO NOBEL SURFACE CHEMISTRY LLC	15200 ALMEDA RD	HOUSTON	TX	77053	0.045	0.129	0.174	0	0	6.0785	6.2525
DU PONT ELECTRONICS MICROCIRCU ITS INDUSTRIES LTD (PART)	HWY 686 KM 2.3	MANATI	PR	00674	0	0	0	0	0	6.21	6.21
CURTIS METAL FINISHING CO	6645 SIMS DR	STERLING HEIGHTS	MI	48313	4.411	1.758	6.169	0		0	6.169
HUNTER DOUGLAS TUPELO CENTER	RT. 2 LEE INDUSTRIAL PAR	SHANNON	MS	38868	0.2925	5.864	6.1565	0	0	0	6.1565
3M CO - CORDOVA	22614 RT 84 N	CORDOVA	IL	61242	0.434	0.18	0.614	5.5	0	0	6.114
FORD MOTOR CO MICHIGAN ASSEMBLY PLANT	38303 MICHIGAN AVE	WAYNE	MI	48184	0.065	6	6.065	0		0	6.065
WHEELING MACHINE PRODUCTS DIV PINE BLUFF	5411 INDUSTRIAL DR S	PINE BLUFF	AR	71602	6	0	6	0	0	0	6
ASHLEY INDUSTRIAL MOLDING INC	310 S WABASH	ASHLEY	IN	46705	0.6	5.4	6	0	0	0	6
ENKEI AMERICA INC	2900 W INWOOD DR	COLUMBUS	IN	47201	0	6	6	0	0	0	6
WIX FILTRATION CORP - ALLEN PLANT	2900 NW BLVD	GASTONIA	NC	28052	0.0025	5.95	5.9525	0	0	0	5.9525
SILGAN CONTAINERS MANUFACTURING CORP	2501 165TH ST	HAMMOND	IN	46320	0	5.873	5.873	0	0	0	5.873
THE COLEMAN CO INC	3600 N HYDRAULIC	WICHITA	KS	67219	0.001	5.857	5.858	0	0	0	5.858
NAHAN PRINTING INC	7000 SAUKVIEW DR	SAINT CLOUD	MN	56303	5.67614	0.180825	5.856965	0	0	0	5.856965
QG PRINTING II CORP	4708 KRUEGER DR	JONESBORO	AR	72401	3.55	2.3	5.85	0		0	5.85

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
PPG INDUSTRIES,INC-SPRINGDALE COMPLEX	125 COLFAX ST	SPRINGDALE	PA	15144	5.754	0.0585	5.8125	0	0	0	5.8125
GMVM-LANSING GRAND RIVER ASSEMBLY	920 TOWNSEND ST MAIL C	LANSING	MI	48921	2.6	3.2	5.8	0		0	5.8
CROWN AEROSOL PACKAGING	3737 E EXCHANGE AVE	AURORA	IL	60504	5.0525	0.717	5.7695	0	0	0	5.7695
AVERY DENNISON RBIS LENOIR	950 GERMAN ST	LENOIR	NC	28645	4.668	1.066	5.734	0	0	0	5.734
TACO INC - CRANSTON	1160 CRANSTON ST	CRANSTON	RI	02920	0.058	5.6685	5.7265	0	0	0	5.7265
PELLA CORP CARROLL OPERATIONS	1750 E US HWY 30 E	CARROLL	IA	51401	0	5.5825	5.5825	0		0	5.5825
GREIF PACKAGING LLC	10850 STRANG RD	LA PORTE	TX	77571	4.47095	0.5371	5.00805	0		0.566795	5.574845
JOHN DEERE HORICON WORKS-DT	300 N VINE ST	HORICON	WI	53032	0	5.5	5.5	0		0	5.5
CARRY-ON TRAILER CORP	1965 HWY 30	MISSOURI VALLEY	IA	51555	0	5.464	5.464	0	0	0	5.464
L A DARLING CO - PIGGOTT AR FACILITY	HWY 49 S	PIGGOTT	AR	72454	0.073	5.3855	5.4585	0		0	5.4585
TORO CO	200 SIME AVE	TOMAH	WI	54660	0	5.426	5.426	0		0	5.426
SENECA FOODS CORP CAN PLANT	3709 MILL ST	MARION	NY	14505	0	5.423	5.423	0		0	5.423
COLOR COMMUNICATIONS INC	4242 W FILLMORE	CHICAGO	IL	60624	1.05	4.35	5.4	0		0	5.4
MIDDLEBURY HARDWOOD PRODUCTS	101 JOAN DR	MIDDLEBURY	IN	46540	0	5.3965	5.3965	0	0	0	5.3965
SABIC INNOVATIVE PLASTICS MT VERNON LLC	1 LEXAN LN	MOUNT VERNON	IN	47620	3.2	2.05	5.25	0.125	0	0	5.375
QUAD/GRAPHICS INC	N11896 HWY 175 PO BOX 2	LOMIRA	WI	53048	4.836	0.5315	5.3675	0		0	5.3675
BATESVILLE MANUFACTURING INC -DOLL PLANT	1000 E PEARL ST	BATESVILLE	IN	47006	0.2675	5.085	5.3525	0	0	0	5.3525
BERENFIELD CONTAINERS SE LTD	12180 UNIVERSITY CITY BL	HARRISBURG	NC	28075	0	5.351	5.351	0	0	0	5.351
GATES CORP	1450 MONTANA RD	IOLA	KS	66749	0	0.00295	0.00295	0	0	5.3455	5.34845
KOHLER CO	2000 N 5TH ST	UNION CITY	TN	38261	0.5345	4.8125	5.347	0		0	5.347
DUNBARTON CORP REDIFRAME DIV	1101 TECHNOLOGY DR	DOTHAN	AL	36303	0	5.3	5.3	0	0	0	5.3
WORTHINGTON CYLINDERS WISCONSI N LLC	300 E BREED ST	CHILTON	WI	53014	0.2495	5.020885	5.270385	0	0	0	5.270385
PRECOAT METALS	25 NORTHGATE INDUSTRIA	GRANITE CITY	IL	62040	4.232	1.0355	5.2675	0	0	0	5.2675
POWER PARTNERS INC	200 NEWTON BRIDGE RD	ATHENS	GA	30607	0	5.246	5.246	0		0	5.246
EQUISTAR CHEMICALS BAYPORT CHEMICALS PLANT	5761 UNDERWOOD RD	PASADENA	TX	77507	5.0705	0.168	5.2385	0		0	5.2385
CROWN FOOD PACKAGING	1650 BROADWAY	HANOVER	PA	17331	1.3065	3.92	5.2265	0		0	5.2265
PRECOAT METALS	2604 RIVER RD	HAWESVILLE	KY	42348	0.007	5.211	5.218	0	0	0	5.218
US DOD USAF TINKER AFB	72 CEG/CEA 7535 FIFTH ST	TINKER AFB	OK	73145	1.9	3.2	5.1	0	0	0.065	5.165
COORSTEK	2449 RIVERSIDE PKWY	GRAND JUNCTION	CO	81505	0.0025	4.84	4.8425	0	0.25	0	5.0925
VON HOFFMANN GRAPHICS INC	1005 COMMERCIAL DR	OWENSVILLE	MO	65066	3.703	1.3745	5.0775	0		0	5.0775

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SILGAN CAN CO	6200 FRANKLIN BLVD SUIT	SACRAMENTO	CA	95824	4.432	0.6065	5.0385	0		0	5.0385
CARRY-ON TRAILER CORP	5300 WESTMORELAND RD	WINNEMUCCA	NV	89445	0	5.0015	5.0015	0	0	0	5.0015
HESS PRINT SOLUTIONS	3765 SUNNYBROOK RD	BRIMFIELD	OH	44240	5	0	5	0		0	5
VALMONT INDUSTRIES INC	7002 N 288TH ST	VALLEY	NE	68064	5	0	5	0	0	0	5
VAUGHAN-BASSETT FURNITURE CO GALAX	300 E GRAYSON ST	GALAX	VA	24333	0.74943095	4.2467754	4.99620635	0	0	0	4.99620635
SILGAN CONTAINERS MANUFACTURING CORP	135 NATIONAL RD	EDISON	NJ	08817	4.02	0.975	4.995	0	0	0	4.995
KIA MOTORS MANUFACTURING OF GEORGIA	7777 KIA PKWY	WEST POINT	GA	31833	0.0525	4.912	4.9645	0		0	4.9645
LOGAN ALUMINUM INC	US HWY 431 N	RUSSELLVILLE	KY	42276	0.035	4.9145	4.9495	0	0	0	4.9495
SEQUA COATINGS CORP-PRECOAT M ETALS DIV	US HWY 12 AT RT 249	PORTAGE	IN	46368	0.572	4.328	4.9	0	0	0	4.9
ARVINMERITOR HEAVY VEHICLE SYSTEMS LLC	801 RAILROAD AVE	YORK	SC	29745	0.001	4.893	4.894	0	0	0	4.894
AUTOALLIANCE INTERNATIONAL INC	1 INTERNATIONAL DR	FLAT ROCK	MI	48134	0.2	4.65	4.85	0		0	4.85
OWENS CORNING VETROTEX LLC - ANDERSON SC	4837 HWY 81 S	STARR	SC	29684	0.479	4.3105	4.7895	0	0	0	4.7895
TEREX WASHINGTON SOUTH CAMPUS	18700 NE 65TH ST	REDMOND	WA	98052	0.1114	4.6565	4.7679	0		0	4.7679
ARMSTRONG HARDWOOD FLOORING CO	565 HARTCO DR	ONEIDA	TN	37841	0	4.7345	4.7345	0		0	4.7345
RR DONNELLEY-WETMORE PLANT	1645 W SAM HOUSTON PKV	HOUSTON	TX	77043	4.6345	0.092	4.7265	0		0	4.7265
PRECOAT METALS	16402 JACINTOPORT BLVD	HOUSTON	TX	77015	4.407	0.245	4.652	0	0	0	4.652
CARDONE INDUSTRIES	5660 RISING SUN AVE	PHILADELPHIA	PA	19120	0.8115	3.8385	4.65	0	0	0	4.65
METAL COATERS	951 PRISOCK RD	JACKSON	MS	39272	0	4.4805	4.4805	0	0	0	4.4805
SILGAN CONTAINERS MANUFACTURING CORP	1400 PLOVER RD	PLOVER	WI	54467	1.31	3.16	4.47	0	0	0	4.47
FIBERMARK NORTH AMERICA INC	5492 BOSTWICK ST	LOWVILLE	NY	13367	0.091	4.3535	4.4445	0		0	4.4445
BERENFIELD CONTAINERS INC	31 RAILROAD ST	CLARENDON	PA	16313	0.132025	4.29749	4.429515	0	0	8.88178E-16	4.429515
RR DONNELLEY BARABOO DIV	1300 SAUK AVE	BARABOO	WI	53913	4.1785	0.2435	4.422	0		0	4.422
ENDICOTT INTERCONNECT TECHNOLOGIES INC	1093 CLARK ST	ENDICOTT	NY	13760	0.25	4.1155	4.3655	0.029	0	0	4.3945
INX DIGITAL INK CO	405 INDUSTRIAL WAY	DIXON	CA	95620	4.3915	0	4.3915	0	0	0	4.3915
TCI COATINGS INC	4501 BRADLEY ST	LUBBOCK	TX	79415	4.36875	0	4.36875	0		0	4.36875
CHRYSLER STERLING HEIGHTS ASSEMBLY PLANT (PART)	38111 VAN DYKE	STERLING HEIGHTS	MI	48312	0.49	3.85	4.34	0		0	4.34
SILGAN CONTAINERS MANUFACTURING CORP	N90 W14600 COMMERCE D	MENOMONEE FALLS	WI	53051	0	4.2	4.2	0	0	0	4.2
MASTERBRAND CABINETS INC	1002 EISENHOWER DR N	GOSHEN	IN	46526	0.0035	4.1895	4.193	0	0	0.0065	4.1995
QG LLC WINCHESTER VIRGINIA	160 CENTURY LN STONEW	WINCHESTER	VA	22603	3.8727	0.180725	4.053425	0	0	0.126	4.179425
ARDAGH METAL PACKAGING USA INC	936 BARRACUDA ST	TERMINAL ISLAND	CA	90731	3.8	0.375	4.175	0	0	0	4.175

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
R R DONNELLEY & SONS CO DANVILLE DIV	3201 LEBANON RD	DANVILLE	KY	40422	3.8985	0.273	4.1715	0	0	0	4.1715
ROHM & HAAS CHEMICALS LLC	200 RT 413	BRISTOL	PA	19007	0.0519	0.1905	0.2424	0	0	3.9055	4.1479
INLAND LABEL & MARKETING	2009 W AVE S	LA CROSSE	WI	54601	2.2045	1.9285	4.133	0	0	0	4.133
SC JOHNSON & SON INC WAXDALE FACILITY	8311 16TH ST	STURTEVANT	WI	53177	0.125	0.375	0.5	0		3.628795	4.128795
HYUNDAI MOTOR MANUFACTURING ALABAMA LLC	700 HYUNDAI BLVD	MONTGOMERY	AL	36105	2.6025	1.506	4.1085	0		0	4.1085
US ARMY LAKE CITY ARMY AMMUNITION PLANT	INTERSECTION OF MO HW	INDEPENDENCE	MO	64051	1.579	2.516	4.095	0	0	0	4.095
CROWN AEROSOL PACKAGING	4TH ST & PARK AVE	FARIBAULT	MN	55021	2.6265	1.4625	4.089	0	0	0	4.089
CLEVELAND STEEL CONTAINER CORP	350 MILL ST	QUAKERTOWN	PA	18951	0.035	4.04	4.075	0	0	0	4.075
RRD MAPLE GROVE	7401 KILMER LN	MAPLE GROVE	MN	55369	3.9335	0.1045	4.038	0		0	4.038
SILGAN CONTAINERS MANUFACTURING CORP	8673 LYONS-MARENGO RD	LYONS	NY	14489	0.7275	3.3065	4.034	0	0	0	4.034
THIRD COAST TERMINALS PEARLAND	1871 MYKAWA	PEARLAND	TX	77581	0	0	0	0	0	3.9915	3.9915
PRO LINE PRINTING ARLINGTON	401 N GREAT SW PKWY	ARLINGTON	TX	76011	3.088685	0.17821	3.266895	0	0.701975	0	3.96887
TTM PRINTED CIRCUIT GROUP - S TAFFORD DIV	4 OLD MONSON RD	STAFFORD	CT	06075	0	3.9505	3.9505	0		0	3.9505
CARRY-ON TRAILER CORP	159 INDUSTRIAL PARK RD	MONTROSS	VA	22520	0	3.925	3.925	0	0	0	3.925
QUAD/GRAPHICS INC	56 DUPLAINVILLE RD	SARATOGA SPRING	NY	12866	3.68	0.1875	3.8675	0	0	0	3.8675
NAVISTAR INC	6125 URBANA RD	SPRINGFIELD	OH	45502	0.415	3.4	3.815	0.014	0	0.02	3.849
AFTON CHEMICAL CORP	725 CANNON BRIDGE RD	ORANGEBURG	SC	29115	2.813	0.488	3.301	0.0405	0	0.4705	3.812
BATESVILLE MANUFACTURING INC	310 CROWN RD	BATESVILLE	MS	38606	0.5695	3.2265	3.796	0	0	0	3.796
BENCHMARK ENERGY PRODUCTS LLC	4113 W INDUSTRIAL AVE	MIDLAND	TX	79703	0.344	3.4415	3.7855	0		0	3.7855
OMG AMERICAS	TWO MILE RUN RD	FRANKLIN	PA	16323	0.025	0.223	0.248	0	0	3.4725	3.7205
BETCO CORP	1001 BROWN AVE	TOLEDO	OH	43607	3.69	0	3.69	0		0	3.69
NAZDAR SHAWNEE	8501 HEDGE LN TERRACE	SHAWNEE	KS	66227	1.0955	2.556	3.6515	0	0	0	3.6515
VIASYSTEMS CORP	1521 POPLAR LN	FOREST GROVE	OR	97116	0.0675	3.58	3.6475	0		0	3.6475
TITAN COATINGS INC	2025 EXCHANGE PL	BESSEMER	AL	35023	3.59	0	3.59	0	0	0	3.59
AUTOMOTIVE COMPONENTS HOLDINGS LLC SALINE PLANT	7700 MICHIGAN AVE	SALINE	MI	48176	0.06	3.5	3.56	0	0	0	3.56
BALL METAL FOOD CONTAINER CORP	300 W GREGER RD	OAKDALE	CA	95361	0.152	3.4	3.552	0	0	0	3.552
QUAD/GRAPHICS INC	555 S 108TH ST	WEST ALLIS	WI	53214	3.41	0.095	3.505	0		0	3.505
MOTOR CASTINGS CO	1323 S 65TH	MILWAUKEE	WI	53214	0	1.5915	1.5915	0	0	1.894	3.4855
GM MLCG FAIRFAX ASSEMBLY	3201 FAIRFAX TRAFFICWAY	KANSAS CITY	KS	66115	0.1	3.35	3.45	0		0	3.45
FORD MOTOR CO - OHIO ASSEMBLY PLANT	650 MILLER RD	AVON LAKE	OH	44012	0.395	3	3.395	0		0.0035	3.3985

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
BROWN PRINTING CO	668 GRAVEL PIKE	EAST GREENVILLE	PA	18041	3.2665	0.1135	3.38	0	0.0075	4.44089E-16	3.3875
RHODIA INC	2ND ST & BLUEBALL AVE	MARCUS HOOK	PA	19061	0.1915	0.0005	0.192	0		3.167	3.359
SPRAYLAT CORP CA	3465 S LA CIENAGA BLVD	LOS ANGELES	CA	90016	1.679	1.679	3.358	0		0	3.358
PRECOAT METALS	4301 S SPRING AVE	SAINT LOUIS	MO	63116	0.926	2.429	3.355	0	0	0	3.355
LAKESIDE LITHOGRAPHY LLC	1600 S LAFLIN ST	CHICAGO	IL	60608	2.65	0.6	3.25	0	0	0	3.25
AVERY DENNISON	17700 FOLTZ INDUSTRIAL F	STRONGSVILLE	OH	44149	0.422	2.824	3.246	0		0	3.246
HEWLETT-PACKARD CARIBE BV SITE	HWY 110 N KM 5.1	AGUADILLA	PR	00605	0	3.2155	3.2155	0		0	3.2155
QUAD GRAPHICS TAUNTON RETAIL	50 JOHN HANCOCK RD	TAUNTON	MA	02780	1.91685	0.04475	1.9616	0	0	1.24606	3.20766
RR DONNELLEY STRASBURG DIV	ONE SHENANDOAH VALLE	STRASBURG	VA	22657	3.1	0.04	3.14	0		0.011	3.151
BRILLION IRON WORKS INC	200 PARK AVE	BRILLION	WI	54110	2.13095	0.8037	2.93465	0		0.21095	3.1456
CADON PLATING CO	3715 11TH ST	WYANDOTTE	MI	48192	1.708	1.41	3.118	0	0	0	3.118
ABC COMPOUNDING CO INC	6970 JONESBORO RD	MORROW	GA	30260	0.0025	0.375	0.3775	0.0025	0	2.6855	3.0655
CLEAR LAKE CHEMICALS LLC	11200 BAY AREA BLVD	PASADENA	TX	77507	3.0356	0.00095	3.03655	0		4.44089E-16	3.03655
CENTURY INDUSTRIAL COATINGS I NC	HWY 69 S	JACKSONVILLE	TX	75766	0.085	1.611	1.696	0	0	1.3035	2.9995
CLEVELAND STEEL CONTAINER - NI LES	115 ERIE ST	NILES	OH	44446	0.0025	2.988	2.9905	0	0	0	2.9905
MEADWESTVACO CONSUMER PACKAGING GROUP LLC	7411 OAKWOOD ST	MEBANE	NC	27302	2.9255	0	2.9255	0		0	2.9255
UNIVAR USA INC - BUNOLA BRANCH	328 BUNOLA RIVER RD	BUNOLA	PA	15020	0.125	0.0025	0.1275	0	0	2.786	2.9135
ARR-MAZ CUSTOM CHEMICALS	4800 STATE RD 60 E	MULBERRY	FL	33860	0.1415	2.76	2.9015	0		0	2.9015
IVC INDUSTRIAL COATINGS INC	1825 E NATIONAL AVE	BRAZIL	IN	47834	0.577852	2.311408	2.88926	0	0	4.44089E-16	2.88926
ROPPE CORP	1602 N UNION ST	FOSTORIA	OH	44830	0.125	2.7255	2.8505	0		0	2.8505
VAN CAN CO	10837 ETIWANDA AVE	FONTANA	CA	92337	2.45	0.375	2.825	0	0	0	2.825
VANEX INC	1700 S SHAWNEE ST	MOUNT VERNON	IL	62864	0	2.818	2.818	0		0	2.818
CROWN FOOD PACKAGING	10200 N LOMBARD ST	PORTLAND	OR	97203	1.2615	1.4975	2.759	0	0	0	2.759
CENTRIA	530 N SECOND ST	CAMBRIDGE	OH	43725	1.411	1.335	2.746	0	0	0	2.746
RED SPOT WESTLAND INC	550 S EDWIN ST	WESTLAND	MI	48186	1.226	1.4995	2.7255	0	0	0	2.7255
CLEVELAND STEEL CONTAINER CORP - STREETSBORO PLANT	10048 AURORA-HUDSON R	STREETSBORO	OH	44241	0.0025	2.715	2.7175	0	0	0	2.7175
ALERIS ROLLED PRODUCTS INC	1372 KY HWY 1957	LEWISPORT	KY	42351	0.125	2.571	2.696	0	0	0	2.696
IVC SOUTH	875 PROGRESS CENTER A	LAWRENCEVILLE	GA	30043	0.538	2.1515	2.6895	0		0	2.6895
MAGNA MIRRORS CORP - NEWAYGO	700 S PARK DR	NEWAYGO	MI	49337	1.4755	1.1975	2.673	0	0	0	2.673
ASTRO COATINGS INC	27 MAIN ST	STRUTHERS	OH	44471	0.5225	2.1285	2.651	0	0	0	2.651

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
IC OF OKLAHOMA LLC	2322 N MINGO RD	TULSA	OK	74116	0	2.65	2.65	0		0	2.65
AKZONOBEL	1872 HWY 9 BYPASS W	LANCASTER	SC	29720	0.4955	2.148	2.6435	0		0	2.6435
HIRSH INDUSTRIES INC	1525 MCKEE RD	DOVER	DE	19904	0.0025	2.633	2.6355	0		0	2.6355
PRECOAT METALS	4502 FREEDOM WAY	WEIRTON	WV	26062	0	2.6315	2.6315	0	0	0	2.6315
RADIATOR SPECIALTY CO	600 RADIATOR RD	INDIAN TRAIL	NC	28079	0.146	0	0.146	0	0	2.4785	2.6245
PRECOAT METALS	3399 DAVEY ALLISON BLVD	HUEYTOWN	AL	35023	2.041	0.5505	2.5915	0	0	0	2.5915
ROBROY INDUSTRIES TEXAS LP	1100 US HWY 271 S	GILMER	TX	75644	0	0.041	0.041	0		2.55	2.591
NORTHERN LABS INC WEST DRIVE	5800 W DR	MANITOWOC	WI	54220	1.0045	1.5835	2.588	0		0	2.588
GMTG - SHREVEPORT ASSEMBLY	7600 GENERAL MOTORS BI	SHREVEPORT	LA	71129	0.125	2.45	2.575	0	0	0	2.575
INTERNATIONAL PAPER PINE HILL MILL	7600 HWY 10 W	PINE HILL	AL	36769	0.058	0	0.058	2.4305		2.70617E-16	2.4885
QG LLC	420 W INDUSTRIAL AVE	EFFINGHAM	IL	62401	2.19	0.255	2.445	0		0	2.445
RR DONNELLEY LOS ANGELES MANUFACTURING	19681 PACIFIC GATEWAY D	TORRANCE	CA	90502	2.3775	0.0555	2.433	0		0	2.433
VERTIS COMMUNICATIONS	4051 FONDORF DR	COLUMBUS	OH	43228	2.1765	0.2535	2.43	0	0	0	2.43
CCL CONTAINER AEROSOL DIV	ONE LLODIO DR	HERMITAGE	PA	16148	0.19	2.2265	2.4165	0	0	0	2.4165
SAPA EXTRUSIONS INC	2500 ALUMAX RD	YANKTON	SD	57078	0	2.4011901	2.4011901	0	0	0	2.4011901
CUMMINS POWER GENERATION	1400 73RD AVE NE	FRIDLEY	MN	55432	0.12	2.28	2.4	0		0	2.4
QUAD/GRAPHICS INC	100 DUPLAINVILLE RD	THE ROCK	GA	30285	2.285	0.11	2.395	0	0	0	2.395
SCHNEIDER ELECTRIC	1990 SANDIFER BLVD	SENECA	SC	29678	0	2.35	2.35	0		0.0345	2.3845
APOLLO COLORS INC	1550 MOUND RD	ROCKDALE	IL	60436	0	0	0	0		2.3445	2.3445
SAPA EXTRUDER INC	2905 OLD OAKWOOD RD	GAINESVILLE	GA	30504	0	2.317	2.317	0	0	0	2.317
PPG INDUSTRIES ARCHITECTURAL FINISHES	1020 OLYMPIC DR	BATAVIA	IL	60510	0	0.821	0.821	0	0	1.491	2.312
ST CHARLES OPERATIONS (TAFT/STAR) UNION CARBIDE CORP	355 LA HWY 3142 (GATE 1)	TAFT	LA	70057	0.6	1.07	1.67	0.64	0	0	2.31
HANNA STEEL CORP	3812 COMMERCE AVE	FAIRFIELD	AL	35064	0.9095	1.201	2.1105	0	0	0.189	2.2995
THE DOW CHEMICAL CO	1790 BUILDING	MIDLAND	MI	48667	2.2	0.09	2.29	0.0035	0	0.0025	2.296
DUPONT TOWANDA PLANT	192 PATTERSON BLVD	TOWANDA	PA	18848	0.252	2.0365	2.2885	0	0	0	2.2885
HONDA MANUFACTURING OF INDIANA LLC	2755 N MICHIGAN AVE	GREENSBURG	IN	47240	1.785	0.497	2.282	0	0	0.0025	2.2845
COLOR CORP OF AMERICA	1630 W HILL ST	LOUISVILLE	KY	40210	0.009	2.2185	2.2275	0	0	0	2.2275
BRENNTAG SOUTHWEST INC LANC ASTER	704 E WINTERGREEN RD	LANCASTER	TX	75134	0.0225	0.025	0.0475	0	0	2.175	2.2225
KAY AUTOMOTIVE GRAPHICS	57 KAY INDUSTRIAL DR	LAKE ORION	MI	48359	0	2.2135	2.2135	0	0	0	2.2135
MAGNABLEND INC- LIQUID PLANT	100 W STERRETT RD	WAXAHACHIE	TX	75165	0.125	0	0.125	0	0	2.0785	2.2035

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
VERTIS	7619 DOANE DR	MANASSAS	VA	20109	2.1285	0.0695	2.198	0		0	2.198
NCP COATINGS INC	225 FORT ST	NILES	MI	49120	2.1685	0	2.1685	0	0	0	2.1685
AMERICAN COLOR GRAPHICS	810 E S ST	MARENGO	IA	52301	2.02	0.1395	2.1595	0		0	2.1595
DERRICK CORP	3350 UNION RD	CHEEKTOWAGA	NY	14225	0	2.1335	2.1335	0	0	0	2.1335
BALL METAL FOOD CONTAINER CORP	1200 S CRUTCHER ST	SPRINGDALE	AR	72764	0.23	1.9	2.13	0	0	0	2.13
RR DONNELLEY & SONS CO	6821 E COUNTY RD 1100 N	MATTOON	IL	61938	1.9725	0.138	2.1105	0	0	0	2.1105
KEYMARK CORP	1188 CAYADUTTA ST RT 33	FONDA	NY	12068	0	2.105	2.105	0.00012	0	0	2.10512
RR DONNELLEY	100 QUALITY CT	CHARLESTOWN	IN	47111	1.955	0.148	2.103	0		0	2.103
BON L MANUFACTURING CO	HWY 53 BONNELL RD	CARTHAGE	TN	37030	0.644	1.229	1.873	0	0.214	0.013	2.1
BWAY CORP	1202 AIRPORT RD	NORTH BRUNSWICK	NJ	08902	0.8015	1.2945	2.096	0	0	0	2.096
NEXTEER AUTOMOTIVE CORP	3900 HOLLAND RD	SAGINAW	MI	48601	0.2085	1.875	2.0835	0		0	2.0835
VERTIS COMMUNICATIONS	10911 GRANITE ST	CHARLOTTE	NC	28273	1.8595	0.215	2.0745	0	0	0	2.0745
GM ORION ASSEMBLY CENTER	4555 GIDDINGS RD	LAKE ORION	MI	48359	0.9	0.85	1.75	0		0.32	2.07
SILGAN CONTAINERS MANUFACTURING CORP	2200 WILBUR AVE	ANTIOCH	CA	94509	0	2.067	2.067	0	0	0	2.067
CONSOLIDATED SYSTEMS INC	650 ROSEWOOD DR	COLUMBIA	SC	29201	0	2.0475	2.0475	0	0	0	2.0475
QG LLC (WAS WORLDCOLOR STILLWATER)	100 W AIRPORT RD	STILLWATER	OK	74075	1.8275	0.213	2.0405	0	0	0	2.0405
DURA COAT PRODUCTS INC	26655 PEOPLES RD	MADISON	AL	35756	1.75171	0.28554	2.03725	0	0	0	2.03725
ITW DYMON	805 E OLD 56 HWY	OLATHE	KS	66061	0.6005	1.4015	2.002	0	0	0	2.002
CANFIELD METAL COATING CORP	460 W MAIN ST	CANFIELD	OH	44406	0	2	2	0	0	0	2
VERTIS COMMUNICATIONS	4646 S GRADY AVE	TAMPA	FL	33611	1.818	0.1695	1.9875	0	0	0	1.9875
ACCESS BUSINESS GROUP LLC	7575 FULTON ST E	ADA	MI	49355	1.8935	0.092	1.9855	0		0	1.9855
VEYANCE TECHNOLOGIES INC	2701 W OMAHA AVE	NORFOLK	NE	68701	0.037085	0.10976	0.146845	0	0	1.829935	1.97678
CATERPILLAR INC	3701 STATE RD 26 E	LAFAYETTE	IN	47905	0.1205	1.8545	1.975	0	0	0	1.975
VANGUARD PAINTS & FINISHES INC	1409 GREENE ST	MARIETTA	OH	45750	1.965	0	1.965	0		0	1.965
SENOX CORP	227 S TOWN E BLVD	MESQUITE	TX	75149	0.9865	0.9765	1.963	0	0	0	1.963
RR DONNELLEY / PINEVILLE	10519 INDUSTRIAL DR	PINEVILLE	NC	28134	1.8475	0.098	1.9455	0		0	1.9455
CAMACO COLUMBUS MANUFACTURING	1851 E 32ND AVE	COLUMBUS	NE	68601	0	1.94	1.94	0		0	1.94
OHIO ART CO	ONE TOY ST	BRYAN	OH	43506	1.1855	0.6985	1.884	0	0	0	1.884
STEEL DYNAMICS INC	5134 LOOP RD	JEFFERSONVILLE	IN	47130	0	1.87	1.87	0	0	0	1.87
DUPONT YERKES PLANT	3115 RIVER RD	BUFFALO	NY	14207	0.5085	1.354	1.8625	0	0	0	1.8625

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
BALL AEROSOL & SPECIALTY CONTAINER INC	1717 GIFFORD RD	ELGIN	IL	60120	0.438	1.4	1.838	0	0	0	1.838
CARESTREAM HEALTH COLORADO	2000 HOWARD SMITH AVE	WINDSOR	CO	80550	0.0015	0	0.0015	1.8295	0	5.68122E-17	1.831
RR DONNELLEY / VON HOFFMANN CORP	321 WILSON DR	JEFFERSON CITY	MO	65109	1.78179	0.04407	1.82586	0		0	1.82586
SILGAN WHITE CAP CORP	350 JAYCEE DR VALMONT	HAZLETON	PA	18201	0.779	1.0335	1.8125	0	0	0	1.8125
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	901 N GREENWOOD AVE	KANKAKEE	IL	60901	0.7475	1.054	1.8015	0	0	0	1.8015
STP PRODUCTS MANUFACTURING CO	477 LEXINGTON AVE	PAINESVILLE	OH	44077	1.0615	0	1.0615	0	0	0.7195	1.781
REICHHOLD INC	425 S PACE BLVD	PENSACOLA	FL	32502	0.1375	1.632	1.7695	0		0	1.7695
AMERICAN COLOR GRAPHICS - LUFKIN	3001 ATKINSON DR	LUFKIN	TX	75901	1.6675	0.078	1.7455	0		0	1.7455
GFX INTERNATIONAL	333 BARRON BLVD	GRAYSLAKE	IL	60030	0	1.075	1.075	0		0.67	1.745
BUCKEYE INTERNATIONAL INC	2700 WAGNER PL	MARYLAND HEIGHT	MO	63043	0.125	1.6145	1.7395	0		0	1.7395
WISMARQ CORP	11440 W ADDISON AVE	FRANKLIN PARK	IL	60131	0	1.7385	1.7385	0	0	0	1.7385
DIVERSEY INC	316 HART ST	WATERTOWN	WI	53094	0.00009	0.00003	0.00012	0		1.716	1.71612
SAPA INC - COATINGS DIVSION	5325 NE SKYPORT WAY	PORTLAND	OR	97218	1.46070735	0.251972	1.71267935	0	0	2.22045E-16	1.71267935
SONOCO PRODUCTS CO - PRESIDENTS ISLAND	2755 HARBOR AVE	MEMPHIS	TN	38113	0	1.7065	1.7065	0	0	0	1.7065
EFCO CORP	1000 COUNTY RD	MONETT	MO	65708	1.11	0.586	1.696	0	0	0	1.696
HUNTSMAN PETROCHEMICAL LLC	3892 US HWY 90	DAYTON	TX	77535	0	0.001	0.001	0	0	1.6905	1.6915
FUJIFILM NORTH AMERICA CORP	20 W 14TH AVE	NORTH KANSAS CI	MO	64116	0	1.677	1.677	0	0	0	1.677
TEXAS FINISHING CO	1801 SURVEYOR BLVD	CARROLLTON	TX	75006	0	1.676	1.676	0		0	1.676
GATES CORP	1650 ROWE PKWY	POPLAR BLUFF	MO	63901	0	0.001	0.001	0	0	1.6725	1.6735
BWAY CORP BWAY PACKAGING DIV	8200 BROADWELL RD	CINCINNATI	OH	45244	0.88529	0.72807	1.61336	0		0	1.61336
3M CO - HUTCHINSON	905/915 ADAMS ST SE	HUTCHINSON	MN	55350	0	1.585	1.585	0	0	0	1.585
NESTLE PURINA PETCARE	1000 HAMILTON RD	WEIRTON	WV	26062	0.3935	1.1835	1.577	0	0	0	1.577
RR DONNELLEY & SONS CO	60 SECURITY DR	AVON	CT	06001	1.54	0.0365	1.5765	0	0	0	1.5765
GATES CORP - CHARLESTON	1300 S PLANT RD	CHARLESTON	MO	63834	0	0.00555	0.00555	0	0	1.565	1.57055
LION COPOLYMER LLC	5955 SCENIC HWY	BATON ROUGE	LA	70805	0	0	0	0.0025	0	1.5625	1.565
FUJIFILM MANUFACTURING USA INC	211 PUCKETTS FERRY RD	GREENWOOD	SC	29649	0	1.56	1.56	0		0	1.56
CRYSTAL FINISHING SYSTEMS INC	2608 ROSS AVE	SCHOFIELD	WI	54476	0	1.5361434	1.5361434	0	0	0	1.5361434
INDEPENDENT CAN CO	1300 BRASS MILL RD	BELCAMP	MD	21017	0	1.52745	1.52745	0	0	0	1.52745
MISSION KLEENSWEEP PRODUCTS INC	2434 BIRKDALE ST	LOS ANGELES	CA	90031	1.5	0	1.5	0		0	1.5
BAYOU COS INC	5200 CURTIS LN	NEW IBERIA	LA	70560	1.5	0	1.5	0	0	0	1.5

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
EASTMAN CHEMICAL CO TENNESSEE OPERATIONS	100 EASTMAN RD	KINGSPORT	TN	37662	0.8315	0.5765	1.408	0.087	0	0.001	1.496
DENSO MANUFACTURING TENNESSEE INC	1720, 1725, 1755 ROBERT C	MARYVILLE	TN	37801	0	1.489	1.489	0	0	0	1.489
TAIYO AMERICA INC	2675 ANTLER DR	CARSON CITY	NV	89701	0.005	1.1285	1.1335	0	0	0.3465	1.48
BRIGHTSMITH LLC	120 ENTERPRISE AVE	MORRISVILLE	PA	19067	0.317	1	1.317	0	0	0.161	1.478
CHROMASOURCE INC	2433 S CR 600 E	COLUMBIA CITY	IN	46725	0	1.453	1.453	0	0	0	1.453
RANBAR ELECTRICAL MATERIALS INC	408 MANOR-HARRISON CIT	HARRISON CITY	PA	15636	0	0.0065	0.0065	0	0	1.444	1.4505
DECOSTAR INDUSTRIES INC	1 DECOMA DR	CARROLLTON	GA	30117	0.125	1.31	1.435	0	0	0	1.435
SONY CHEMICALS COPORATION OF AMERICA	215 SATELLITE BLVD NE SU	SUWANEE	GA	30024	0	0	0	0	0	1.418	1.418
J L CLARK INC	923 23RD AVE	ROCKFORD	IL	61104	0.216	1.2005	1.4165	0	0	0	1.4165
AKZO NOBEL COATINGS INC	1313 WINDSOR AVE	COLUMBUS	OH	43211	0.9105	0.5055	1.416	0	0	0	1.416
INCHEM CORP	800 CEL-RIVER RD	ROCK HILL	SC	29730	0.025	0.1875	0.2125	0		1.2005	1.413
ARMSTRONG WORLD INDUSTRIES INC	4115 N PERKINS RD	STILLWATER	OK	74075	0.566	0.8445	1.4105	0	0	0	1.4105
HENTZEN COATINGS,INC BATAVIA FACILITY	1500 LATHEM ST	BATAVIA	IL	60510	1.2675	0.141	1.4085	0	0	0	1.4085
CARDINAL ALUMINUM CO PLAN T 3	4005 OAKLAWN DR	LOUISVILLE	KY	40219	0.0485	1.354	1.4025	0		0	1.4025
FIVE STAR COATINGS GROUP	36616 89TH ST	TWIN LAKES	WI	53181	0	1.4	1.4	0	0	0	1.4
RG STEEL WHEELING LLC BEECH BOTTOM PLANT	2481 RIVER RD	WELLSBURG	WV	26070	0	1.4	1.4	0	0	0	1.4
TRINKOTE INDUSTRIAL FINISHES INC	1800 PARK PL AVE	FORT WORTH	TX	76110	0	1.37545	1.37545	0	0	0	1.37545
ARANDELL CORP	N82 W13118 LEON RD	MENOMONEE FALLS	WI	53051	1.324	0.031	1.355	0	0	0	1.355
CATALYST OILFIELD SERVICES LLC	11999 E HWY 158	GARDENDALE	TX	79758	1.35	0	1.35	0		0	1.35
DUBOIS CHEMICALS INC	3630 E KEMPER RD	SHARONVILLE	OH	45241	0	0	0	0		1.329	1.329
SHEBOYGAN PAINT CO	608 CANAL ST	CEDARTOWN	GA	30125	0.692	0.6285	1.3205	0	0	0	1.3205
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	372 CLEVELAND ST	ROCHESTER	PA	15074	0.517	0.7965	1.3135	0	0	0	1.3135
KELLEY TECHNICAL COATINGS INC	1401 S 15TH ST	LOUISVILLE	KY	40210	1.3	0	1.3	0	0	0	1.3
W W HENRY	150 MOONEY DR	BOURBONNAIS	IL	60914	1.299	0	1.299	0	0	0	1.299
ICL-IP AMERICA INC	11636 HUNTINGTON	GALLIPOLIS FERRY	WV	25515	0.017145	0.356	0.373145	0.8975	0	5.55112E-17	1.270645
GMC TRUCK GROUP ARLINGTON ASSEMBLY PLANT	2525 E ABRAMS ST	ARLINGTON	TX	76010	0.37	0.9	1.27	0		0	1.27
BRUNSWICK CORP MERCURY MARINE DIV	W6250 PIONEER RD	FOND DU LAC	WI	54935	0.127	1.143	1.27	0		0	1.27
KMCO CROSBY PLANT	16503 RAMSEY RD	CROSBY	TX	77532	0.125	0.125	0.25	0	0	1	1.25
WINSLOW-BROWNING INC	215 BROWNSVILLE AVE	LIBERTY	IN	47353	1.2345	0	1.2345	0	0	0	1.2345
WARREN UNILUBE INC	1200 S 8TH ST	WEST MEMPHIS	AR	72301	1.2195	0.0045	1.224	0	0	0	1.224

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
VEOLIA ES TECHNICAL SOLUTIONS LLC PORT ARTHUR FACILITY	HWY 73, 3.5 MILES W OF TA	PORT ARTHUR	TX	77640	0.01137	0.000025	0.011395	0	0	1.2015	1.212895
SUN CHEMICAL CORP	2445 PRODUCTION DR	SAINT CHARLES	IL	60174	0.1815	1.027	1.2085	0	0	0	1.2085
NICHOLS ALUMINUM ALABAMA INC	2001 HWY 20 W	DECATUR	AL	35601	0.9685	0.2385	1.207	0		0	1.207
RYCOLINE PRODUCTS LLC	5540 NW HWY	CHICAGO	IL	60630	0.179	1.015	1.194	0	0	0	1.194
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	701 SHILOH RD	GARLAND	TX	75042	0.701	0.477	1.178	0		0	1.178
MOMENTIVE SPECIALTY CHEMICALS INC	8600 W 71ST ST	BEDFORD PARK	IL	60501	0.202	0.966	1.168	0	0	0	1.168
LOCKHEED MARTIN AERONAUTICS CO	1011 LOCKHEED WAY MZ 0	PALMDALE	CA	93599	0.0475	0.4305	0.478	0		0.6769	1.1549
GENTEK BUILDING PRODUCTS	11 CRAGWOOD RD	AVENEL	NJ	07001	0.1105	1.0205	1.131	0	0	0	1.131
CANBERRA CORP	3610 N HOLLAND-SYLVANIA	TOLEDO	OH	43615	0.75	0.375	1.125	0		0	1.125
HILLYARD INDUSTRIES INC	402 N 3TH ST	SAINT JOSEPH	MO	64501	0.41	0.7075	1.1175	0		0	1.1175
WISMARQ VALENCIA LLC	125 MCFANN RD	VALENCIA	PA	16059	1.0195	0.095	1.1145	0	0	0	1.1145
CROWN CORK & SEAL CO (USA) INC CROWN CLOSURES DIV	940 MILL PARK DR	LANCASTER	OH	43130	0	1.1105	1.1105	0	0	0	1.1105
CELLU TISSUE/CITYFOREST LLC	1215 WORDEN AVE E	LADYSMITH	WI	54848	0	0	0	1.092		0	1.092
GENERAL MOTORS GM VA DETROIT-HAMTRAMCK ASSEMBLY CENTER	2500 E GENERAL MOTORS	DETROIT	MI	48211	0.85	0.21	1.06	0		0.0315	1.0915
POLYMERIC IMAGING INC	117 E 14TH AVE	NORTH KANSAS CIT	MO	64116	0	1.0535	1.0535	0	0	0	1.0535
JOHN DEERE SEEDING & CYLINDER	501 RIVER DR	MOLINE	IL	61265	0	1	1	0	0	0.052	1.052
TESORO REFINING & MARKETING CO - MANDAN REFINERY	900 OLD RED TRAIL NE	MANDAN	ND	58554	1.05	0.0005	1.0505	0	0	0	1.0505
RED SPOT PAINT & VARNISH CO INC	1016 E COLUMBIA ST	EVANSVILLE	IN	47711	0.621	0.426	1.047	0	0	0	1.047
PPG INDUSTRIES OHIO INC (CL)	3800 W 143 ST	CLEVELAND	OH	44111	0.3955	0.647	1.0425	0	0	0	1.0425
PPG ARCHITECTURAL FINISHES EAST POINT	1377 OAKLEIGH DR	EAST POINT	GA	30344	0.0025	0.459	0.4615	0	0	0.5645	1.026
MITSUBISHI MOTORS NORTH AMERICA INC	100 N MITSUBISHI MOTORV	NORMAL	IL	61761	1.0115	0.01	1.0215	0	0	0	1.0215
CP CONVERTERS INC	15 GRUMBACHER RD	YORK	PA	17402	1.01857	0	1.01857	0	0	0	1.01857
TTM TECHNOLOGIES-SANTA CLARA	407 MATHEW ST	SANTA CLARA	CA	95050	0	1.0005	1.0005	0		0	1.0005
POLARTEC LLC	46 STAFFORD ST	LAWRENCE	MA	01841	0.998	0	0.998	0		0	0.998
AKZONOBEL AEROSPACE COATINGS	1 E WATER ST	WAUKEGAN	IL	60085	0.491	0.493	0.984	0	0	0	0.984
SUN CHEMICAL CORP	1380 FORD RD	MAUMEE	OH	43537	0.145	0.821	0.966	0	0	0	0.966
UNITED PAINT & CHEMICAL	24671 TELEGRAPH RD	SOUTHFIELD	MI	48034	0.9615	0	0.9615	0	0	0	0.9615
INTEL CORP - RONLER ACRES CAMPUS	2501 NW 229TH ST	HILLSBORO	OR	97124	0.0025	0.95	0.9525	0		0	0.9525
SPIRALKOTE FLEXIBLE PACKAGING	1200 CENTRAL FLORIDA PK	ORLANDO	FL	32837	0	0.941	0.941	0	0	0	0.941

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
HUNT REFINING CO A CORP	1855 FAIRLAWN RD	TUSCALOOSA	AL	35401	0.932	0	0.932	0		0	0.932
PARKER HANNIFIN	400 S ST	MC COOK	NE	69001	0	0	0	0	0	0.9275	0.9275
COMPLEMENTARY COATINGS CORP	4701 O'DONNELL ST	BALTIMORE	MD	21224	0.9215	0	0.9215	0	0	0	0.9215
3M CO - BROWNWOOD	4501 HWY 377 S	BROWNWOOD	TX	76801	0.06	0.85	0.91	0	0	0.007	0.917
FINISHES UNLIMITED INC	482 WHEELER RD	SUGAR GROVE	IL	60554	0.4455	0.4455	0.891	0		0	0.891
WESTERN METAL DECORATING CO	8875 INDUSTRIAL AVE	RANCHO CUCAMON	CA	91730	0.5	0.375	0.875	0	0	0	0.875
PRECOAT METALS	5888 E COUNTY RD 180	BLYTHEVILLE	AR	72315	0	0.874	0.874	0	0	0	0.874
LEVLAD	9200 MASON AVE	CHATSWORTH	CA	91311	0.00017	0	0.00017	0		0.8475	0.84767
PARISER INDUSTRIES INC	91 MICHIGAN AVE	PATERSON	NJ	07503	0.845	0	0.845	0		0	0.845
CURTIS METAL FINISHING CO	9917 N ALPINE	MACHESNEY PARK	IL	61115	0.594	0.237	0.831	0		0	0.831
GREIF PACKAGING LLC	2400 COOPER AVE	MERCED	CA	95348	0.174	0.652	0.826	0	0	0	0.826
GENERAL MOTORS LLC BOWLING GREEN ASSEMBLY PLANT	600 CORVETTE DR	BOWLING GREEN	KY	42101	0.165	0.65	0.815	0		0	0.815
CCP COMPOSITES US	2434 HOLMES RD	HOUSTON	TX	77051	0.8	0.0026	0.8026	0	0	0	0.8026
ALCOA COMMERCIAL WINDOWS LLC (DBA TRACO)	71 PROGRESS AVE	CRANBERRY TOWN	PA	16066	0.032	0.7645	0.7965	0	0	0	0.7965
TTM TECHNOLOGIES INC	234 CASHMAN DR	CHIPPEWA FALLS	WI	54729	0	0.793	0.793	0		0	0.793
KAWNEER CO INC	7200 DOE AVE	VISALIA	CA	93291	0.054	0.7295	0.7835	0	0	0	0.7835
WATSON STANDARD CO (NEVILLE ISLAND PLANT)	2895 GRAND AVE	PITTSBURGH	PA	15225	0.6695	0.1055	0.775	0	0	0	0.775
CHAMPION TECHNOLOGIES INC	115 PROCTOR	ODESSA	TX	79762	0.2845	0.0085	0.293	0	0	0.4805	0.7735
NICHOLS ALUMINUM DAVENPORT	1725 ROCKINGHAM RD	DAVENPORT	IA	52802	0.217	0.556	0.773	0		0	0.773
SPECTRUM METAL FINISHING	535 BEV RD	YOUNGSTOWN	OH	44512	0.4	0.35	0.75	0	0	0.002	0.752
UNIVAR USA INC HOUSTON FM 529	11235 FM 529	HOUSTON	TX	77041	0.375	0.375	0.75	0		0	0.75
RUST-OLEUM CORP	8105 95TH ST	PLEASANT PRAIRIE	WI	53158	0.375	0.375	0.75	0	0	0	0.75
STEELSCAPE	222 W KALAMA RIVER RD	KALAMA	WA	98625	0.00447	0.731035	0.735505	0	0	0	0.735505
ZEP INC	1310 SEABOARD INDUSTRI	ATLANTA	GA	30318	0.104	0.138	0.242	0.0705		0.4195	0.732
GLASS COATINGS & CONCEPTS	300 LAWTON AVE	MONROE	OH	45050	0.7245	0.0025	0.727	0		0	0.727
BASF CORP	1175 MARTIN ST	GREENVILLE	OH	45331	0.085	0.135	0.22	0	0	0.5	0.72
SYNDICATE SYSTEMS INC	402 N MAIN ST	MIDDLEBURY	IN	46540	0	0.712	0.712	0	0	0	0.712
CHRYSLER GROUP LLC STERLING STAMPING PLANT (PART)	35777 VAN DYKE	STERLING HEIGHTS	MI	48312	0.7	0	0.7	0	0	0	0.7
SPARTAN CHEMICAL CO INC	1110 SPARTAN DR	MAUMEE	OH	43537	0.0675	0	0.0675	0		0.608	0.6755
WORWAG COATINGS LLC NORTH AMERICA	3420 KOSSUTH ST	LAFAYETTE	IN	47905	0.5495	0.125	0.6745	0	0	0	0.6745

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
DIAMOND VOGEL PAINTS	5111 E 36TH ST N	TULSA	OK	74115	0.658	0.0135	0.6715	0	0	0	0.6715
TERNIUM USA INC	2500 RON BEAN BLVD	SHREVEPORT	LA	71115	0.0205	0.65	0.6705	0	0	0	0.6705
UNIVERSAL CHEMICALS & COATINGS INC	1124 ELMHURST RD	ELK GROVE VILLAG	L	60007	0	0.6585	0.6585	0		0	0.6585
VISTA PAINT CORP	2020 E ORANGETHORPE A	FULLERTON	CA	92831	0.6185	0	0.6185	0	0	0.0395	0.658
SONOCO PRODUCTS CO	1854 CENTRAL FLORIDA PI	ORLANDO	FL	32837	0.4935	0.1645	0.658	0	0	0	0.658
QUESTVAPCO CORP	12255 FM 529	HOUSTON	TX	77041	0.65	0	0.65	0	0	0	0.65
DPIX LLC	1635 AEROPLAZA DR	COLORADO SPRING	CO	80916	0.4635	0.1855	0.649	0	0	0	0.649
SEYMOUR OF SYCAMORE INC	917 CROSBY AVE	SYCAMORE	IL	60178	0.585	0.0635	0.6485	0	0	0	0.6485
COMMERCIAL MERCHANDISING CORP	1337 J WOOD BRANCH DR	CHARLOTTE	NC	28273	0.32	0.32	0.64	0	0	0	0.64
B-WAY PACKAGING INC	6 LITHO RD	TRENTON	NJ	08648	0.063	0.568	0.631	0	0	0	0.631
PRECOAT METALS	6754 SANTA BARBARA CT	ELKRIDGE	MD	21075	0	0.628695	0.628695	0	0	0	0.628695
SPRAYLAT CORP IL	1701 E 122-ND ST	CHICAGO	IL	60633	0.0315	0.595	0.6265	0	0	0	0.6265
COMPLEX CHEMICALS CO INC	MADISON PARISH INDUSTR	TALLULAH	LA	71282	0.375	0.125	0.5	0.125		0	0.625
BOEING COMMERCIAL AIRPLANE GROUP - RENTON	737 LOGAN AVE N	RENTON	WA	98055	0.462	0.115	0.577	0		0.039	0.616
FORD MOTOR CO CHICAGO ASSEMBLY	12600 S TORRENCE AVE	CHICAGO	IL	60633	0.49	0.125	0.615	0		0	0.615
FLINT GROUP NORTH AMERICA CORP	2675 HENKLE DR	LEBANON	OH	45036	0.604	0.004	0.608	0	0	0	0.608
ROCK TENN CO	2301 S 21ST ST	CLINTON	IA	52732	0.097	0.5095	0.6065	0		0	0.6065
WESTERN EXTRUSIONS CORP	1735 SANDY LAKE RD	CARROLLTON	TX	75006	0.125	0.477	0.602	0.0025		1.11022E-16	0.6045
SUPERIOR OIL CO INC RECLAIMED ENERGY DIV	1500 WESTERN AVE	CONNERSVILLE	IN	47331	0.0725	0.0015	0.074	0	0	0.530225	0.604225
STEELSCAPE INC	7001 ALLISON-BONNET ME	FAIRFIELD	AL	35064	0.003895	0.59948	0.603375	0	0	0	0.603375
WISMARQ CORP	930 ARMOUR RD	OCONOMOWOC	WI	53066	0	0.599	0.599	0	0	0	0.599
NEXEO SOLUTIONS LLC	8500 S WILLOW SPRINGS R	WILLOW SPRINGS	IL	60480	0.541	0.0485	0.5895	0	0	0	0.5895
CORSICANA TECHNOLOGIES INC	2733 E HWY 31	CORSICANA	TX	75109	0.044	0.0025	0.0465	0	0	0.54	0.5865
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	5400 23RD AVE	MOLINE	IL	61265	0.207	0.3685	0.5755	0	0	0	0.5755
DUPONT MOUNT CLEMENS PLANT	400 GROESBECK HWY	MOUNT CLEMENS	MI	48043	0.0025	0.5725	0.575	0	0	0	0.575
SILGAN CONTAINERS MANUFACTURING CORP	12130 LYNN AVE S	SAVAGE	MN	55378	0	0.575	0.575	0	0	0	0.575
TRELLEBORG COATED SYSTEMS US INC / GRACE ADVANCED MATERIALS	715 RAILROAD AVE & HWY	RUTHERFORDTON	NC	28139	0	0.0055	0.0055	0	0	0.5645	0.57
CENTRIA	500 PERTH DR NEW ECON	AMBRIDGE	PA	15003	0	0.559	0.559	0	0	0	0.559
PRIOR COATED METALS	2233 26TH ST SW	ALLENTOWN	PA	18103	0	0.5515	0.5515	0	0	0	0.5515
SIMONIZ USA INC	201 BOSTON TURNPIKE	BOLTON	CT	06043	0.0185	0.001	0.0195	0	0	0.528	0.5475

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
SOUTHERN CLAY PRODUCTS INC	1335 S 13TH ST	LOUISVILLE	KY	40210	0.0025	0.125	0.1275	0		0.4175	0.545
ENGINEERED POLYMER SOLUTIONS I NC D/B/A VALSPAR COATINGS	90 CARSON RD	BIRMINGHAM	AL	35215	0.2075	0.331	0.5385	0	0	0	0.5385
SOUTHWEST DISTRIBUTING CO	539 S DREW ST	MESA	AZ	85210	0.006	0	0.006	0	0	0.53	0.536
HYDRITE CHEMICAL CO	114 N MAIN ST	COTTAGE GROVE	WI	53527	0.07	0.46	0.53	0	0	0	0.53
MARY KAY INC	1330 REGAL ROW	DALLAS	TX	75247	0.00026	0	0.00026	0		0.5265	0.52676
VEYANCE TECHNOLOGIES INC	400 N GOODYEAR RD	MOUNT PLEASANT	IA	52641	0.0005	0	0.0005	0		0.522	0.5225
MARCUS PAINT CO	235 E MARKET ST	LOUISVILLE	KY	40202	0.52	0.0025	0.5225	0	0	0	0.5225
CLEVELAND STEEL CONTAINER - PE OTONE FACILITY	117 E LINCOLN ST	PEOTONE	IL	60468	0.0065	0.5115	0.518	0	0	0	0.518
NALCO CO TULSA PLANT 102	6717 S 61ST W AVE	TULSA	OK	74131	0.000435	0.00335	0.003785	0	0	0.512	0.515785
REICHHOLD INC	249 ST LOUIS AVE	VALLEY PARK	MO	63088	0.256615	0.25603	0.512645	0		5E-06	0.51265
BRADLEY COATINGS GROUP	608 W CRAWFORD AVE	CONNELLSVILLE	PA	15425	0.364595	0	0.364595	0	0	0.147295	0.51189
NALCO CO	812 RENAUD DR	SCOTT	LA	70583	0.000325	0.0005335	0.0008585	0	0	0.51	0.5108585
MIDWEST METAL COATINGS	9 KONZEN CT	GRANITE CITY	IL	62040	0.412	0.098	0.51	0	0	0	0.51
BASF CORP	361 SHEEP PASTURE RD	EAST SETAUKET	NY	11733	0.008	0	0.008	0	0	0.5	0.508
KAWNEER CO INC	500 E 12TH ST	BLOOMSBURG	PA	17815	0.3415	0.164	0.5055	0	0	0	0.5055
CLARIANT CORP MARTIN PLANT	788 CHERT QUARRY RD	MARTIN	SC	29836	0.125	0.0025	0.1275	0.375	0	0	0.5025
FERRO CORP	251 W WYLIE AVE	WASHINGTON	PA	15301	0.125	0.375	0.5	0	0	0	0.5
CHEMICAL SPECIALISTS & DEVELOPMENT INC	9733 MEADOR RD	CONROE	TX	77303	0.125	0.375	0.5	0	0	0	0.5
ARKEMA INC	1415 STEELE AVE SW	GRAND RAPIDS	MI	49507	0.375	0.125	0.5	0	0	0	0.5
FORMULA CORP	4432 C ST NE	AUBURN	WA	98002	0.125	0	0.125	0		0.375	0.5
SASOL NORTH AMERICA INC LAKE CHARLES CHEMICAL COMPLEX	2201 OLD SPANISH TRAIL	WESTLAKE	LA	70669	0.3395	0.151	0.4905	0	0	0	0.4905
ALERIS ROLLED PRODUCTS INC	3321 DURHAM RD	ROXBORO	NC	27573	0.0025	0.4795	0.482	0	0	0	0.482
QG LLC	4581 LOWER VALLEY RD	ATGLEN	PA	19310	0.457	0.013	0.47	0	0	0	0.47
WARREN STAMPING PLANT (PART)	22800 MOUND RD	WARREN	MI	48091	0.46	0	0.46	0	0	0	0.46
SHERWIN-WILLIAMS CO	2802 W MILLER RD	GARLAND	TX	75041	0.003	0.025	0.028	0	0	0.421	0.449
KELLEY TECHNICAL COATINGS INC	1445 S 15TH ST	LOUISVILLE	KY	40210	0.445	0.0025	0.4475	0	0	0	0.4475
FORREST PAINT CO	1011 MCKINLEY ST	EUGENE	OR	97402	0.1785	0.2665	0.445	0		0	0.445
ARDAGH METAL PACKAGING USA INC	3030 BIRCH DR HALF MOO	WEIRTON	WV	26062	0.0695	0.375	0.4445	0	0	0	0.4445
RODDA PAINT CO	6123 N MARINE DR	PORTLAND	OR	97203	0.442	0	0.442	0	0	0	0.442
ENGLERT INC	1200 AMBOY AVE	PERTH AMBOY	NJ	08861	0.1825	0.2595	0.442	0	0	0	0.442

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
ARROW SHED LLC	1 THIRD AVE	HASKELL	NJ	07420	0.0025	0.166	0.1685	0	0	0.2685	0.437
SPRAYLAT CORP	716 S COLUMBUS AVE	MOUNT VERNON	NY	10550	0.0215	0.412	0.4335	0		0	0.4335
SIKA CORP SIKA SARNAFIL DIV	100 DAN RD	CANTON	MA	02021	0	0.433	0.433	0	0	0	0.433
WEST PENN OIL CO,INC130130	2305 MARKET ST EXT.	WARREN	PA	16365	0.4305	0	0.4305	0		0	0.4305
PCCR USA INC	400 E COTTAGE AVE	CARPENTERSVILLE	L	60110	0.008	0.4215	0.4295	0	0	0	0.4295
PACKAGING CORP OF AMERICA COUNCE MILL	HWY 57	COUNCE	TN	38326	0.025	0	0.025	0.395	0	0.0025	0.4225
DUCKBACK PRODUCTS	2644 HEGAN LN	CHICO	CA	95928	0.4186	0	0.4186	0	0	0	0.4186
NB COATINGS INC	2701 E 170TH ST	LANSING	IL	60438	0.4055	0	0.4055	0	0	0.008	0.4135
WEBB CHEMICAL SERVICE CORP	2708 JARMAN	MUSKEGON HEIGHT	MI	49444	0.2605	0	0.2605	0		0.148	0.4085
INTEL CORP	4100 SARA RD M/S RR5-491	RIO RANCHO	NM	87124	0.0025	0.405	0.4075	0		0	0.4075
NAZDAR CHICAGO	1087 N N BRANCH ST	CHICAGO	IL	60622	0.1215	0.2835	0.405	0	0	0	0.405
BASF CORP	100 INDUSTRIAL BLVD	SEAFORD	DE	19973	0.0025	0	0.0025	0		0.3985	0.401
SEWELL PRODUCTS OF FLORIDA LLC	909 MAGNOLIA AVE	AUBURNDALE	FL	33823	0.398	0	0.398	0		0	0.398
THE DOW CHEMICAL CO - LOUISIANA OPERATIONS	21255 LA HWY 1 S	PLAQUEMINE	LA	70764	0.396	0	0.396	0	0	0	0.396
PERMA-PIPE OIL & GAS	5008-11 CURTIS LN	NEW IBERIA	LA	70560	0.395	0	0.395	0	0	0	0.395
AMERICAN METALS CORP	1000 CROCKER RD	WESTLAKE	OH	44145	0	0.391	0.391	0	0	0	0.391
DIVERSIFIED COATING SYSTEMS INC	309 ECHELON RD	GREENVILLE	SC	29605	0.078	0.309	0.387	0	0	0	0.387
VAN CAN CO	1226 S MANUFACTURERS R	TRENTON	TN	38382	0.003815	0.3815	0.385315	0	0	0	0.385315
SPECTRUM CUBIC INC	13 MCCONNELL ST SW	GRAND RAPIDS	MI	49503	0.0185	0.3665	0.385	0	0	0	0.385
3M CO - NEVADA	2120 E AUSTIN BLVD	NEVADA	MO	64772	0.195	0.19	0.385	0		0	0.385
INEOS AMERICAS LLC INEOS OXIDE DIV	21255A HWY 1 S	PLAQUEMINE	LA	70765	0.348	0.036	0.384	0	0	0	0.384
WISCONSIN ALUMINUM FOUNDRY CO INC	838 S 16TH ST	MANITOWOC	WI	54220	0	0.03505	0.03505	0		0.34875	0.3838
METAL COATERS	9133 CENTER AVE	RANCHO CUCAMON	CA	91730	0.03486	0.34859	0.38345	0	0	0	0.38345
BASF CORP	1609 BIDDLE AVE	WYANDOTTE	MI	48192	0.0025	0.0025	0.005	0.0025		0.375	0.3825
EURAMAX INTERNATIONAL INC	450 RICHARDSON DR	LANCASTER	PA	17603	0.01	0.371	0.381	0	0	0	0.381
NASCOTE INDUSTRIES	18310 ENTERPRISE AVE	NASHVILLE	IL	62263	0.132475	0.24667	0.379145	0	0	0	0.379145
ALERIS ROLLED PRODUCTS INC	1 REYNOLDS RD	ASHVILLE	OH	43103	0.0355	0.3435	0.379	0	0	0	0.379
ZSCHIMMER & SCHWARZ	70 GA HWY 22 W	MILLEDGEVILLE	GA	31061	0.0025	0.375	0.3775	0	0	0	0.3775
SANFORD LP LIQUID MANUFACTURING & TECHNOLOGY CENTER	831 VOLUNTEER PKWY	MANCHESTER	TN	37355	0.0025	0.375	0.3775	0	0	0	0.3775

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
QUEST SPECIALTY COATINGS LLC - MENOMONEE FALLS	N92 W14701 ANTHONY AVE	MENOMONEE FALLS	WI	53051	0.375	0	0.375	0	0	0	0.375
PATRIOT PAINT LLC	304 S BLAINE PIKE	PORTLAND	IN	47371	0.375	0	0.375	0	0	0	0.375
CHEMICAL SOLVENTS JENNINGS ROAD FACILITY	3751 JENNINGS RD	CLEVELAND	OH	44109	0.125	0.125	0.25	0	0	0.125	0.375
JASPER RUBBER PRODUCTS INC	1010 FIRST AVE	JASPER	IN	47546	0	0	0	0		0.375	0.375
TOWER PRODUCTS INC	2703 FREEMANSBURG AVE	EASTON	PA	18045	0.375	0	0.375	0		0	0.375
HB FULLER CO	7440 W DUPONT RD	MORRIS	IL	60450	0.3745	0	0.3745	0		0	0.3745
FULLER BRUSH CO	ONE FULLER WAY	GREAT BEND	KS	67530	0.1245	0.2485	0.373	0		0	0.373
LINETEC	725 S 75TH AVE	WAUSAU	WI	54401	0.0205	0.3515	0.372	0	0	0	0.372
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	347 CENTRAL AVE	BOWLING GREEN	KY	42101	0.1285	0.2415	0.37	0	0	0	0.37
NALCO CO PLANT 106	7701 US HWY 90A	SUGAR LAND	TX	77478	0.0552903	0.000065	0.0553553	0		0.31436	0.3697153
PFI INC	9215 SANTA FE SPRINGS R	SANTA FE SPRINGS	CA	90670	0.369	0	0.369	0	0	0	0.369
NELCO PRODUCTS INC	1107 E KIMBERLY	ANAHEIM	CA	92801	0.028	0.3355	0.3635	0	0	0	0.3635
COMBE PRODUCTS INC	EL DUQUE INDUSTRIAL PA	NAGUABO	PR	00718	0	0	0	0		0.3615	0.3615
BEHR PROCESS CORP - CHICAGO	270 STATE ST	CHICAGO HEIGHTS	IL	60411	0.32265	0.00325	0.3259	0	0.0335	0	0.3594
DUPONT FORT MADISON PLANT	801 - 35TH ST	FORT MADISON	IA	52627	0	0.357	0.357	0	0	0	0.357
UNIVAR USA INC SALEM BRANCH	COLONIAL RD	SALEM	MA	01970	0.001	0.001	0.002	0	0	0.352	0.354
CELLO PROFESSIONAL PRODUCTS	1354 OLD POST RD	HAVRE DE GRACE	MD	21078	0.3425	0.0015	0.344	0		0	0.344
SHERWIN-WILLIAMS CO	395 BOGGS LN - S	RICHMOND	KY	40475	0.321	0.021	0.342	0	0	0.002	0.344
CHEMGUARD INC	204 S 6TH AVE	MANSFIELD	TX	76063	0.2265	0.1105	0.337	0.002		0	0.339
EVONIK DEGUSSA CORP TIPPECANOE LABORATORIES	1650 LILLY RD	LAFAYETTE	IN	47909	0.235	0.096	0.331	0	0	0	0.331
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	411 N DARLING	FREMONT	MI	49412	0.31	0.0195	0.3295	0	0	0	0.3295
FUCHS LUBRICANTS CO-CORPORATE OFFICE	17050 S LATHROP AVE	HARVEY	IL	60426	0.329	0	0.329	0	0	0	0.329
BEHR PROCESS CORP ATLANTA	130 DECLARATION DR	MC DONOUGH	GA	30253	0.299	0.00155	0.30055	0	0.0235	0	0.32405
ENERGIZER BATTERY MANUFACTURING INC	75 SWANTON RD	SAINT ALBANS	VT	05478	0.0025	0.1595	0.162	0	0	0.1615	0.3235
CHEMCOAT INC	2790 CANFIELDS LN	MONTOURSVILLE	PA	17754	0.0025	0	0.0025	0	0	0.3155	0.318
CNH AMERICA LLC	2701 OAKES RD	STURTEVANT	WI	53177	0.317	0	0.317	0		0	0.317
ACTEGA KELSTAR INC	1050 TAYLORS LN	CINNAMINSON	NJ	08077	0.0025	0.0075	0.01	0	0	0.3	0.31
EASTMAN KODAK CO EASTMAN BUSINESS PARK	1669 LAKE AVE	ROCHESTER	NY	14652	0	0.0035	0.0035	0.0315	0	0.2735	0.3085
AKZONOBEL COATINGS INC	120 FRANKLIN RD	PONTIAC	MI	48341	0.0485	0.012	0.0605	0		0.245	0.3055

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
SIERRA CORP	11400 W 47TH ST	MINNETONKA	MN	55343	0.3015	0	0.3015	0	0	0	0.3015
PPG EUCLID PRETREATMENT & SPECIALTY PRODUCTS	23000 ST CLAIR AVE	EUCLID	OH	44117	0	0	0	0	0	0.2995	0.2995
HADCO (SANMINA) CORP - OWEGO DIV	1200 TAYLOR RD	OWEGO	NY	13827	0.0105	0.1445	0.155	0		0.1439	0.2989
HARCROS CHEMICALS INC	5200 SPEAKER RD	KANSAS CITY	KS	66106	0.014	0.125	0.139	0.0025		0.1525	0.294
METAL COATERS	1150 MARIETTA INDUSTRIA	MARIETTA	GA	30062	0.004	0.287	0.291	0	0	0	0.291
LONGABERGER CO	5565 RAIDERS RD	FRAZEYSBURG	OH	43822	0.164	0	0.164	0	0	0.125	0.289
HENKEL CORP	23343 SHERWOOD AVE	WARREN	MI	48091	0.125	0.125	0.25	0		0.0385	0.2885
SHERWIN-WILLIAMS CO	180 CANAL ST	TERRE HAUTE	IN	47808	0.018	0.0455	0.0635	0	0	0.222	0.2855
TMS MANUFACTURING	3555 W 123RD ST	ALSIP	IL	60803	0.213	0.071	0.284	0	0	0	0.284
ATMI MATERIALS LTD	706 HOUSTON CLINTON DR	BURNET	TX	78611	0.050735	0.000655	0.05139	0	0	0.22084	0.27223
RUST-OLEUM CORP IN MD	16410 INDUSTRIAL LN	WILLIAMSPORT	MD	21795	0.108	0.163	0.271	0	0	0	0.271
STANDARD PAINTS INC	940 S 6TH AVE	MANSFIELD	TX	76063	0	0.22855	0.22855	0	0	0.042	0.27055
VIDEOJET TECHNOLOGIES INC	1855 ESTES AVE	ELK GROVE VILLAG	L	60007	0	0.269	0.269	0	0	0	0.269
COLWELL INC	231 S PROGRESS DR E	KENDALLVILLE	IN	46755	0.23	0.038	0.268	0	0	0	0.268
MACDERMID PRINTING SOLUTIONS	260 S PACIFIC ST	SAN MARCOS	CA	92078	0	0.2615	0.2615	0		0.000435	0.261935
NEXEO SOLUTIONS LLC	395 JAMES AVE	SAINT PAUL	MN	55102	0.248	0.0135	0.2615	0	0	0	0.2615
IVC INDUSTRIAL COATINGS INC	550-560 W CENTENNIAL BL	CASA GRANDE	AZ	85122	0.052032	0.208128	0.26016	0		5.55112E-17	0.26016
SUMTER COATINGS INC	2410 HWY 15S	SUMTER	SC	29150	0.0545	0.1655	0.22	0	0	0.04	0.26
GATES CORP	630 US HWY 150 E	GALESBURG	IL	61401	0	0	0	0		0.259	0.259
ELPACO COATINGS CORP	1378 KINGSLAND AVE	PAGEDALE	MO	63133	0.1845	0.074	0.2585	0		0	0.2585
GOJO INDUSTRIES INC	3783 STATE RD	CUYAHOGA FALLS	OH	44223	0.0035	0.000287	0.003787	0		0.2545	0.258287
KIK-SOCAL INC	9028 DICE RD	SANTA FE SPRINGS	CA	90670	0.255	0	0.255	0		0	0.255
NEXEO SOLUTIONS LLC CARTERET	350 ROOSEVELT AVE	CARTERET	NJ	07008	0.2295	0.0245	0.254	0	0	0	0.254
TEXAS INSTRUMENTS INC	12201 SW FWY MS600	STAFFORD	TX	77477	0.0025	0.125	0.1275	0	0	0.125	0.2525
MOC PRODUCTS CO INC	12306 MONTAGUE ST	PACOIMA	CA	91331	0.125	0.0025	0.1275	0	0	0.125	0.2525
WR MEADOWS INC	300 INDUSTRIAL DR	HAMPSHIRE	IL	60140	0.2525	0	0.2525	0		0	0.2525
BACHMAN SERVICES INC	2220 S PROSPECT	OKLAHOMA CITY	OK	73129	0.125	0.125	0.25	0	0	0.0025	0.2525
GE WATER & PROCESS TECHNOLOGIES ORANGE FACILITY	3901 WILLIAMS DR	ORANGE	TX	77630	0.125	0.0025	0.1275	0		0.125	0.2525
CONTINENTAL CEMENT CO LLC	10107 HWY 79	HANNIBAL	MO	63401	0.125	0.0025	0.1275	0	0	0.125	0.2525
PPG INDUSTRIES ARCHITECTURAL FINISHES	1886 LYNNBURY WOODS R	DOVER	DE	19904	0.0025	0	0.0025	0		0.25	0.2525

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
WATSON STANDARD CO HARWICK PLANT	616 HITE RD	HARWICK	PA	15049	0.229	0.0215	0.2505	0	0	0	0.2505
QUANTUM COATINGS INC	1337 N WOOD BRANCH DR	CHARLOTTE	NC	28273	0.125	0.125	0.25	0		0	0.25
MISCO PRODUCTS CORP	1048 STINSON DR	READING	PA	19605	0.125	0.125	0.25	0		0	0.25
MALCO PRODUCTS INC	361 FAIRVIEW AVE	BARBERTON	OH	44203	0.125	0.125	0.25	0	0	0	0.25
KEYSTONE ANILINE CORP	2165 HWY 292	INMAN	SC	29349	0.125	0.125	0.25	0	0	0	0.25
EQUILON CARSON TERMINAL	20945 S WILMINGTON AVE	CARSON	CA	90810	0.125	0.125	0.25	0		0	0.25
PREMIER INK SYSTEMS INC	10420 N STATE ST	HARRISON	OH	45030	0.125	0	0.125	0		0.125	0.25
DELEET MERCHANDISING	26 BLANCHARD ST	NEWARK	NJ	07105	0.125	0.125	0.25	0		0	0.25
CERAM TRAZ CORP CERAMIC INDL COATINGS	325 HWY 81	OSSEO	MN	55369	0.125	0.125	0.25	0		0	0.25
BECKER SPECIALTY CORP	15310 ARROW BLVD	FONTANA	CA	92335	0.125	0.125	0.25	0	0	0	0.25
UNIVAR USA INC STRONGSVILLE BRANCH	21600 DRAKE RD	STRONGSVILLE	OH	44136	0.125	0.125	0.25	0		0	0.25
ARCADIA INC	3225 E WASHINGTON BLVD	VERNON	CA	90058	0.125	0.125	0.25	0		0	0.25
UNIVAR USA INC HOUSTON	777 BRISBANE ST	HOUSTON	TX	77061	0.125	0.125	0.25	0	0	0	0.25
SILBOND CORP	9901 SAND CREEK HWY	WESTON	MI	49289	0.125	0.125	0.25	0	0	0	0.25
YENKIN-MAJESTIC PAINT CORPORAT ION	1920 LEONARD AVE	COLUMBUS	OH	43219	0.125	0.125	0.25	0	0	0	0.25
UNIVAR USA INC DALLAS DAN MORTON FACILITY	3636 DAN MORTON DR	DALLAS	TX	75236	0.125	0.125	0.25	0	0	0	0.25
UNIVAR USA INC HAMILTON BRANCH	12 STANDEN DR	HAMILTON	OH	45015	0.125	0.125	0.25	0		0	0.25
POWER SERVICE PRODUCTS INC	513 PEASTER HWY	WEATHERFORD	TX	76086	0.125	0.125	0.25	0	0	0	0.25
BERGQUIST CO	301 WASHINGTON ST W	CANNON FALLS	MN	55009	0.078	0.171	0.249	0	0	0	0.249
NEXEO SOLUTIONS LLC TWINSBURG HIGHLAND	1610 E HIGHLAND RD	TWINSBURG	OH	44087	0.2285	0.0195	0.248	0	0	0	0.248
AMREP INC	990 INDUSTRIAL PARK DR	MARIETTA	GA	30062	0.129	0.115	0.244	0	0	0	0.244
ARLON INC ADHESIVES & FILMS DIV	2811 S HARBOR BLVD	SANTA ANA	CA	92704	0.132	0.1045	0.2365	0	0	0	0.2365
NEXEO SOLUTIONS LLC DORAVILLE	4550 NE EXPRESSWAY	DORAVILLE	GA	30340	0.159	0.0695	0.2285	0	0	0	0.2285
GEMINI COATINGS INC	2300 HOLLOWAY DR	EL RENO	OK	73036	0.219	0.0025	0.2215	0.0025	0	0	0.224
ROLLEX CORP	800 CHASE AVE	ELK GROVE VILLAG	L	60007	0	0.2235	0.2235	0		0	0.2235
INTEL CORP	4500 S DOBSON RD MAIL S	CHANDLER	AZ	85248	0.0025	0.22	0.2225	0		0	0.2225
DAVIS-FROST INC	3420 CANDLER'S MOUNTAI	LYNCHBURG	VA	24506	0.221	0	0.221	0	0	0	0.221
LAMBERTI USA INC - WHARTON CHEMICAL COMPLEX	HWY 59 AT COUNTY RD 21	HUNGERFORD	TX	77448	0.0495	0	0.0495	0.055	0	0.11	0.2145
HENKEL CORP	923 MAULDIN RD	CALHOUN	GA	30701	0	0.0065	0.0065	0		0.205	0.2115
SERIGRAPH INC	3801 E DECORAH RD	WEST BEND	WI	53095	0.028	0.178	0.206	0		0	0.206

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
RUDD CO INC	1141 NW 50TH ST	SEATTLE	WA	98107	0.1925	0.0125	0.205	0	0	0	0.205
NOV TUBOSCOPE NAVASOTA	9574 FM 1227	NAVASOTA	TX	77868	0.106895	0.09767	0.204565	0	0	0	0.204565
SONOCO FLEXIBLE PACKAGING	6502 S US HWY 31	EDINBURGH	IN	46124	0	0.2045	0.2045	0	0	0	0.2045
SUN CHEMICAL CORP	3301 HUNTING PARK AVE	PHILADELPHIA	PA	19132	0.0305	0.174	0.2045	0	0	0	0.2045
SILGAN WHITE CAP CORP	1701 WILLIAMSBURG PIKE	RICHMOND	IN	47375	0.118	0.084	0.202	0	0	0	0.202
JAMESTOWN COATING TECHNOLOGIES	108 MAIN ST	JAMESTOWN	PA	16134	0.201	0	0.201	0	0	0	0.201
RHODIA INC	577 BANKHEAD HWY	WINDER	GA	30680	0.16	0.0385	0.1985	0		0	0.1985
CAR PRODUCTS INC	630 BEAULIEU ST	HOLYOKE	MA	01040	0.196	0	0.196	0		0	0.196
WM BARR & CO INC	2170 BUOY ST	MEMPHIS	TN	38113	0.0025	0.125	0.1275	0	0	0.068	0.1955
FIRST AMERICAN RESOURCES CO	2030 RIVERVIEW INDUSTRI	MABLETON	GA	30126	0	0.195	0.195	0		0	0.195
NEXEO SOLUTIONS LLC	7710 POLK ST	SAINT LOUIS	MO	63111	0.186	0.0085	0.1945	0	0	0	0.1945
GALATA CHEMICALS LLC - GALATA TAFT FACILITY	471 HWY 3142	HAHNVILLE	LA	70057	0.0345	0.159	0.1935	0	0	0	0.1935
NEXEO SOLUTIONS LLC	3101 WOOD DR	GARLAND	TX	75041	0.152	0.039	0.191	0	0	0	0.191
ENGINEERED POLYMER SOLUTIONS INC (DBA VALSPAR COATINGS)	1717 W ENGLISH RD	HIGH POINT	NC	27261	0.0635	0.1255	0.189	0	0	0	0.189
MAXIM INTEGRATED PRODUCTS INC	9651 WESTOVER HILLS BL	SAN ANTONIO	TX	78251	0	0.188	0.188	0	0	0	0.188
ELEMENTIS SPECIALTIES	400 CLAREMONT AVE	JERSEY CITY	NJ	07304	0.0625	0.1215	0.184	0	0	0	0.184
GREIF INDUSTRIAL PACKAGING & SERVICES LLC	8250 ALMERIA AVE	FONTANA	CA	92335	0.01655	0.16525	0.1818	0	0	0	0.1818
NORTHERN COATINGS & CHEMICAL CO INC	705 6TH AVE	MENOMINEE	MI	49858	0.18	0	0.18	0	0	0	0.18
CERTIFIED ENAMELING INC	3342 EMERY ST	LOS ANGELES	CA	90023	0.0025	0.1765	0.179	0		0	0.179
PPG ARCHITECTURAL FINISHES INC	400 S 13TH ST	LOUISVILLE	KY	40203	0	0.1765	0.1765	0		0.0015	0.178
PPG INDUSTRIES OHIO INC CIRCLEVILLE OH	559 PITTSBURGH RD	CIRCLEVILLE	OH	43113	0.0555	0.122	0.1775	0	0	0	0.1775
3M CO - MEDINA	1030 LAKE RD	MEDINA	OH	44256	0.0365	0.1315	0.168	0	0	0	0.168
ITW PROFESSIONAL AUTOMOTIVE PRODUCTS	3606 CRAFTSMAN BLVD	LAKELAND	FL	33803	0.163	0	0.163	0	0	0	0.163
BOEING COMMERCIAL AIRPLANE GROUP NORTH BOEING FIELD (PART)	7500 E MARGINAL WAY S	SEATTLE	WA	98108	0.0445	0.098	0.1425	0		0.0205	0.163
ENTHONE INC	9809 INDUSTRIAL DR	BRIDGEVIEW	IL	60455	0.0438	0.11826	0.16206	0	0	0	0.16206
SHERWIN-WILLIAMS CO	2150 W SAND LAKE RD	ORLANDO	FL	32809	0	0.0015	0.0015	0	0	0.1575	0.159
SUPERIOR SOLVENTS & CHEMICALS	320 NORTHPOINTE DR	FAIRFIELD	OH	45014	0.004085	0	0.004085	0	0	0.151945	0.15603
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	1991 S WHEELING RD	WHEELING	IL	60090	0.0635	0.0925	0.156	0		0	0.156
AMERIMAX COATED PRODUCTS	215 PHILLIPS 324 RD	HELENA	AR	72342	0	0.154	0.154	0	0	0	0.154

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
BYK USA INC	524 S CHERRY ST	WALLINGFORD	CT	06492	0.15	0.004	0.154	0		0	0.154
SUPERIOR OIL CO INC	400 W REGENT ST	INDIANAPOLIS	IN	46225	0.007065	0	0.007065	0	0	0.14669	0.153755
FRAZEE INDUSTRIES	6625 MIRAMAR RD	SAN DIEGO	CA	92121	0	0.1517	0.1517	0	0	0	0.1517
WR MEADOWS OF ARIZONA INC	4220 S SARIVAL RD	GOODYEAR	AZ	85338	0.1515	0	0.1515	0		0	0.1515
BLENTECH CORP	1305 RYE ST	HOUSTON	TX	77029	0.0125	0.01	0.0225	0		0.125	0.1475
STOUSE INC	300 NEW CENTURY PKWY	NEW CENTURY	KS	66031	0.1475	0	0.1475	0		0	0.1475
NEXEO SOLUTIONS LLC	2011 TURNER ST	LANSING	MI	48906	0.11	0.036	0.146	0	0	0	0.146
ENTHONE INC	350 FRONTAGE RD	WEST HAVEN	CT	06516	0.00284	0.142075	0.144915	0	0	0	0.144915
UNION CARBIDE CORP SOUTH CHARLESTON FACILITY	437 MACCORKLE AVE SW	SOUTH CHARLESTO	WV	25303	0.0745	0.0695	0.144	0		0	0.144
NEXEO SOLUTIONS LLC	3930 GLENWOOD DR	CHARLOTTE	NC	28208	0.085	0.055	0.14	0	0	0	0.14
MEADWESTVACO SOUTH CAROLINA LLC	400 CROSBY RD	DERIDDER	LA	70634	0.05	0.09	0.14	0	0	0	0.14
BJ CHEMICAL SERVICES	707 N LEECH	HOBBS	NM	88240	0.01	0.001905	0.011905	0		0.127845	0.13975
SKF SEALING SOLUTIONS	900 N STATE ST	ELGIN	IL	60123	0	0	0	0	0	0.139	0.139
ACCURATE DISPERSIONS	192 W 155TH ST	SOUTH HOLLAND	IL	60473	0.103	0.0305	0.1335	0		0.0045	0.138
WARREN OIL CO - NC	2340 US 301 N	DUNN	NC	28335	0.137	0.0005	0.1375	0	0	0	0.1375
ARDEX LABORATORIES INC	2050 BYBERRY RD	PHILADELPHIA	PA	19116	0.1365	0	0.1365	0		0	0.1365
SYNGENTA CROP PROTECTION LLC SAINT GABRIEL FACILITY	3905 HWY 75	SAINT GABRIEL	LA	70776	0.0685	0.0645	0.133	0.0005	0	0	0.1335
MID-STATES PAINT & CHEMICAL CO	9315 WATSON INDUSTRIAL	CRESTWOOD	MO	63126	0.1325	0	0.1325	0		0	0.1325
ISP SYNTHETIC ELASTOMERS LP	1615 MAIN ST	PORT NECHES	TX	77651	0	0.132	0.132	0	0	0	0.132
BF GOODRICH TIRE MANUFACTURING	18906 US 24 E	WOODBURN	IN	46797	0.0025	0.0025	0.005	0	0	0.125	0.13
CYTEC INDUSTRIES INC LANGLEY PLANT	403 CARLINE RD	LANGLEY	SC	29834	0.12	0.009	0.129	0		0	0.129
BASF CORP	3455 SOUTHPORT RD	SPARTANBURG	SC	29302	0.125	0.0025	0.1275	0		0	0.1275
BRENNTAG GREAT LAKES LLC	14765 W BOBOLINK AVE	MENOMONEE FALL	WI	53051	0.0025	0.125	0.1275	0	0	0	0.1275
CLEANING SYSTEMS INC	1997 AMERICAN BLVD	DE PERE	WI	54115	0.125	0.0025	0.1275	0		0	0.1275
COASTAL CHEMICAL CO LLC	3520 VETERANS MEMORIA	ABBEVILLE	LA	70510	0.125	0.0025	0.1275	0	0	0	0.1275
US DOD DFSP SAN PEDRO	3171 N GAFFEY ST	SAN PEDRO	CA	90731	0.125	0.0025	0.1275	0		0	0.1275
NICCA USA INC	1044 S NELSON RD	FOUNTAIN INN	SC	29644	0.0025	0.125	0.1275	0		0	0.1275
OAKLEY INC	1 ICON	FOOTHILL RANCH	CA	92610	0.0025	0.125	0.1275	0	0	0	0.1275
PERMATEX SOLON	6875 PARKLAND BLVD	SOLON	OH	44139	0.0025	0.125	0.1275	0		0	0.1275
RR STREET & CO INC	2353 S BLUE ISLAND AVE	CHICAGO	IL	60608	0.0025	0.125	0.1275	0	0	0	0.1275

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
UNITED LABORATORIES INC	320 37TH AVE	SAINT CHARLES	IL	60174	0.125	0.0025	0.1275	0	0	0	0.1275
INTERNATIONAL PAINT LLC	6001 ANTOINE DR	HOUSTON	TX	77091	0.0025	0.125	0.1275	0	0	0	0.1275
COSMETIC LABORATORIES OF AMERICA	20245 SUNBURST ST	CHATSWORTH	CA	91311	0	0.002	0.002	0		0.125	0.127
SACRAMENTO- CAMPBELL SOUP SUPPLY CO	6200 FRANKLIN BLVD	SACRAMENTO	CA	95824	0.125	0	0.125	0		0	0.125
MICHELMAN INC	9080 SHELL RD	CINCINNATI	OH	45236	0	0	0	0		0.125	0.125
FLUID ROUTING SOLUTIONS INC	1921 N BROAD ST	LEXINGTON	TN	38351	0	0	0	0	0	0.125	0.125
MAINTEX INC	13300 E NELSON AVE	CITY OF INDUSTRY	CA	91746	0.125	0	0.125	0		0	0.125
PPG INDUSTRIES INC	500 PITTSBURGH AVE	MCCARRAN	NV	89434	0	0.125	0.125	0		0	0.125
CHEMETALL US INC	13177 HURON RIVER DR	ROMULUS	MI	48174	0	0.125	0.125	0	0	0	0.125
SICPA SECURINK CORP	8000 RESEARCH WAY	SPRINGFIELD	VA	22153	0.125	0	0.125	0	0	0	0.125
TNEMEC CO INC	2300 EDGEWATER AVE	BALTIMORE	MD	21222	0	0.125	0.125	0	0	0	0.125
TNEMEC CO INC	123 W 23RD AVE	NORTH KANSAS CI	MO	64116	0	0.125	0.125	0	0	0	0.125
KALCOR COATINGS CO	37721 STEVENS BLVD	WILLOUGHBY	OH	44094	0.125	0	0.125	0	0	0	0.125
TYSON FRESH MEATS INC	HWY 50 W	HOLCOMB	KS	67851	0.125	0	0.125	0	0	0	0.125
SAFETY-KLEEN SYSTEMS INC	130 A FRONTAGE RD	LEXINGTON	SC	29073	0	0.125	0.125	0	0	0	0.125
CREE INC	4600 SILICON DR	DURHAM	NC	27703	0	0.125	0.125	0		0	0.125
DANLIN INDUSTRIES CORP	23737 HWY 47	THOMAS	OK	73669	0.125	0	0.125	0		0	0.125
GAGE PRODUCTS CO	625 WANDA AVE	FERNDALE	MI	48220	0	0.125	0.125	0		0	0.125
GOLD EAGLE CO	4400 S KILDARE AVE	CHICAGO	IL	60632	0.125	0	0.125	0	0	0	0.125
COLUMBIA PAINT CORP	641 JACKSON AVE	HUNTINGTON	WV	25704	0.125	0	0.125	0	0	0	0.125
BERRYMAN PRODUCTS INC	3800 E RANDOL MILL RD	ARLINGTON	TX	76011	0.125	0	0.125	0		0	0.125
TRANS CHEMICAL INC	419 E DE SOTO AVE	SAINT LOUIS	MO	63147	0.125	0	0.125	0	0	0	0.125
AVON AUTOMOTIVE PLANT 1	603 W 7TH ST	CADILLAC	MI	49601	0.125	0	0.125	0	0	0	0.125
AKCROS CHEMICALS INC	500 JERSEY AVE	NEW BRUNSWICK	NJ	08901	0	0.125	0.125	0		0	0.125
AKZO NOBEL COATINGS INC	1431 PROGRESS AVE	HIGH POINT	NC	27260	0.125	0	0.125	0	0	0	0.125
INVISTA SARL - ORANGE SITE	3055A FM 1006	ORANGE	TX	77630	0	0.125	0.125	0	0	0	0.125
AMERICAN JETWAY CORP	34136 MYRTLE	WAYNE	MI	48184	0.125	0	0.125	0	0	0	0.125
ARCH CHEMICALS INC	HWY 933	BRANDENBURG	KY	40108	0.065	0.059	0.124	0	0	0	0.124
HOLCIM (US) INC HOLLY HILL PLANT	200 SAFETY ST / HWY 453	HOLLY HILL	SC	29059	0.0045	0.118	0.1225	0	0	0	0.1225
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	3050 HANFORD DR	LEBANON	PA	17046	0.0635	0.059	0.1225	0	0	0	0.1225

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
EXXONMOBIL REFINING & SUPPLY BATON ROUGE REFINERY	4045 SCENIC HWY	BATON ROUGE	LA	70805	0.055	0.0015	0.0565	0.065	0	0	0.1215
AEP INDUSTRIES INC	1201 S PINE HILL RD	GRIFFIN	GA	30224	0.00275	0.1165	0.11925	0		0	0.11925
BUZZI UNICEM USA - GREENCASTLE PLANT	3301 S COUNTY RD 150 W	GREENCASTLE	IN	46135	0.027	0.092	0.119	0	0	0	0.119
AMPHENOL APC INC	91 NORTHEASTERN BLVD	NASHUA	NH	03062	0.0025	0.1157165	0.1182165	0		0	0.1182165
ANCHOR PAINT MANUFACTURING CO INC	6707 E 14TH ST	TULSA	OK	74112	0.1155	0	0.1155	0		0	0.1155
CCI MANUFACTURING IL CORP	15550 CANAL BANK RD	LEMONT	IL	60439	0	0.115	0.115	0	0	0	0.115
TEXAS INSTRUMENTS INC	13500 N CENTRAL EXPRES	DALLAS	TX	75243	0	0.114	0.114	0	0	0	0.114
3M COTTAGE GROVE CENTER	10746 INNOVATION RD	COTTAGE GROVE	MN	55016	0.0005	0.1115	0.112	0	0	0	0.112
MEADWESTVACO SC LLC CHARLESTON CHEMICAL PLANT	5598 VIRGINIA AVE	NORTH CHARLESTO	SC	29406	0.111	0.00018	0.11118	0	0	0	0.11118
CHASE PRODUCTS CO	2727 GARDNER RD	BROADVIEW	IL	60155	0.0005	0.1105	0.111	0		0	0.111
TECHNICAL CHEMICAL CO	3327 PIPELINE RD	CLEBURNE	TX	76033	0.1095	0	0.1095	0		0	0.1095
NEXEO SOLUTIONS LLC - EVENDALE	2788 GLENDALE-MILFORD	EVENDALE	OH	45241	0.08	0.028	0.108	0	0	0	0.108
CPJ TECHNOLOGIES	200 TANNER DR	TAYLORS	SC	29687	0.0395	0.0685	0.108	0		0	0.108
DELTA LABORATORIES INC	3710 W COUNTY RD 326	OCALA	FL	34475	0.107	0	0.107	0	0	0	0.107
KEMIRA WATER SOLUTIONS INC	1 CYANAMID RD	MOBILE	AL	36610	0.018	0.0885	0.1065	0	0	0	0.1065
PILOT CHEMICAL CO	11623 N HOUSTON ROSSLY	HOUSTON	TX	77086	0.105	0.001	0.106	0.0005		0	0.1065
SHERWIN-WILLIAMS CO	636 E 40TH ST	HOLLAND	MI	49423	0.1045	0.0015	0.106	0	0	0	0.106
BENJAMIN MOORE & CO PELL CITY	109 BAMBERG DR	PELL CITY	AL	35125	0.1038	0.00045	0.10425	0	0	0	0.10425
NEXEO SOLUTIONS LLC MIAMI	200 NE 181ST ST	MIAMI	FL	33162	0.0755	0.0265	0.102	0		0	0.102
HERCULES INC KENEDY TEXAS	ONE MILL ST	KENEDY	TX	78119	0.06448	0.0364755	0.1009555	0		0	0.1009555
NEXEO SOLUTIONS LLC CARSON	20915 S WILMINGTON AVE	CARSON	CA	90810	0.0905	0.0095	0.1	0		0	0.1
ROCKLINE INDUSTRIES	1113 MARYLAND AVE	SHEBOYGAN	WI	53081	0.0995	0	0.0995	0		0	0.0995
CAROLINA SOLVENTS INC	2274 1ST ST SE	HICKORY	NC	28602	0.092	0.0025	0.0945	0.0025	0	0	0.097
AKZO NOBEL COATINGS INC	1000 INDUSTRIAL PARK DR	CLINTON	MS	39056	0.0945	0	0.0945	0	0	0	0.0945
ROHM & HAAS ELECTRONIC MATERIA LS LLC	455 FOREST ST	MARLBOROUGH	MA	01752	0.0025	0.0025	0.005	0		0.0855	0.0905
TWINCO ROMAX	3100 W MILL RD	MILWAUKEE	WI	53209	0.0885	0.002	0.0905	0		0	0.0905
WATSON LABORATORIES INC	575, 577, 579 CHIPETA WAY	SALT LAKE CITY	UT	84108	0.09024	0	0.09024	0		0	0.09024
STEELSCAPE INC RANCHO	11200 ARROW RT	RANCHO CUCAMON	CA	91730	0.00313	0.084505	0.087635	0	0	1.38778E-17	0.087635
MRCG-KRAFTMAID P3	150 GRAND VALLEY AVE	ORWELL	OH	44076	0.0055	0.0645	0.07	0	0	0.0175	0.0875
PLASTI-KOTE INC	1000 LAKE RD	MEDINA	OH	44258	0.0635	0.023	0.0865	0	0	0	0.0865

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
NEXEO SOLUTIONS LLC	5420 SPEAKER RD	KANSAS CITY	KS	66106	0.078	0.008	0.086	0	0	0	0.086
CE BRADLEY LABORATORIES INC	55 BENNETT DR	BRATTLEBORO	VT	05301	0.0845	0	0.0845	0	0	0	0.0845
OLDCASTLE BUILDING ENVELOPE - TENNESSEE FACILITY	920 POTTERTOWN RD	MIDWAY	TN	37809	0	0.0845	0.0845	0	0	0	0.0845
NEXEO SOLUTIONS LLC	400 MAIN ST	TEWKSBURY	MA	01876	0.0755	0.0075	0.083	0	0	0	0.083
EXXONMOBIL CHEMICAL BATON ROUGE CHEMICAL PLANT	4999 SCENIC HWY	BATON ROUGE	LA	70805	0.032	0	0.032	0.05	0	0	0.082
AKZO NOBEL PAINTS PUERTO RICO LLC	65TH INFANTRY AVE KM. 1	CAROLINA	PR	00985	0.047	0.034845	0.081845	0		0	0.081845
ATHEA LABORATORIES INC	7855 N FAULKNER RD	MILWAUKEE	WI	53224	0.0816	0.00006	0.08166	0		0	0.08166
UNIVAR USA INC ROMULUS BRANCH	13395 HURON RIVER DR	ROMULUS	MI	48174	0.034	0.0465	0.0805	0	0	0	0.0805
SOUTH FLORIDA MATERIALS CORP DBA VECENERGY-PORT EVERGLADES	1200 SE 32ND ST	FT LAUDERDALE	FL	33316	0.078	0	0.078	0		0	0.078
LUBRIZOL	9550 W 55TH ST	MC COOK	IL	60525	0	0.0745	0.0745	0		0	0.0745
SUPERIOR SOLVENTS & CHEMICALS	4211 BRAMERS LN	LOUISVILLE	KY	40216	0.0035	0	0.0035	0	0	0.066175	0.069675
PPG INDUSTRIES OHIO INC - DELAWARE	760 PITTSBURGH DR	DELAWARE	OH	43015	0.03892	0.0298	0.06872	0		0	0.06872
PROCTER & GAMBLE HAIR CARE LLC	2200 LOWER MUSCATINE R	IOWA CITY	IA	52240	0.0205	0.009	0.0295	0		0.0375	0.067
MATTHEWS INTERNATIONAL CORP	101 FAIRVIEW AVE	PITTSBURGH	PA	15238	0.0515	0.0155	0.067	0	0	0	0.067
PLAZE INC	105 BOLTE LN	SAINT CLAIR	MO	63077	0.066	0	0.066	0	0	0	0.066
WHITFORD CORP	47 PARK AVE	ELVERSON	PA	19520	0.062295	0.00328	0.065575	0	0	0	0.065575
KARCHER NORTH AMERICA PROCHEM	325 S PRICE RD	CHANDLER	AZ	85224	0.0655	0	0.0655	0		0	0.0655
IMPERIAL PAINT CO INC	2526 NW YEON AVE	PORTLAND	OR	97210	0	0.0635	0.0635	0		0	0.0635
NEXEO SOLUTIONS LLC FAIRFIELD	2461 CROCKER CIR	FAIRFIELD	CA	94533	0.0615	0.001	0.0625	0	0	0	0.0625
VALVOLINE	720 VAIDEN DR	HERNANDO	MS	38632	0.017	0.0445	0.0615	0		0	0.0615
MAXIM INTEGRATED PRODUCTS INC	3725 N FIRST ST	SAN JOSE	CA	95134	0	0.0615	0.0615	0	0	0	0.0615
VEOLIA ES TECHNICAL SOLUTIONS LLC	125 FACTORY LN	MIDDLESEX	NJ	08846	0.045	0.0145	0.0595	0		0.001	0.0605
ADCO CLEANING PRODUCTS LLC	900 W MAIN ST	SEDALIA	MO	65301	0.0195	0.041	0.0605	0	0	0	0.0605
ABC COMPOUNDING CO OF TEXAS INC	1102 AVE J E	GRAND PRAIRIE	TX	75050	0.0025	0.0575	0.06	0	0	0	0.06
KAY CHEMICAL CO	8300 CAPITAL DR	GREENSBORO	NC	27409	0.011	0.0485	0.0595	0		0	0.0595
CLOROX PRODUCTS MANUFACTURING CO	2600 HUNTINGTON DR	FAIRFIELD	CA	94533	0.0585	0.0005	0.059	0		0	0.059
NPA COATINGS INC	11120 BEREA RD	CLEVELAND	OH	44102	0	0.0585	0.0585	0	0	0	0.0585
MINUTEMAN INTERNATIONAL MULTI-CLEAN DIV	600 CARDIGAN RD	SHOREVIEW	MN	55126	0.056	0.0025	0.0585	0		0	0.0585
FRANKLIN INTERNATIONAL	2020 BRUCK ST	COLUMBUS	OH	43207	0.0055	0.052	0.0575	0		0	0.0575

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
MRCG-KRAFTMAID P1	16052 INDUSTRIAL PKWY	MIDDLEFIELD	OH	44062	0	0.047	0.047	0	0	0.01	0.057
ECOLAB INC	942 BAKER RD	MARTINSBURG	WV	25405	0.0415	0.0145	0.056	0		0	0.056
ECOLAB INC	18383 E RAILROAD ST	CITY OF INDUSTRY	CA	91748	0.0195	0.0355	0.055	0		0	0.055
CLEVELAND STEEL CONTAINER - KILGORE	5005 ELDER LAKE RD	KILGORE	TX	75662	0.0025	0.052	0.0545	0	0	0	0.0545
HARLEY-DAVIDSON MOTOR CO OPERATIONS INC	1425 EDEN RD	YORK	PA	17402	0.007	0.0475	0.0545	0		0	0.0545
RECKITT BENCKISER	799 RT 206 & HILLSBOROU	HILLSBOROUGH	NJ	08844	0.0445	0.01	0.0545	0		0	0.0545
VALSPAR SAMUEL CABOT DIV	100 HALE ST	NEWBURYPORT	MA	01950	0.0505	0.002	0.0525	0	0	0	0.0525
CONOCOPHILLIPS PONCA CITY REFINERY	1000 S PINE ST	PONCA CITY	OK	74602	0.0025	0.0495	0.052	0	0	0	0.052
AKZO NOBEL COATINGS INC	1660 CROSS ST SE	SALEM	OR	97302	0.0275	0.0244	0.0519	0		0	0.0519
HUNTSMAN ADVANCED MATERIALS AMERICAS INC	555 HUNTSMAN RD	MC INTOSH	AL	36553	0.0146	0.03655	0.05115	0		0	0.05115
ECOLAB INC	3001 CHANNAHON RD	JOLIET	IL	60436	0.0375	0.013	0.0505	0		0	0.0505
SHERWIN-WILLIAMS CO	630 E 13TH	ANDOVER	KS	67002	0.036	0.0145	0.0505	0	0	0	0.0505
UNIVAR USA INC - TOLEDO SOUTH BRANCH	4051 S AVE	TOLEDO	OH	43615	0.01	0.0405	0.0505	0		0	0.0505
CONOCOPHILLIPS OKLAHOMA CITY PRODUCTS TERMINAL	4700 NE 10TH ST	OKLAHOMA CITY	OK	73117	0.0025	0.0475	0.05	0		0	0.05
DYSTAR LP	209 WATLINGTON INDUSTR	REIDSVILLE	NC	27320	0.035	0.015	0.05	0		0	0.05
HENKEL CORP	137 FOLLY MILL RD	SEABROOK	NH	03874	0.0025	0.04705	0.04955	0	0	0	0.04955
CUSTOM SYNTHESIS LLC	1704 DENVER RD	ANDERSON	SC	29625	0.0025	0.047	0.0495	0	0	0	0.0495
BARTON SOLVENTS INC BETTENDORF	204 36TH ST	BETTENDORF	IA	52722	0.0115	0.0375	0.049	0		0	0.049
SHERWIN-WILLIAMS CO	113 STAGE COACH TRAIL	GREENSBORO	NC	27409	0.015	0.034	0.049	0	0	0	0.049
ELECTRONICS FOR IMAGING INC	1260 JAMES L HART PKWY	YPSILANTI	MI	48197	0.0485	0	0.0485	0	0	0	0.0485
BRENNTAG SOUTHEAST INC	2000 E PETTIGREW ST	DURHAM	NC	27703	0.029	0.017	0.046	0	0	0	0.046
DIC IMAGING PRODUCTS USA LLC	7335 S 10TH ST	OAK CREEK	WI	53154	0.0045	0.0415	0.046	0	0	0	0.046
GRAPHIC CONTROLS LLC	400 EXCHANGE ST	BUFFALO	NY	14204	0.046	0	0.046	0		0	0.046
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	901 W UNION ST	MONTEBELLO	CA	90640	0.037	0.007	0.044	0	0	0	0.044
CHAMPION TECHNOLOGIES INC	3130 FM 521	FRESNO	TX	77545	0.043	0	0.043	0	0	0	0.043
BRENNTAG PACIFIC INC	10747 PATTERSON PL	SANTA FE SPRINGS	CA	90670	0.038	0.0045	0.0425	0	0	0	0.0425
CHAMPION TECHNOLOGIES INC	1816 S JACKSON ST	MAGNOLIA	AR	71753	0.042	0.00005	0.04205	0	0	0	0.04205
ECOLAB INC	261 HWY 155 S	MC DONOUGH	GA	30253	0.0075	0.0335	0.041	0		0	0.041
ENGINEERED POLYMER SOLUTIONS INC D/B/A VALSPAR COATINGS	2000 WESTHALL ST	PITTSBURGH	PA	15233	0.0315	0.009	0.0405	0	0	0	0.0405

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
VALERO THREE RIVERS REFINERY	301 LEROY ST	THREE RIVERS	TX	78071	0.0395	0	0.0395	0	0	0	0.0395
BIOLAB INC	1735 DOGWOOD DR	CONYERS	GA	30012	0.03915	0	0.03915	0	0	0	0.03915
HANNA STEEL CORP	220 HANNA DR	PEKIN	IL	61554	0.0025	0.0355	0.038	0	0	0	0.038
CONOCOPHILLIPS CO EAST ST LOUIS TERMINAL	3300 MISSISSIPPI AVE	CAHOKIA	IL	62206	0	0.036	0.036	0	0.002	0	0.038
BRENNTAG SOUTHWEST INC SAND SPRINGS	206 E MORROW RD	SAND SPRINGS	OK	74063	0.0175	0.02	0.0375	0	0	0	0.0375
LUBRIZOL CORP	29400 LAKELAND BLVD	WICKLIFFE	OH	44092	0.0365	0	0.0365	0	0	0	0.0365
CHAMPION TECHNOLOGIES INC	710 MARVIN A SMITH BLVD	LONGVIEW	TX	75662	0.035	0.0015	0.0365	0	0	0	0.0365
HARCROS CHEMICALS INC	4606 NEW W DR	PASADENA	TX	77507	0.0125	0.0215	0.034	0	0.0025	0	0.0365
KWAL-HOWELLS INC (DBA KWAL PAINT INC)	2430 ALBERT BROADFOOT	BONHAM	TX	75418	0	0.0355	0.0355	0	0	0	0.0355
BARTON SOLVENTS INC DES MOINES	1970 NE BROADWAY	DES MOINES	IA	50313	0.0065	0.029	0.0355	0	0	0	0.0355
BARTON SOLVENTS INC KANSAS CITY	901 S 66TH TERRACE	KANSAS CITY	KS	66111	0.01	0.025	0.035	0	0	0	0.035
BRENNTAG NORTHEAST INC	81 W HULLER LN	READING	PA	19605	0.0177	0.0172	0.0349	0	0	0	0.0349
GEORGIA-PACIFIC CHEMICALS LLC	1429 E LUFKIN AVE	LUFKIN	TX	75901	0.032	0.002	0.034	0		0	0.034
DAUBERT CHEMICAL CO	4700 S CENTRAL AVE	CHICAGO	IL	60638	0.01723	0.015975	0.033205	0	0	0	0.033205
SI GROUP INC	1000 MAIN ST	ROTTERDAM JUNCT	NY	12150	0	0.02354	0.02354	0.0095	0	0	0.03304
NEXEO SOLUTIONS LLC TAMPA	5125 W HANNA AVE	TAMPA	FL	33634	0.0015	0.0315	0.033	0	0	0	0.033
BOEING COMMERCIAL AIRPLANE GROUP PLANT 2 (PART)	7755 E MARGINAL WAY S	SEATTLE	WA	98108	0.0305	0	0.0305	0	0.0025	3.46945E-18	0.033
NEXEO SOLUTIONS LLC HOUSTON	8901 OLD GALVESTON RD	HOUSTON	TX	77034	0.005	0.0265	0.0315	0	0	0	0.0315
HENKEL CORP	421 LONDON RD	DELAWARE	OH	43015	0	0.031	0.031	0		0	0.031
BAKER PETROLITE CORP	9100 W 21ST ST	SAND SPRINGS	OK	74063	0.01406	0.00076	0.01482	0	0	0.01577	0.03059
VALERO REFINING CO - TENNESSEE LLC	2385 RIVERPORT RD	MEMPHIS	TN	38109	0.03	0	0.03	0	0	0	0.03
UNIVAR USA INC MORRISVILLE BRANCH	200 DEAN SIEVERS PL	MORRISVILLE	PA	19067	0.0135	0.0165	0.03	0	0	0	0.03
ARKEMA COATINGS & RESINS	13511 MAIN ST	LEMONT	IL	60439	0.0075	0.0225	0.03	0	0	0	0.03
RICHARDSAPEX INC	4202-24 MAIN ST	PHILADELPHIA	PA	19127	0.021111	0	0.021111	0		0.0080495	0.0291605
HEXPOL COMPOUNDING BURTON RUBBER PROCESSING	HWY 353 S	JONESBOROUGH	TN	37659	0	0.0275	0.0275	0	0	0	0.0275
BARTON SOLVENTS INC WEST BEND	800 RAIL WAY	WEST BEND	WI	53095	0.0025	0.024	0.0265	0	0	0	0.0265
SHERWIN-WILLIAMS CO	1025 HOWARD ST	GREENSBORO	NC	27403	0.0055	0.021	0.0265	0		0	0.0265
TYCO FIRE SUPPRESSION & BUILDING PRODUCTS	1 STANTON ST	MARINETTE	WI	54143	0.002595	0.02347	0.026065	0		3.46945E-18	0.026065
BRENNTAG SOUTHWEST INC LONG VIEW	610 FISHER RD	LONGVIEW	TX	75604	0.014	0.012	0.026	0		0	0.026

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
PLAZE INC	1000 INTEGRAM DR	PACIFIC	MO	63069	0.025	0	0.025	0	0	0	0.025
BARTON SOLVENTS INC COUNCIL BLUFFS	2135 9TH AVE	COUNCIL BLUFFS	IA	51502	0.0015	0.0215	0.023	0	0	0	0.023
SHERWIN-WILLIAMS CO	2121 NEW WORLD DR	COLUMBUS	OH	43207	0.008	0.0135	0.0215	0	0	0	0.0215
SHERWIN-WILLIAMS CO	11700 S COTTAGE GROVE	CHICAGO	IL	60628	0	0	0	0	0	0.0215	0.0215
ECOLAB INC	2305 SHERWIN ST	GARLAND	TX	75041	0.0105	0.01	0.0205	0		0	0.0205
HERITAGE-WTI INC	1250 ST GEORGE ST	EAST LIVERPOOL	OH	43920	0.00495	0.00006	0.00501	0		0.015	0.02001
3M CO - SPRINGFIELD	3211 E CHESTNUT EXPY	SPRINGFIELD	MO	65802	0	0.02	0.02	0	0	0	0.02
AFTON CHEMICAL CORP	501 MONSANTO AVE	SAUGET	IL	62201	0.005	0.015	0.02	0		0	0.02
EXXONMOBIL OIL CORP - TORRANCE REFINERY	3700 W 190TH ST	TORRANCE	CA	90509	0.02	0	0.02	0		0	0.02
PRIDE SOLVENTS & CHEMICAL CO OF NEW JERSEY	211 RANDOLPH AVE	AVENEL	NJ	07001	0.005	0.0145	0.0195	0	0	0	0.0195
HEXPOL COMPOUNDING BURTON RUBBER PROCESSING	14330 KINSMAN RD	BURTON	OH	44021	0	0.0195	0.0195	0	0	0	0.0195
BARTON SOLVENTS INC WICHITA	201 S CEDAR	VALLEY CENTER	KS	67147	0.01	0.0095	0.0195	0	0	0	0.0195
UNIVAR USA INC JACKSONVILLE FA CILITY	155 ELLIS RD S	JACKSONVILLE	FL	32254	0.015	0.0045	0.0195	0	0	0	0.0195
ZEP COMMERCIAL	350 JOE FRANK HARRIS PK	EMERSON	GA	30137	0	0.019	0.019	0	0	0	0.019
VALSPAR REFINISH	210 CROSBY ST	PICAYUNE	MS	39466	0	0.019	0.019	0	0	0	0.019
VEOLIA ES TECHNICAL SOLUTIONS LLC	7 MOBILE AVE	SAUGET	IL	62201	0.0015	0.002	0.0035	0	0	0.0155	0.019
BENJAMIN MOORE & CO JOHNSTOWN	UNION AVE EXTENSION	JOHNSTOWN	NY	12095	0.01885	0.0000175	0.0188675	0	0	0	0.0188675
VEYANCE TECHNOLOGIES INC	4021 N 56TH ST	LINCOLN	NE	68504	0.00000135	0.00000005	0.0000014	0		0.0179517	0.0179531
PRC-DESOTO INTERNATIONAL INC	11601 UNITED ST	MOJAVE	CA	93501	0.0075	0.0085	0.016	0	0	0	0.016
PLAZE INC	113 BOLTE LN	SAINT CLAIR	MO	63077	0.016	0	0.016	0	0	0	0.016
DUPONT PARLIN PLANT	CHEESEQUAKE RD	PARLIN	NJ	08859	0.002	0.0135	0.0155	0	0	0	0.0155
CLEARWATER INTERNATIONAL LLC	100 INDUSTRIAL DR (BLDG	LEETSDALE	PA	15056	0.006	0.000085	0.006085	0		0.0092	0.015285
Z TECHNOLOGIES CORP	26500 CAPITOL AVE	REDFORD	MI	48239	0	0.0125	0.0125	0	0	0.0025	0.015
SHERWIN-WILLIAMS CO	6795 S MAIN ST	MORROW	GA	30260	0.004	0.0105	0.0145	0	0	0	0.0145
TOYO INK AMERICA LLC	2400 N HARVEY MITCHELL	BRYAN	TX	77807	0.005	0.009	0.014	0	0	0	0.014
INTERSTATE CHEMICAL CO INC	2797 FREEDLAND RD	HERMITAGE	PA	16148	0.003	0.011	0.014	0		0	0.014
RUSTOLEUM CORP	7850 OHIO RIVER RD	LESAGE	WV	25537	0.001	0.0125	0.0135	0	0	0	0.0135
AIR PRODUCTS PERFORMANCE MANUFACTURING INC	337 VINCENT DR	MILTON	WI	53563	0.0025	0.011	0.0135	0		0	0.0135
DAVIES IMPERIAL COATINGS INC	1275 STATE ST	HAMMOND	IN	46320	0.013	0	0.013	0		0	0.013
VARN INTERNATIONAL	1333 N KIRK RD	BATAVIA	IL	60510	0.008	0.0025	0.0105	0.0025	0	0	0.013

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
GOODWIN CO	700 PROGRESS CENTER A	LAWRENCEVILLE	GA	30043	0.01091	0.002	0.01291	0		0	0.01291
PRIDE SOLVENT & CHEMICAL CO OF NY INC	6 LONG ISLAND AVE	HOLTSVILLE	NY	11742	0.003	0.0095	0.0125	0	0	0	0.0125
SHERWIN-WILLIAMS CO	2325 HOLLINS FERRY RD	BALTIMORE	MD	21230	0.0015	0.0105	0.012	0	0	0	0.012
NEXEO SOLUTIONS LLC TWINSBURG ENTERPRISE	1842 ENTERPRISE PKWY	TWINSBURG	OH	44087	0.002	0.0095	0.0115	0	0	0	0.0115
DSM DESOTECH INC	1101 HWY 27 S	STANLEY	NC	28164	0	0.0112	0.0112	0	0	0	0.0112
RESEARCH SOLUTIONS GROUP INC	133 BAIN DR	LA VERGNE	TN	37086	0.0003	0.01087	0.01117	0		0	0.01117
TRUE VALUE MANUFACTURING	201 JANDUS RD	CARY	IL	60013	0.0025	0.0085	0.011	0	0	0	0.011
DUPONT FRONT ROYAL PLANT	7961 WINCHESTER RD	FRONT ROYAL	VA	22630	0.001	0.01	0.011	0	0	0	0.011
SHERWIN-WILLIAMS CO	26300 FARGO AVE	BEDFORD HEIGHTS	OH	44146	0.0005	0.0015	0.002	0	0	0.009	0.011
HYDRITE CHEMICAL CO	2545 BOND ST	UNIVERSITY PARK	IL	60466	0	0.011	0.011	0	0	0	0.011
GIANT CEMENT CO	HWY 453 & I-26 (654 JUDGE	HARLEYVILLE	SC	29448	0.001	0.001	0.002	0	0	0.0085	0.0105
FERRO CORP WALTON HILLS OPERATIONS	7050 KRICK RD	WALTON HILLS	OH	44146	0.0035	0.0005	0.004	0		0.0065	0.0105
TAKASAGO INTERNATIONAL CORP (USA)	267 UNION ST	NORTHVALE	NJ	07647	0.01	0.0005	0.0105	0		0	0.0105
VOGEL PAINT & WAX CO INC	1020 ALBANY PL SE	ORANGE CITY	IA	51041	0.0025	0.008	0.0105	0	0	0	0.0105
HOLLY OAK CHEMICAL INC	101 CASE ST	FOUNTAIN INN	SC	29644	0.010345	0	0.010345	0		0	0.010345
SHERWIN-WILLIAMS CO	12401 INDUSTRIAL BLVD	VICTORVILLE	CA	92392	0.0045	0.0055	0.01	0	0	0	0.01
UNIVAR USA INC NORCROSS FACILI TY	2145 SKYLAND CT	NORCROSS	GA	30071	0.0035	0.006	0.0095	0		0	0.0095
HUBBARD-HALL INC	563 S LEONARD ST	WATERBURY	CT	06708	0.0005	0.009	0.0095	0		0	0.0095
CARBOLINE CO	900 OPELOUSAS ST	LAKE CHARLES	LA	70601	0	0.0095	0.0095	0	0	0	0.0095
ETHOX CHEMICALS LLC	1801 PERIMETER RD	GREENVILLE	SC	29605	0.0025	0.0065	0.009	0		0	0.009
BUCKLEY OIL CO	1809 ROCK ISLAND ST	DALLAS	TX	75207	0.007	0.002	0.009	0	0	0	0.009
UNIVAR USA INC	7050 W 71ST ST	BEDFORD PARK	IL	60499	0.00472	0.00415	0.00887	0	0	0	0.00887
BERRIDGE MANUFACTURING CO	6515 FRATT RD	SAN ANTONIO	TX	78218	0	0.0085	0.0085	0	0	0	0.0085
GACO WESTERN	1245 CHAPMAN DR	WAUKESHA	WI	53186	0.0085	0	0.0085	0	0	0	0.0085
CHEMOL CO INC	2300 RANDOLPH AVE	GREENSBORO	NC	27406	0	0.00812	0.00812	0		0	0.00812
INTERSTATE CHEMICAL CO INC	23247 W EAMES ST	CHANNAHON	IL	60410	0.002	0.0055	0.0075	0		0	0.0075
CLEAN HARBORS ENVIRONMENTAL SERVICES INC	2247 S HWY 71	KIMBALL	NE	69145	0.005	0.0025	0.0075	0	0	0	0.0075
UNIVAR USA INC NEW BERLIN	2400 S 170TH ST	NEW BERLIN	WI	53151	0.00505	0.00197	0.00702	0	0	0	0.00702
FORD MOTOR CO DEARBORN TOOL & DIE PLANT	3001 MILLER RD	DEARBORN	MI	48121	0.007	0	0.007	0		0	0.007
VERSO PAPER HOLDINGS LLC	ANDROSCOGGIN MILL RILE	JAY	ME	04239	0.0025	0	0.0025	0.0035	0	0.0005	0.0065

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
PROCTER & GAMBLE CO GPDF	5348 VINE ST	CINCINNATI	OH	45217	0.0065	0	0.0065	0	0	0	0.0065
UNIVAR USA INC TAMPA FACILITY	6049 OLD 41A HWY	TAMPA	FL	33619	0.002	0.0045	0.0065	0	0	0	0.0065
UNIVAR USA INC DORAVILLE FACILITY	1 ALCHEMY PL	DORAVILLE	GA	30362	0.003	0.0035	0.0065	0		0	0.0065
SHERWIN-WILLIAMS CO	404 E MALLORY AVE	MEMPHIS	TN	38109	0.002	0.0045	0.0065	0	0	0	0.0065
PPG ARCHITECURAL COATINGS HOUSTON	3530 LANG RD	HOUSTON	TX	77092	0.0025	0.004	0.0065	0	0	0	0.0065
IGM RESINS CHARLOTTE	3300 WESTINGHOUSE BLV	CHARLOTTE	NC	28273	0.0065	0	0.0065	0		0	0.0065
CONOCOCPHILLIPS CO WICHITA TERMINAL	2400 E 37TH ST N	WICHITA	KS	67219	0	0.00648	0.00648	0	0	0	0.00648
BRULIN CORP	2920 DR ANDREW J BROW	INDIANAPOLIS	IN	46205	0.002642	0.003495	0.006137	0		0	0.006137
PROCTER & GAMBLE MANUFACTURING CO	1900 KANSAS AVE	KANSAS CITY	KS	66105	0.005905	0.000205	0.00611	0		0	0.00611
NEW DAWN MANUFACTURING CO	16001 TRADE ZONE AVE	UPPER MARLBORO	MD	20774	0.0060048	0	0.0060048	0		0	0.0060048
UNIVAR USA INC JAMESTOWN FACILITY	108 OAKDALE RD	JAMESTOWN	NC	27282	0.003	0.003	0.006	0		0	0.006
UNIVAR USA INC	2600 S GARFIELD AVE	COMMERCE	CA	90040	0.006	0	0.006	0	0	0	0.006
KING INDUSTRIES INC	SCIENCE RD	NORWALK	CT	06852	0.0031	0.00275	0.00585	0		0	0.00585
LANCO MANUFACTURING CORP	URB.APONTE #5	SAN LORENZO	PR	00754	0.0056	0.00003	0.00563	0		0	0.00563
DIVERSEY INC - WAXDALE FACILITY	8311 16TH ST	STURTEVANT	WI	53177	0.00025	0.005285	0.005535	0		0	0.005535
CHEMTEX LABORATORIES INC	2725 ARMENTROUT DR	CONCORD	NC	28025	0.0055	0	0.0055	0		0	0.0055
OMNIUM	1280 IMPERIAL RD	HAMPTON	IA	50441	0.002	0.0035	0.0055	0	0	0	0.0055
CALLAHAN CHEMICAL CO	200 INDUSTRIAL AVE	RIDGEFIELD PARK	NJ	07660	0.0025	0.003	0.0055	0	0	0	0.0055
INTERNATIONAL PAINT LLC	640 N ROCKY RIVER DR	BEREA	OH	44017	0.0025	0.0025	0.005	0	0	0	0.005
CENTRAL SOLUTIONS INC	401 FUNSTON RD	KANSAS CITY	KS	66115	0	0	0	0	0.005	0	0.005
SARTOMER USA LLC	601 TIGHTSQUEEZE INDUS	CHATHAM	VA	24531	0.0025	0.0025	0.005	0		0	0.005
ANDERSON DEVELOPMENT CO	1415 E MICHIGAN ST	ADRIAN	MI	49221	0.0025	0.0025	0.005	0	0	0	0.005
CUSTOM CHEMICAL FORMULATORS INC	8707 MILLERGROVE DR	SANTA FE SPRINGS	CA	90670	0.005	0	0.005	0		0	0.005
GE WATER & PROCESS TECHNOLOGIES	333 S LOMBARD RD	ADDISON	IL	60101	0.0025	0.0025	0.005	0		0	0.005
CR BRANDS INC	141 VENTURE BLVD	SPARTANBURG	SC	29306	0.0025	0.0025	0.005	0		0	0.005
ACTON TECHNOLOGIES INC	100 THOMPSON ST	PITTSTON	PA	18640	0.005	0	0.005	0		0	0.005
CLOROX PRODUCTS MANUFACTURING CO	17 LAKE MIRROR RD	FOREST PARK	GA	30297	0.0025	0.0025	0.005	0		0	0.005
GE WATER & PROCESS TECHNOLOGIES	2118 REISER AVE SE	NEW PHILADELPHIA	OH	44663	0.0025	0.0025	0.005	0		0	0.005
C P INC	196 S WATER	CONNERSVILLE	IN	47331	0.0025	0.0025	0.005	0	0	0	0.005
INDEPENDENT INK INC	14705 S AVALON BLVD	GARDENA	CA	90248	0.0025	0.0025	0.005	0		0	0.005

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
OAKITE PRODUCTS INC (AKA CHEMETALL OAKITE)	16961 KNOTT AVE	LA MIRADA	CA	90638	0.0025	0.0025	0.005	0		0	0.005
PVS NOLWOOD CHEMICALS INC	9000 HUBBELL AVE	DETROIT	MI	48228	0.0025	0.0025	0.005	0	0	0	0.005
SARTOMER USA LLC	610 S BOLMAR ST	WEST CHESTER	PA	19382	0.0025	0.0025	0.005	0		0	0.005
GOODWIN CO	12361 MONARCH ST	GARDEN GROVE	CA	92841	0.004	0.001	0.005	0		0	0.005
BRAIN POWER INC	4470 SW 74TH AVE	MIAMI	FL	33155	0.0025	0.0025	0.005	0		0	0.005
REICHHOLD INC - AZUSA PLANT	237 S MOTOR AVE	AZUSA	CA	91702	0.0025	0.0025	0.005	0	0	0	0.005
EDCO PRODUCTS INC	8700 EXCELSIOR BLVD	HOPKINS	MN	55343	0	0.0045	0.0045	0	0	0	0.0045
EVONIK DEGUSSA CORP	4201 DEGUSSA RD	THEODORE	AL	36582	0.004	0.0005	0.0045	0	0	0	0.0045
LUBRIZOL CORP PAINESVIL LE PLANT	155 FREEDOM RD	PAINESVILLE	OH	44077	0.004	0.0005	0.0045	0		0	0.0045
RESEARCH SOLUTIONS GROUP INC	402 INDUSTRIAL PARK DR	PELHAM	AL	35124	0.00241	0.00184	0.00425	0	0	0	0.00425
TRANSTAR AUTOBODY TECHNOLOGIES	2040 HEISERMAN DR	BRIGHTON	MI	48114	0.00211	0.00207	0.00418	0	0	0	0.00418
PRESTONE PRODUCTS CORP	250 HALLS MILL RD	FREEHOLD	NJ	07728	0.002	0.002	0.004	0	0	0	0.004
MACDERMID INC	1221 FARROW AVE	FERNDALE	MI	48220	0.00178	0.00196	0.00374	0		0	0.00374
UNIVAR USA INC SANTA FE SPRINGS	13900 CARMENITA RD	SANTA FE SPRINGS	CA	90670	0.0005	0.003	0.0035	0	0	0	0.0035
PENRAY COS INC	1801 ESTES AVE	ELK GROVE VILLAG	L	60007	0.0005	0.0005	0.001	0.0025		0	0.0035
SHERWIN-WILLIAMS CO	14 INDUSTRIAL PARK	FLORA	IL	62839	0.0015	0.002	0.0035	0	0	0	0.0035
BOEHRINGER INGELHEIM CHEMICALS INC	2820 N NORMANDY DR	PETERSBURG	VA	23805	0.0015	0.002	0.0035	0	0	0	0.0035
CLARIANT CORP CLEAR LAKE PLANT	9502 BAYPORT BLVD - ETO	PASADENA	TX	77507	0.0031	0	0.0031	0		0	0.0031
HENTZEN COATINGS,INC	6937 W MILL RD	MILWAUKEE	WI	53218	0.00125	0.00185	0.0031	0	0	0	0.0031
SUN CHEMICAL CORP	135 W LAKE ST	NORTHLAKE	IL	60164	0.0005	0.0025	0.003	0	0	0	0.003
AVANTOR PERFORMANCE MATERIALS	600 N BROAD ST	PHILLIPSBURG	NJ	08865	0.003	0	0.003	0	0	0	0.003
CONOCOPHILLIPS MT VERNON PRODUCTS TERMINAL	15138 HWY 96	MOUNT VERNON	MO	65712	0	0.003	0.003	0	0	0	0.003
BRAINERD CHEMICAL CO INC	1200 N PEORIA	TULSA	OK	74147	0	0.0025	0.0025	0		0	0.0025
ECP INC WOODRIDGE	11210 KATHERINE'S CROS	WOODRIDGE	IL	60517	0.0025	0	0.0025	0		0	0.0025
WYNNEWOOD REFINING CO	906 S POWELL	WYNNEWOOD	OK	73098	0	0.0025	0.0025	0	0	0	0.0025
US DOD DFSP VERONA	5449 W MAIN ST	VERONA	NY	13478	0.0025	0	0.0025	0	0	0	0.0025
UNION SPECIALTIES INC	3 MALCOLM HOYT DR	NEWBURYPORT	MA	01950	0.0005	0.002	0.0025	0	0	0	0.0025
RENESSENZ LLC JACKSONVILLE	601 CRESTWOOD ST	JACKSONVILLE	FL	32208	0.0025	0	0.0025	0	0	0	0.0025
NOV TUBOSCOPE HOLMES ROAD	2811 HOLMES RD	HOUSTON	TX	77051	0.0025	0	0.0025	0	0	0	0.0025
NIACET CORP	400 47TH ST	NIAGARA FALLS	NY	14304	0.0025	0	0.0025	0	0	0	0.0025

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
KEYSTONE CEMENT CO	RT 329	BATH	PA	18014	0	0.0025	0.0025	0	0	0	0.0025
HERCULES INC	1111 HERCULES RD	HOPEWELL	VA	23860	0.0025	0	0.0025	0		0	0.0025
HARWICK STANDARD DISTRIBUTION CORP	60 S SEIBERLING ST	AKRON	OH	44305	0.0025	0	0.0025	0		0	0.0025
A BRITE CO	3217 WOOD DR	GARLAND	TX	75041	0.0025	0	0.0025	0		0	0.0025
FINGER LAKES CHEMICAL INC	418-424 ST PAUL ST	ROCHESTER	NY	14605	0.0025	0	0.0025	0		0	0.0025
ATOTECH USA	1750 OVERVIEW DR	ROCK HILL	SC	29730	0.0025	0	0.0025	0	0	0	0.0025
DUPONT EKC TECHNOLOGY	2520 BARRINGTON CT	HAYWARD	CA	94545	0.0005	0.002	0.0025	0		0	0.0025
CR BRANDS INC	230 OLD CONVERSE RD	SPARTANBURG	SC	29307	0.0025	0	0.0025	0		0	0.0025
CHEMICAL SOLVENTS INC--DENISON FACILITY	1010 OLD DENISON AVE	CLEVELAND	OH	44109	0.0025	0	0.0025	0	0	0	0.0025
BRENNTAG SOUTHEAST INC	11750 FRUEHAUF DR	CHARLOTTE	NC	28273	0.001	0.0015	0.0025	0	0	0	0.0025
FISHER SCIENTIFIC INTERNATIONAL MTN DIAGNOSTICS PLANT	8365 VALLEY PIKE	MIDDLETOWN	VA	22645	0	0.0025	0.0025	0	0	0	0.0025
ASTRO CHEMICALS INC	126 MEMORIAL DR	SPRINGFIELD	MA	01104	0.0015	0.0005	0.002	0	0	0	0.002
CALLAHAN CHEMICAL CO	18 INDUSTRIAL RD	WALPOLE	MA	02081	0.001	0.001	0.002	0	0	0	0.002
FORD MOTOR CO DEARBORN DIVERSIFIED MANUFACTURING	3001 MILLER RD	DEARBORN	MI	48121	0.002	0	0.002	0	0	0	0.002
INTERCOASTAL PAINT CO INC	14029 W HARDY	HOUSTON	TX	77060	0.002	0	0.002	0		0	0.002
MARATHON PETROLEUM CO - SPEEDWAY IN TERMINAL	1304 OLIN AVE	INDIANAPOLIS	IN	46222	0.002	0	0.002	0		0	0.002
GENERAL DYNAMICS ORDNANCE & TACTICAL SYSTEMS GARLAND	1200 N GLENBROOK	GARLAND	TX	75040	0.00199	0.000005	0.001995	0	0	4.33681E-19	0.001995
UNIVAR USA INC - TOLEDO BRANCH	30450 TRACY RD	WALBRIDGE	OH	43465	0.001005	0.000885	0.00189	0		0	0.00189
VOLTAIX LLC	197 MEISTER AVE	BRANCHBURG	NJ	08876	0.0005	0.001	0.0015	0	0	0	0.0015
ROHM & HAAS CHEMICALS LLC	2401 E PRATT BLVD	ELK GROVE VILLAGE	IL	60007	0	0.0015	0.0015	0	0	0	0.0015
PENRAY COS INC	440 DENNISTON CT	WHEELING	IL	60090	0.0005	0.0005	0.001	0.0005		0	0.0015
HYDRITE CHEMICAL CO	7300 W BRADLEY RD	MILWAUKEE	WI	53223	0.0005	0.001	0.0015	0		0	0.0015
ENGINEERED POLYMER SOLUTIONS INC	5501 E SLAUSON AVE	CITY OF COMMERC	CA	90040	0	0.0015	0.0015	0	0	0	0.0015
BUCKMAN LABORATORIES INC	1256 N MCLEAN BLVD	MEMPHIS	TN	38108	0	0.0015	0.0015	0		0	0.0015
DYNASOL INC	330 PINE ST	CANTON	MA	02021	0.00145	0	0.00145	0		0	0.00145
BENJAMIN MOORE & CO - NEWARK	134 LISTER AVE	NEWARK	NJ	07105	0.00135	0	0.00135	0	0	0	0.00135
BENJAMIN MOORE & CO - DALLAS	700 W KEARNEY	MESQUITE	TX	75149	0.001315	0.000012	0.001327	0	0	0	0.001327
NORLITE CORP	628 S SARATOGA ST	COHOES	NY	12047	0.00108	0.000205	0.001285	0	0	0	0.001285
CRODA INC	315 CHERRY LN	NEW CASTLE	DE	19720	0.000645	0.0005	0.001145	0		0	0.001145

Table B-3. 2011 Emissions Inventory: Non-Zero Certain Glycol Ether Reported Releases

Facility Name	Address	City	State	Zip Code	Onsite Point Source Emissions (tpy)	Onsite Fugitive Emissions (tpy)	Total Air Emissions (tpy)	Total Releases to Surface Water (tpy)[a]	Total Releases to Soil (tpy)[b]	Total Releases to Other Media (tpy)[c]	Total Emissions (tpy)
FUJIFILM HUNT CHEMICALS USA INC	900 CARNEGIE ST	ROLLING MEADOWS	IL	60008	0.00095	0.00017	0.00112	0		2.1684E-19	0.00112
MANN DISTRIBUTION	3134 POST RD	WARWICK	RI	02886	0.001055	0	0.001055	0		0	0.001055
SINCLAIR WYOMING REFINING CO	100 E LINCOLN AVE	SINCLAIR	WY	82334	0.0005	0.0005	0.001	0	0	0	0.001
SDC TECHNOLOGIES INC	45 PARKER	IRVINE	CA	92618	0.0005	0.0005	0.001	0	0	0	0.001
OMNOVA SOLUTIONS INC	1455 J A COCHRAN BY-PAS	CHESTER	SC	29706	0.000955	0.000025	0.00098	0		0	0.00098
RIKER PRODUCTS INC	4901 STICKNEY AVE	TOLEDO	OH	43612	0.000945	0	0.000945	0	0	0	0.000945
PPG ARCHITECTURAL COATINGS	6804 ENTERPRISE DR	LOUISVILLE	KY	40214	0	0.0007	0.0007	0	0	0	0.0007
LAMBERTI SYNTHESIS USA INC	4001 N HAWTHORNE ST	CHATTANOOGA	TN	37406	0.0005255	0	0.0005255	0	0	0	0.0005255
BP PRODUCTS NORTH AMERICA WHITING	2815 INDIANAPOLIS BLVD	WHITING	IN	46394	0.0005	0	0.0005	0	0	0	0.0005
NATIONAL INDUSTRIAL COATINGS INC DBA NICOAT INC	1600 GLENLAKE AVE	ITASCA	IL	60143	0.0005	0	0.0005	0	0	0	0.0005
NALCO CO	3901 TERRY ST	TEXARKANA	TX	75501	0	0.0005	0.0005	0		0	0.0005
BAKER PETROLITE-RAYNE FACILITY	135 INDUSTRIAL DR	RAYNE	LA	70578	0	0.0005	0.0005	0		0	0.0005
IFF AUGUSTA LTD	3005 INTERNATIONAL BLVD	AUGUSTA	GA	30906	0	0.0004385	0.0004385	0	0	0	0.0004385
PARKER HANNIFIN TECH SEAL DIV	2600 WILCO BLVD	WILSON	NC	27893	0	0.000405	0.000405	0		0	0.000405
GLIDDEN CO	1900 N JOSEY LN	CARROLLTON	TX	75006	0	0.000285	0.000285	0	0	0	0.000285
BAKER PETROLITE KILGORE BLEND PLANT	806 PALUXY ST	KILGORE	TX	75662	0.0001935	0.000079	0.0002725	0	0	0	0.0002725
BAKER PETROLITE CORP	16950 WALLISVILLE RD	HOUSTON	TX	77049	0.000048	0.000171	0.000219	0	0	0	0.000219
CHEMETALL US INC	1610 CLARA ST	JACKSON	MI	49203	0.0000441	0.0001213	0.0001654	0	0	0	0.0001654
BAKER PETROLITE BAYPORT FACILI TY	13200 BAYPARK RD	PASADENA	TX	77507	0	0.0001595	0.0001595	0	0	0	0.0001595
MULTI-COLOR CORP	2281 S US 31	SCOTTSBURG	IN	47170	0	0.000156929	0.000156929	0		0	0.000156929
NALCO CO	125 NALCO WAY/RT 65	ELLWOOD CITY	PA	16117	0.00000224	0.00007	0.00007224	0	0	0	0.00007224
EMERALD SERVICES INC	1825 E ALEXANDER AVE	TACOMA	WA	98421	0	0.00001	0.00001	0	0	0.00002	0.00003
AIR PRODUCTS PERFORMANCE MANUFACTURING INC	474 W 19TH ST	RESERVE	LA	70084	0	0.0000025	0.0000025	0		0	0.0000025

a. Releases to Surface Water reported as "On-Site Releases to Surface Water"
b. Releases to Soil is the sum of reported releases to onsite and offsite releases to land treatment and other land disposal.
c. Releases to other media include reported releases to on-site and offsite groundwater and landfills.
tpy: tons per year

APPENDIX C

Outcome of Screening Procedure for Long-Term Exposures

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	WINSTON-SALEM	North Carolina	27107	172.2405	Retain
	WILLIAMSBURG	Virginia	23185	167	Retain
	FINDLAY	Ohio	45840	154.5	Retain
	FREMONT	Ohio	43420	120.081	Retain
	OWATONNA	Minnesota	55060	117.0605	Retain
	AURORA	Indiana	47001	107.6265	Retain
	WEIRTON	West Virginia	26062	101.1455	Retain
	BISHOPVILLE	South Carolina	29010	96.4635	Retain
	SAINT PAUL	Minnesota	55107	93.5265	Retain
	DEARBORN	Michigan	48121	88.8	Retain
	OLIVE BRANCH	Mississippi	38654	88.089	Retain
	KENT	Washington	98032	87.962	Retain
	REIDSVILLE	North Carolina	27320	77	Retain
	LAWRENCE	Massachusetts	01843	72.1775	Retain
	GREER	South Carolina	29651	70.632	Retain
	COLUMBUS	Ohio	43213	70	Retain
	BRADLEY	Illinois	60915	68.5545	Retain
	OLYMPIA	Washington	98501	68.4155	Retain
	LA PORTE	Indiana	46350	67	Retain
	LONGVIEW	Texas	75604	66.9795	Retain
	CHICAGO	Illinois	60609	65.3755	Retain
	JACKSONVILLE	Florida	32254	61.44	Retain
	WINDSOR	Colorado	80550	57.504	Retain
	MARION	Ohio	43302	55.801	Retain
	CHATSWORTH	California	91311	54.6345	Retain
	PLOVER	Wisconsin	54467	50.75	Retain
	ROME	Georgia	30161	49.5	Retain
	WHITEHOUSE	Ohio	43571	48.081	Retain
	NEW WINDSOR	New York	12553	46.4585	Retain
	MARYSVILLE	Ohio	43040	44.873	Retain
	WORLAND	Wyoming	82401	44.5215	Retain
	ARNOLD	Missouri	63010	44.1865	Retain
	MILWAUKEE	Wisconsin	53224	42.5	Retain
	CLAYCOMO	Missouri	64119	41.75	Retain
	HARRISONBURG	Virginia	22802	40.417	Retain
	PHOENIX	Arizona	85043	39.648	Retain
	FENTON	Missouri	63026	37.5	Retain
	FREMONT	California	94538	37.124	Retain
	WEIRTON	West Virginia	26062	37	Retain
	GOLDEN	Colorado	80401	36.5	Retain
	MONTICELLO	Indiana	47960	36	Retain
	FLINT	Michigan	48551	35.79	Retain
	CLYDE	Ohio	43410	35.3585	Retain
	CONROE	Texas	77305	34.066	Retain
	BALTIMORE	Maryland	21221	33.9615	Retain
	TORRANCE	California	90503	33.65	Retain
	OKLAHOMA CITY	Oklahoma	73179	33.5495	Retain
	LOUISVILLE	Kentucky	40241	33.4	Retain
	SMYRNA	Tennessee	37167	33.318	Retain
	MIRA LOMA	California	91752	32.785	Retain
	SUGAR LAND	Texas	77478	32.1695	Retain
	FAIRFIELD	California	94533	31.5	Retain
	GOLDEN	Colorado	80403	31.5	Retain
	CHICAGO HEIGHTS	Illinois	60411	31.3915	Retain
	BUTLER	Indiana	46721	31.029	Retain
	CAROLINA	Puerto Rico	00985	30.1245	Retain
	BARABOO	Wisconsin	53913	29.8385	Retain
	EAST LIBERTY	Ohio	43319	29.45	Retain
	MONETT	Missouri	65708	29.234	Retain
	FLORENCE	Kentucky	41042	27.5305	Retain
	TAMPA	Florida	33617	27	Retain
	CANTON	Mississippi	39046	26.619	Retain
	DETROIT	Michigan	48215	26.5	Retain
	HANOVER	Pennsylvania	17331	25.986	Retain
	CHICAGO	Illinois	60609	25.7385	Retain
	BATESVILLE	Mississippi	38606	25.251	Retain
	LA CROSSE	Wisconsin	54603	24.5255	Retain
	YANKTON	South Dakota	57078	24.4475	Retain
	TOLEDO	Ohio	43608	23.95	Retain
	PONCA CITY	Oklahoma	74601	23.856	Retain
	SHAWNEE	Oklahoma	74804	23.375	Retain

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	FINDLAY	Ohio	45840	22.8465	Retain
	RED WING	Minnesota	55066	22.8265	Retain
	CHERAW	South Carolina	29520	22.1215	Retain
	LAFAYETTE	Indiana	47905	22.12	Retain
	MANCHESTER	Tennessee	37355	21.7615	Retain
	PASADENA	Texas	77503	20.685	Retain
	HOMERVILLE	Georgia	31634	19.6085	Retain
	CONROE	Texas	77303	18.6	Retain
	YOUNGSTOWN	Ohio	44512	18.42	Retain
	GREENFIELD	Indiana	46140	18.351	Retain
	SARATOGA SPRINGS	New York	12866	18.3	Retain
	WHITE PIGEON	Michigan	49099	18.265	Retain
	SPRING HILL	Tennessee	37174	18.175	Retain
	TERRELL	Texas	75160	17.65	Retain
	SEADRIFT	Texas	77983	17.0355	Retain
	LINCOLN	Alabama	35096	16.753	Retain
	GRAPELAND	Texas	75844	16.437	Retain
	CLEVELAND	Ohio	44105	16.0815	Retain
	PRINCETON	Indiana	47670	16.069	Retain
	HARVEY	Illinois	60426	15.9335	Retain
	WARREN	Ohio	44483	15.922	Retain
	OAK CREEK	Wisconsin	53154	15.854	Retain
	BUSHNELL	Florida	33513	15.8185	Retain
	EVERETT	Washington	98204	15.6	Retain
	WEST HENRIETTA	New York	14586	15.118	Retain
	WESTBROOK	Maine	04098	15.0015	Retain
	TARBORO	North Carolina	27886	14.9185	Retain
	MILWAUKEE	Wisconsin	53212	14.8525	Retain
	PELLA	Iowa	50219	14.569	Retain
	FORT ATKINSON	Wisconsin	53538	14.55	Retain
	NEWBURGH	Indiana	47629	14.5275	Retain
	PIGGOTT	Arkansas	72454	14.37	Retain
	HUNTSVILLE	Alabama	35811	14.2525	Retain
	URBANA	Ohio	43078	14.069	Retain
	FAIRFIELD	California	94533	13.981	Retain
	LONGVIEW	Texas	75602	13.8	Retain
	ALBERTVILLE	Alabama	35950	13.784	Retain
	CRAWFORDSVILLE	Indiana	47933	13.7785	Retain
	CHATTANOOGA	Tennessee	37402	13.7535	Retain
	JACKSON	Mississippi	39272	13.624	Retain
	QUINCY	Illinois	62305	13.111	Retain
	SHEBOYGAN FALLS	Wisconsin	53085	13.105	Retain
	MIDDLETOWN	New York	10940	13	Retain
	FORT WORTH	Texas	76140	13	Retain
	BLANDON	Pennsylvania	19510	12.769	Retain
	MOUNT VERNON	Missouri	65712	12.7475	Retain
	KAPOLEI	Hawaii	96707	12.7	Retain
	FLAT ROCK	Michigan	48134	12.6	Retain
	MANNS CHOICE	Pennsylvania	15550	12.572	Retain
	HARTFORD	Wisconsin	53027	12.4	Retain
	LORDSTOWN	Ohio	44481	12.22	Retain
	VANCE	Alabama	35490	12.209	Retain
	LOUISVILLE	Kentucky	40213	12.125	Retain
	HARRODSBURG	Kentucky	40330	12.019	Retain
	LEEDS	Alabama	35094	11.995	Retain
	HANOVER	Pennsylvania	17331	11.4075	Retain
	BEREA	Kentucky	40403	11.303	Retain
	NORFOLK	Nebraska	68701	11.3	Retain
	BIRMINGHAM	Alabama	35234	11.2995	Retain
	MEBANE	North Carolina	27302	11.2585	Retain
	TOLEDO	Ohio	43612	11.215	Retain
	SIDNEY	Ohio	45365	11.167	Retain
	BLOOMINGTON	Indiana	47404	11.046	Retain
	WOOSTER	Ohio	44691	10.837	Retain
	HARTFORD	Wisconsin	53027	10.75	Retain
	ATHENS	Georgia	30607	10.75	Retain
	SWEETWATER	Tennessee	37874	10.7105	Retain
	FRANKLIN	Pennsylvania	16323	10.7	Retain
	MILAN	Tennessee	38358	10.578	Retain
	CINCINNATI	Ohio	45242	10.48	Retain
	CHEMUNG	New York	14825	10.322	Retain
	CHICAGO	Illinois	60623	10.2385	Retain

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	ELGIN	Illinois	60120	10.15	Retain
	PHILADELPHIA	Pennsylvania	19120	10.1045	Retain
	SPRINGDALE	Arkansas	72764	10.0795	Retain
	NORWALK	Ohio	44857	10	Retain
	DUBLIN	Georgia	31021	9.892	Retain
	CRAWFORDSVILLE	Indiana	47933	9.892	Retain
	WHITE HALL	Arkansas	71602	9.8915	Retain
	LAKELAND	Florida	33810	9.8475	Retain
	CHICAGO	Illinois	60608	9.75	Retain
	MARION	Virginia	24354	9.553	Retain
	AGUADILLA	Puerto Rico	00605	9.53	Retain
	GUIN	Alabama	35563	9.501	Retain
	NEW BRITAIN	Connecticut	06052	9.46	Retain
	FLORENCE	South Carolina	29501	9.4365	Retain
	MYRTLE BEACH	South Carolina	29577	9.3805	Retain
	LAKELAND	Florida	33801	9.34	Retain
	BOARDMAN	Ohio	44512	9.2125	Retain
	SUSSEX	Wisconsin	53089	9.2	Retain
	SAINT JOSEPH	Missouri	64504	9.19	Retain
	MILWAUKEE	Wisconsin	53224	9.148	Retain
	MAXTON	North Carolina	28364	9.125	Retain
	NAPOLEON	Ohio	43545	9.009	Retain
	LEXINGTON	Kentucky	40511	9.0085	Retain
	BRIMFIELD	Ohio	44240	9	Retain
	AURORA	Illinois	60504	8.8715	Retain
	OCONOMOWOC	Wisconsin	53066	8.8	Retain
	LANSING	Michigan	48917	8.73	Retain
	MC DONOUGH	Georgia	30253	8.7	Retain
	EVANSVILLE	Indiana	47710	8.65	Retain
	SAN ANTONIO	Texas	78264	8.625	Retain
	WAYNE	Michigan	48184	8.585	Retain
	CLEVELAND	Tennessee	37311	8.5585	Retain
	CARSON	California	90745	8.482	Retain
	WILLARD	Ohio	44890	8.4475	Retain
	BRIDGEVIEW	Illinois	60455	8.4	Retain
	CLARENDON	Pennsylvania	16313	8.368	Retain
	ARTHUR	Illinois	61911	8.25	Retain
	PARIS	Texas	75460	8.162	Retain
	MASON	Ohio	45040	7.883	Retain
	DAYTON	Tennessee	37321	7.823	Retain
	TOLEDO	Ohio	43607	7.608	Retain
	MERCED	California	95348	7.557	Retain
	ROANOKE	Indiana	46783	7.475	Retain
	AKRON	New York	14001	7.4105	Retain
	MADISON HEIGHTS	Michigan	48071	7.358	Retain
	EDISON	New Jersey	08817	7.35	Retain
	ORION	Michigan	48359	7.3	Retain
	CHICAGO	Illinois	60623	7.2515	Retain
	MENOMONIE	Wisconsin	54751	7.25	Retain
	NASHVILLE	Tennessee	37218	7.2	Retain
	CHICAGO	Illinois	60623	7.19	Retain
	LUFKIN	Texas	75904	7.1205	Retain
	GASTONIA	North Carolina	28052	7.1025	Retain
	LANCASTER	Pennsylvania	17601	7.0965	Retain
	FORT PAYNE	Alabama	35967	6.923	Retain
	NEW ORLEANS	Louisiana	70123	6.8535	Retain
	MEMPHIS	Tennessee	38113	6.841	Retain
	ELK GROVE VILLAGE	Illinois	60007	6.794	Retain
	PASADENA	Texas	77507	6.7625	Retain
	CHICAGO	Illinois	60624	6.7335	Retain
	WARREN	Michigan	48091	6.7	Retain
	TERMINAL ISLAND	California	90731	6.7	Retain
	HARRISBURG	North Carolina	28075	6.6745	Retain
	LANSING	Michigan	48921	6.65	Retain
	SAINT FRANCIS	Wisconsin	53235	6.6085	Retain
	ONEIDA	Tennessee	37841	6.568	Retain
	DOVER	Delaware	19904	6.516	Retain
	DYERSBURG	Tennessee	38024	6.3705	Retain
	NEWTON	Mississippi	39345	6.312	Retain
	EAST MOLINE	Illinois	61244	6.29	Retain
	EFFINGHAM	Illinois	62401	6.155	Retain

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	BAXTER SPRINGS	Kansas	66713	6.15	Retain
	SHREVEPORT	Louisiana	71129	6.105	Retain
	MARION	New York	14505	6.103	Retain
	MISSOURI VALLEY	Iowa	51555	6.013	Retain
	HAMMOND	Indiana	46320	6	Retain
	CEDAR FALLS	Iowa	50613	5.991	Retain
	ROSSFORD	Ohio	43460	5.952	Retain
	SAINT JOE	Indiana	46785	5.906	Retain
	SARATOGA SPRINGS	New York	12866	5.9	Retain
	LOWVILLE	New York	13367	5.8595	Retain
	MIDDLEVILLE	Michigan	49333	5.837	Retain
	WARREN	Ohio	44483	5.7945	Retain
	OWENSVILLE	Missouri	65066	5.7815	Retain
	SHANNON	Mississippi	38868	5.7565	Retain
	WINTER GARDEN	Florida	34787	5.754	Retain
	TINKER A F B	Oklahoma	73145	5.75	Retain
	LANCASTER	Pennsylvania	17601	5.6915	Retain
	WEIRTON	West Virginia	26062	5.684	Retain
	BURLINGTON	Iowa	52601	5.675	Retain
	ORANGEBURG	South Carolina	29116	5.64	Retain
	SPRINGFIELD	Ohio	45502	5.6	Retain
	GRANITE CITY	Illinois	62040	5.559	Retain
	RUSSELLVILLE	Kentucky	42276	5.544	Retain
	SPRINGDALE	Pennsylvania	15144	5.524	Retain
	ALSIP	Illinois	60803	5.5095	Retain
	CLAIRTON	Pennsylvania	15025	5.5	Retain
	DURHAM	North Carolina	27703	5.4965	Retain
	GEORGETOWN	Kentucky	40324	5.475	Retain
	HARTLAND	Maine	04943	5.435	Retain
	SHAWNEE	Kansas	66227	5.4105	Retain
	OAKDALE	California	95361	5.4	Retain
	STARR	South Carolina	29684	5.3545	Retain
	SALEM	Virginia	24153	5.296	Retain
	COTTONWOOD	Minnesota	56229	5.2865	Retain
	LENOIR	North Carolina	28645	5.286	Retain
	SACRAMENTO	California	95824	5.271	Retain
	CHILTON	Wisconsin	53014	5.258	Retain
	COLUMBUS	Indiana	47201	5.25	Retain
	ZACHARY	Louisiana	70791	5.145	Retain
	JACKSON	Mississippi	39272	5.1255	Retain
	WACONIA	Minnesota	55387	5.0815	Retain
	HOUSTON	Texas	77015	5.075	Retain
	HOPKINSVILLE	Kentucky	42240	5.07	Retain
	LAKE BLUFF	Illinois	60044	5.058	Retain
	LA PORTE	Indiana	46350	5.028	Retain
	LONGMONT	Colorado	80501	4.95	Retain
	SAINT LOUIS	Missouri	63104	4.8465	Screened Out
	ASHLEY	Indiana	46705	4.825	Screened Out
	INDEPENDENCE	Missouri	64051	4.7265	Screened Out
	DIXON	California	95620	4.7155	Screened Out
	SAINT CLOUD	Minnesota	56303	4.709	Screened Out
	SAINT MARYS	Ohio	45885	4.6885	Screened Out
	ERIE	Pennsylvania	16502	4.674	Screened Out
	SIDNEY	Ohio	45365	4.6175	Screened Out
	YORK	South Carolina	29745	4.5795	Screened Out
	WENTZVILLE	Missouri	63385	4.5	Screened Out
	GENEVA	Alabama	36340	4.4905	Screened Out
	WAUPACA	Wisconsin	54981	4.4685	Screened Out
	REDMOND	Washington	98052	4.415	Screened Out
	MOUNT VERNON	Indiana	47620	4.4	Screened Out
	ENDICOTT	New York	13760	4.3655	Screened Out
	WASECA	Minnesota	56093	4.3235	Screened Out
	KANSAS CITY	Missouri	64120	4.24	Screened Out
	BATESVILLE	Mississippi	38606	4.23	Screened Out
	LA PORTE	Texas	77571	4.2185	Screened Out
	MENOMONEE FALLS	Wisconsin	53051	4.2	Screened Out
	PORTAGE	Indiana	46368	4.182	Screened Out
	DANVILLE	Kentucky	40422	4.1565	Screened Out
	WOODSTOCK	Illinois	60098	4.125	Screened Out
	RIVERBANK	California	95367	4.1055	Screened Out
	OLIVE BRANCH	Mississippi	38654	4.097	Screened Out
	FONTANA	California	92337	4.05	Screened Out

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	STILLWATER	Oklahoma	74075	3.9275	Screened Out
	ARLINGTON	Texas	76011	3.9255	Screened Out
	AIKEN	South Carolina	29801	3.88	Screened Out
	LEWISPORT	Kentucky	42351	3.8235	Screened Out
	WEIRTON	West Virginia	26062	3.802	Screened Out
	TORRANCE	California	90502	3.7925	Screened Out
	EAST GREENVILLE	Pennsylvania	18041	3.7365	Screened Out
	LA CROSSE	Wisconsin	54601	3.7245	Screened Out
	ORANGEBURG	South Carolina	29115	3.705	Screened Out
	NORTH BRUNSWICK	New Jersey	08902	3.6765	Screened Out
	TOLEDO	Ohio	43607	3.674	Screened Out
	NORTH KANSAS CITY	Missouri	64116	3.547	Screened Out
	STRONGSVILLE	Ohio	44149	3.535	Screened Out
	BATESVILLE	Indiana	47006	3.504	Screened Out
	FOREST GROVE	Oregon	97116	3.485	Screened Out
	SALINA	Kansas	67401	3.4845	Screened Out
	CINCINNATI	Ohio	45244	3.48	Screened Out
	SAINT PAUL	Minnesota	55116	3.41	Screened Out
	STAFFORD	Connecticut	06075	3.403	Screened Out
	PONTIAC	Michigan	48341	3.385	Screened Out
	KENTLAND	Indiana	47951	3.38	Screened Out
	LEBANON	Ohio	45036	3.376	Screened Out
	WINCHESTER	Virginia	22603	3.3515	Screened Out
	LYONS	New York	14489	3.3	Screened Out
	LINCOLN	Nebraska	68524	3.196	Screened Out
	MARINETTE	Wisconsin	54143	3.1955	Screened Out
	PORTLAND	Oregon	97203	3.1635	Screened Out
	GREENCASTLE	Indiana	46135	3.104	Screened Out
	ROCHELLE	Illinois	61068	3.0715	Screened Out
	HAUPPAUGE	New York	11788	2.97	Screened Out
	ADA	Michigan	49355	2.947	Screened Out
	OLATHE	Kansas	66061	2.9415	Screened Out
	SAN ANTONIO	Texas	78251	2.9395	Screened Out
	GAINESVILLE	Georgia	30504	2.926	Screened Out
	HUEYTOWN	Alabama	35023	2.8985	Screened Out
	COLUMBUS	Ohio	43228	2.88	Screened Out
	WOODBRIDGE	New Jersey	07095	2.877	Screened Out
	STERLING HEIGHTS	Michigan	48313	2.852	Screened Out
	BESSEMER	Alabama	35023	2.85	Screened Out
	DETROIT	Michigan	48211	2.8215	Screened Out
	SPRINGDALE	Arkansas	72764	2.815	Screened Out
	SAN JOSE	California	95134	2.785	Screened Out
	HUTCHINSON	Minnesota	55350	2.767	Screened Out
	ATGLEN	Pennsylvania	19310	2.704	Screened Out
	STRASBURG	Virginia	22657	2.7	Screened Out
	MIDLAND	Michigan	48667	2.695	Screened Out
	CAMBRIDGE	Ohio	43725	2.6515	Screened Out
	LOS ANGELES	California	90031	2.6	Screened Out
	LANCASTER	South Carolina	29721	2.561	Screened Out
	WINFIELD	Kansas	67156	2.5505	Screened Out
	ROBINS AFB	Georgia	31098	2.527	Screened Out
	CAROL STREAM	Illinois	60188	2.5185	Screened Out
	CARROLLTON	Texas	75006	2.4885	Screened Out
	CLARKSVILLE	Tennessee	37040	2.47	Screened Out
	ZANESVILLE	Ohio	43701	2.45	Screened Out
	FOND DU LAC	Wisconsin	54935	2.424	Screened Out
	MARYVILLE	Tennesee	37801	2.3935	Screened Out
	BRILLION	Wisconsin	54110	2.392	Screened Out
	VEEDERSBURG	Indiana	47987	2.373	Screened Out
	SHELBYVILLE	Tennessee	37160	2.351	Screened Out
	FOSTORIA	Ohio	44830	2.3295	Screened Out
	YORK	Pennsylvania	17404	2.3125	Screened Out
	SAINT CHARLES	Illinois	60174	2.2915	Screened Out
	BROWNWOOD	Texas	76801	2.265	Screened Out
	HOUSTON	Texas	77054	2.265	Screened Out
	LEXINGTON	South Carolina	29073	2.216	Screened Out
	FRIENDLY	West Virginia	26146	2.2095	Screened Out
	HERNANDO	Mississippi	38632	2.207	Screened Out
	CARTHAGE	Tennessee	37030	2.205	Screened Out
	LUFKIN	Texas	75901	2.181	Screened Out
	BROADVIEW	Illinois	60153	2.125	Screened Out

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	SAN MARCOS	California	92078	2.122	Screened Out
	SOUTH CHARLESTON	West Virginia	25303	2.1175	Screened Out
	CRANBERRY TOWNSHIP	Pennsylvania	16066	2.11	Screened Out
	NILES	Michigan	49120	2.1075	Screened Out
	SAINT LOUIS	Missouri	63116	2.093	Screened Out
	CHARLOTTE	North Carolina	28273	2.056	Screened Out
	BUFFALO	New York	14207	2.053	Screened Out
	TOMAH	Wisconsin	54660	2.0475	Screened Out
	WYANDOTTE	Michigan	48192	2.036	Screened Out
	CONWAY	South Carolina	29526	1.973	Screened Out
	ANTIOCH	California	94509	1.9645	Screened Out
	FAIRFIELD	Alabama	35064	1.954	Screened Out
	PASADENA	Texas	77507	1.9505	Screened Out
	SEATTLE	Washington	98108	1.95	Screened Out
	PINEVILLE	North Carolina	28134	1.948	Screened Out
	LOS ALAMITOS	California	90720	1.925	Screened Out
	WEST MEMPHIS	Arkansas	72301	1.9155	Screened Out
	MONTGOMERY	Alabama	36105	1.8995	Screened Out
	ALLENTOWN	Pennsylvania	18103	1.886	Screened Out
	FONDA	New York	12068	1.8835	Screened Out
	MARYLAND HEIGHTS	Missouri	63043	1.8765	Screened Out
	MARENGO	Iowa	52301	1.8675	Screened Out
	WEIRTON	West Virginia	26062	1.8185	Screened Out
	STRUTHERS	Ohio	44471	1.8	Screened Out
	FRIDLEY	Minnesota	55432	1.79	Screened Out
	JACKSONVILLE	Texas	75766	1.779	Screened Out
	AVON LAKE	Ohio	44012	1.77	Screened Out
	PENSACOLA	Florida	32502	1.7345	Screened Out
	FORT RECOVERY	Ohio	45846	1.7285	Screened Out
	FAIRFIELD	Alabama	35064	1.7175	Screened Out
	CHARLESTOWN	Indiana	47111	1.7085	Screened Out
	RENTON	Washington	98055	1.7035	Screened Out
	ARLINGTON	Texas	76010	1.7	Screened Out
	RENO	Nevada	89512	1.679	Screened Out
	JEFFERSON CITY	Missouri	65109	1.6575	Screened Out
	EDGEWATER	Florida	32132	1.639	Screened Out
	TAUNTON	Massachusetts	02780	1.637	Screened Out
	STERLING HEIGHTS	Michigan	48312	1.6	Screened Out
	LOUISVILLE	Kentucky	40210	1.59	Screened Out
	HILL AFB	Utah	84056	1.5525	Screened Out
	WAUKEGAN	Illinois	60085	1.5515	Screened Out
	TAFT	Louisiana	70057	1.545	Screened Out
	ELKTON	Virginia	22827	1.51	Screened Out
	KANKAKEE	Illinois	60901	1.5035	Screened Out
	MIDLAND	Texas	79703	1.4975	Screened Out
	INDIANAPOLIS	Indiana	46218	1.4785	Screened Out
	MOUNT VERNON	Illinois	62864	1.467	Screened Out
	PORTLAND	Oregon	97218	1.4665	Screened Out
	MILWAUKEE	Wisconsin	53214	1.466	Screened Out
	HOUSTON	Texas	77041	1.4635	Screened Out
	MENOMONEE FALLS	Wisconsin	53051	1.451	Screened Out
	WELLSBURG	West Virginia	26070	1.45	Screened Out
	LOUISVILLE	Kentucky	40219	1.4355	Screened Out
	FONTANA	California	92335	1.433	Screened Out
	CARROLLTON	Georgia	30117	1.432	Screened Out
	ASHVILLE	Ohio	43103	1.416	Screened Out
	NORMAL	Illinois	61761	1.4135	Screened Out
	COLUMBUS	Nebraska	68601	1.4005	Screened Out
	KINGSPORT	Tennessee	37662	1.3975	Screened Out
	ROCHESTER	Pennsylvania	15074	1.3895	Screened Out
	BOURBONNAIS	Illinois	60914	1.3725	Screened Out
	MOLINE	Illinois	61265	1.353	Screened Out
	FARIBAULT	Minnesota	55021	1.3495	Screened Out
	KANSAS CITY	Kansas	66115	1.3175	Screened Out
	MULBERRY	Florida	33860	1.313	Screened Out
	HAZLETON	Pennsylvania	18201	1.3	Screened Out
	COLUMBUS	Ohio	43211	1.3	Screened Out
	LANCASTER	Pennsylvania	17603	1.29	Screened Out

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	DETROIT	Michigan	48211	1.29	Screened Out
	BEDFORD PARK	Illinois	60638	1.2635	Screened Out
	TOLEDO	Ohio	43612	1.255	Screened Out
	CEDARTOWN	Georgia	30125	1.241	Screened Out
	AVON	Connecticut	06001	1.2325	Screened Out
	COLUMBIA	South Carolina	29201	1.23	Screened Out
	BELVIDERE	Illinois	61008	1.22	Screened Out
	MADISON	Alabama	35756	1.217	Screened Out
	NILES	Ohio	44446	1.2045	Screened Out
	LOGAN	Utah	84321	1.199	Screened Out
	HERMITAGE	Pennsylvania	16148	1.189	Screened Out
	LAFAYETTE	Indiana	47905	1.175	Screened Out
	LIBERTY	Indiana	47353	1.148	Screened Out
	ROCKFORD	Illinois	61104	1.1455	Screened Out
	KILLONA	Louisiana	70066	1.1455	Screened Out
	NAVASOTA	Texas	77868	1.1425	Screened Out
	ELKRIDGE	Maryland	21075	1.1415	Screened Out
	DECATUR	Alabama	35601	1.1375	Screened Out
	AVENEL	New Jersey	07001	1.1335	Screened Out
	BRYAN	Ohio	43506	1.126	Screened Out
	WESTLAND	Michigan	48186	1.111	Screened Out
	HOUSTON	Texas	77073	1.1105	Screened Out
	MANDAN	North Dakota	58554	1.1005	Screened Out
	CANFIELD	Ohio	44406	1.1	Screened Out
	DALTON	Georgia	30721	1.0865	Screened Out
	GRAND RAPIDS	Michigan	49507	1.085	Screened Out
	GARLAND	Texas	75042	1.0845	Screened Out
	NORTH KANSAS CITY	Missouri	64116	1.0705	Screened Out
	WARMINSTER	Pennsylvania	18974	1.0505	Screened Out
	TOLEDO	Ohio	43615	1.05	Screened Out
	SAGINAW	Michigan	48601	1.043	Screened Out
	LOS ANGELES	California	90016	1.04	Screened Out
	HAWESVILLE	Kentucky	42348	1.032	Screened Out
	EVANSVILLE	Indiana	47711	1.0225	Screened Out
	ELIZABETHTON	Tennessee	37643	1.019	Screened Out
	SEATTLE	Washington	98108	1.009	Screened Out
	COTTAGE GROVE	Wisconsin	53527	1	Screened Out
	STILLWATER	Oklahoma	74075	0.998	Screened Out
	SANTA CLARA	California	95050	0.9555	Screened Out
	HOUSTON	Texas	77051	0.9265	Screened Out
	LAWRENCEVILLE	Georgia	30043	0.924	Screened Out
	NEVILLE ISLAND	Pennsylvania	15225	0.91	Screened Out
	OWEGO	New York	13827	0.9025	Screened Out
	DALLAS	Texas	75244	0.9005	Screened Out
	MIDDLEBURY	Indiana	46540	0.8555	Screened Out
	SAUKVILLE	Wisconsin	53080	0.848	Screened Out
	TRENTON	New Jersey	08648	0.848	Screened Out
	LAFAYETTE	Indiana	47909	0.825	Screened Out
	CHICAGO	Illinois	60633	0.818	Screened Out
	STERLING HEIGHTS	Michigan	48314	0.8135	Screened Out
	JEFFERSONVILLE	Indiana	47130	0.8125	Screened Out
	ROSEMOUNT	Minnesota	55068	0.8	Screened Out
	BALTIMORE	Maryland	21224	0.8	Screened Out
	ARLINGTON	Texas	76011	0.8	Screened Out
	TULSA	Oklahoma	74116	0.8	Screened Out
	CARSON CITY	Nevada	89701	0.7935	Screened Out
	EAST POINT	Georgia	30344	0.792	Screened Out
	GRAYSLAKE	Illinois	60030	0.79	Screened Out
	BOWLING GREEN	Kentucky	42101	0.785	Screened Out
	MESQUITE	Texas	75149	0.782	Screened Out
	MAUMEE	Ohio	43537	0.7595	Screened Out
	SOUTHFIELD	Michigan	48034	0.7525	Screened Out
	NEWARK	New Jersey	07105	0.75	Screened Out
	HOUSTON	Texas	77007	0.749	Screened Out
	HOUSTON	Texas	77053	0.742	Screened Out
	VISALIA	California	93291	0.7255	Screened Out
	TUSCALOOSA	Alabama	35401	0.7205	Screened Out
	CHICAGO	Illinois	60630	0.7195	Screened Out
	HATFIELD	Pennsylvania	19440	0.7045	Screened Out
	LOUISVILLE	Kentucky	40202	0.7025	Screened Out

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	JERSEY CITY	New Jersey	07304	0.7	Screened Out
	CARROLLTON	Texas	75006	0.6985	Screened Out
	BLOOMSBURG	Pennsylvania	17815	0.696	Screened Out
	PEOTONE	Illinois	60468	0.6945	Screened Out
	WARREN	Pennsylvania	16365	0.6945	Screened Out
	SHREVEPORT	Louisiana	71115	0.6905	Screened Out
	ORLANDO	Florida	32837	0.677	Screened Out
	WASHINGTON	Pennsylvania	15301	0.6735	Screened Out
	FULLERTON	California	92831	0.673	Screened Out
	SUGAR GROVE	Illinois	60554	0.665	Screened Out
	COVINGTON	Georgia	30014	0.661	Screened Out
	FRANKLIN	Pennsylvania	16323	0.659	Screened Out
	MARIETTA	Ohio	45750	0.648	Screened Out
	SAVAGE	Minnesota	55378	0.642	Screened Out
	SCHOFIELD	Wisconsin	54476	0.6405	Screened Out
	KENEDY	Texas	78119	0.635	Screened Out
	AMBRIDGE	Pennsylvania	15003	0.635	Screened Out
	FORT WORTH	Texas	76110	0.628	Screened Out
	ROXBORO	North Carolina	27573	0.6265	Screened Out
	COLUMBIA CITY	Indiana	46725	0.621	Screened Out
	OSHKOSH	Wisconsin	54903	0.619	Screened Out
	LUBBOCK	Texas	79415	0.616	Screened Out
	LA PORTE	Texas	77571	0.5975	Screened Out
	WILLOW SPRINGS	Illinois	60480	0.586	Screened Out
	CLINTON	Iowa	52732	0.585	Screened Out
	STREETSBORO	Ohio	44241	0.5795	Screened Out
	FONTANA	California	92335	0.5785	Screened Out
	DAVENPORT	Iowa	52802	0.567	Screened Out
	TEXARKANA	Texas	75501	0.5505	Screened Out
	STERLING HEIGHTS	Michigan	48312	0.55	Screened Out
	BLUE ASH	Ohio	45242	0.5465	Screened Out
	ANNISTON	Alabama	36207	0.53	Screened Out
	MONROE	Ohio	45050	0.5265	Screened Out
	VALENCIA	Pennsylvania	16059	0.5245	Screened Out
	BATAVIA	Illinois	60510	0.52	Screened Out
	EUGENE	Oregon	97402	0.513	Screened Out
	PLAQUEMINE	Louisiana	70765	0.506	Screened Out
	PALMDALE	California	93599	0.5025	Screened Out
	KALAMA	Washington	98625	0.5025	Screened Out
	TALLULAH	Louisiana	71282	0.5	Screened Out
	STURTEVANT	Wisconsin	53177	0.5	Screened Out
	PLEASANT PRAIRIE	Wisconsin	53158	0.5	Screened Out
	WESTON	Michigan	49289	0.5	Screened Out
	VERNON	California	90023	0.5	Screened Out
	CHEEKTOWAGA	New York	14225	0.4975	Screened Out
	BEDFORD PARK	Illinois	60501	0.4925	Screened Out
	ELK GROVE VILLAGE	Illinois	60007	0.49	Screened Out
	CHIPPEWA FALLS	Wisconsin	54729	0.4895	Screened Out
	BIRMINGHAM	Alabama	35215	0.485	Screened Out
	ALGONA	Iowa	50511	0.4705	Screened Out
	CASA GRANDE	Arizona	85222	0.4545	Screened Out
	ELK GROVE VILLAGE	Illinois	60007	0.4505	Screened Out
	SAINT GABRIEL	Louisiana	70776	0.45	Screened Out
	MOUNT CLEMENS	Michigan	48043	0.4495	Screened Out
	FRAZEYSBURG	Ohio	43822	0.4465	Screened Out
	CHICAGO	Illinois	60622	0.4365	Screened Out
	ATLANTA	Georgia	30318	0.4305	Screened Out
	SANTA FE SPRINGS	California	90670	0.42	Screened Out
	RICHMOND	Indiana	47375	0.4175	Screened Out
	MILWAUKEE	Wisconsin	53223	0.415	Screened Out
	WAXAHACHIE	Texas	75165	0.4075	Screened Out
	LANCASTER	Pennsylvania	17603	0.402	Screened Out
	TULSA	Oklahoma	74115	0.3975	Screened Out
	WESTLAKE	Ohio	44145	0.3955	Screened Out
	LANSING	Illinois	60438	0.395	Screened Out
	MORRIS	Illinois	60450	0.3905	Screened Out
	CONNELLSVILLE	Pennsylvania	15425	0.389	Screened Out
	ELK GROVE VILLAGE	Illinois	60007	0.387	Screened Out
	MANSFIELD	Texas	76063	0.3865	Screened Out
	CLEARWATER	Florida	33760	0.384	Screened Out

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
	MORROW	Georgia	30260	0.3775	Screened Out
	WYANDOTTE	Michigan	48192	0.3775	Screened Out
	HOUSTON	Texas	77091	0.3775	Screened Out
	EASTON	Pennsylvania	18045	0.375	Screened Out
	PORTLAND	Oregon	97203	0.375	Screened Out
	HOUSTON	Texas	77041	0.375	Screened Out
	PATERSON	New Jersey	07503	0.375	Screened Out
	SAINT JOSEPH	Missouri	64501	0.3675	Screened Out
	CANTON	Massachusetts	02021	0.366	Screened Out
	NASHVILLE	Illinois	62263	0.365	Screened Out
	WAVERLY	Ohio	45690	0.358	Screened Out
	GREAT BEND	Kansas	67530	0.3555	Screened Out
	SALT LAKE CITY	Utah	84108	0.353	Screened Out
	CHRISTIANSTED	Virgin Islands	00820	0.351	Screened Out
	RICHMOND	Kentucky	40475	0.35	Screened Out
	HIGH POINT	North Carolina	27261	0.349	Screened Out
	ANAHEIM	California	92801	0.348	Screened Out
	MORRISVILLE	Pennsylvania	19067	0.346	Screened Out
	MOLINE	Illinois	61265	0.341	Screened Out
	BLYTHEVILLE	Arkansas	72315	0.334	Screened Out
	BIRMINGHAM	Alabama	35234	0.3325	Screened Out
	FREMONT	Michigan	49412	0.3275	Screened Out
	HIGH POINT	North Carolina	27261	0.327	Screened Out
	SANTA FE SPRINGS	California	90670	0.3255	Screened Out
	WEST HAVEN	Connecticut	06516	0.313	Screened Out
	RANCHO CUCAMONGA	California	91730	0.311	Screened Out
	HOUSTON	Texas	77086	0.3105	Screened Out
	CORDOVA	Illinois	61242	0.3085	Screened Out
	CLEVELAND	Ohio	44111	0.304	Screened Out
	BREMEN	Indiana	46506	0.3	Screened Out
	PAINESVILLE	Ohio	44077	0.298	Screened Out
	CHICO	California	95928	0.298	Screened Out
	MINNETONKA	Minnesota	55343	0.2975	Screened Out
	WAUSAU	Wisconsin	54401	0.296	Screened Out
	LOS ANGELES	California	90023	0.2905	Screened Out
	LANCASTER	Ohio	43130	0.2905	Screened Out
	LOUISVILLE	Kentucky	40203	0.2895	Screened Out
	HAVRE DE GRACE	Maryland	21078	0.281	Screened Out
	CHICAGO	Illinois	60633	0.28	Screened Out
	WEST BEND	Wisconsin	53095	0.2795	Screened Out
	ELK GROVE VILLAGE	Illinois	60007	0.275	Screened Out
	LAKELAND	Florida	33803	0.272	Screened Out
	HARVEY	Illinois	60426	0.2675	Screened Out
	ROSEVILLE	California	95678	0.2665	Screened Out
	BRISTOL	Pennsylvania	19007	0.266	Screened Out
	CALEDONIA	Michigan	49316	0.265	Screened Out
	MC KEESPORT	Pennsylvania	15132	0.264	Screened Out
	MIDWAY	Tennessee	37809	0.2615	Screened Out
	YORK	Pennsylvania	17402	0.2605	Screened Out
	SAINT PAUL	Minnesota	55102	0.2595	Screened Out
	CARPENTERSVILLE	Illinois	60110	0.2585	Screened Out
	NASHVILLE	Tennessee	37209	0.254	Screened Out
	BROADVIEW	Illinois	60155	0.2535	Screened Out
	SUMTER	South Carolina	29150	0.252	Screened Out
	CARTERET	New Jersey	07008	0.252	Screened Out
	ROCK HILL	South Carolina	29730	0.25	Screened Out
	GREENVILLE	Ohio	45331	0.25	Screened Out
	OKLAHOMA CITY	Oklahoma	73129	0.25	Screened Out
	VALLEY PARK	Missouri	63088	0.25	Screened Out
	CANNON FALLS	Minnesota	55009	0.25	Screened Out
	READING	Pennsylvania	19605	0.25	Screened Out
	TAYLORS	South Carolina	29687	0.25	Screened Out
	CARSON	California	90810	0.25	Screened Out
	CONROE	Texas	77303	0.25	Screened Out
	BERKELEY	Missouri	63134	0.25	Screened Out
	BARBERTON	Ohio	44203	0.25	Screened Out
	GREENSBURG	Indiana	47240	0.25	Screened Out
	CHARLOTTE	North Carolina	28273	0.25	Screened Out

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	COLUMBUS	Ohio	43219	0.25	Screened Out
	MARYLAND HEIGHTS	Missouri	63043	0.25	Screened Out
	TWINSBURG	Ohio	44087	0.248	Screened Out
	BATON ROUGE	Louisiana	70805	0.2465	Screened Out
	NORFOLK	Nebraska	68701	0.2445	Screened Out
	ATLANTA	Georgia	30339	0.24	Screened Out
	HOLYOKE	Massachusetts	01040	0.236	Screened Out
	BOWLING GREEN	Kentucky	42101	0.233	Screened Out
	WARREN	Michigan	48091	0.23	Screened Out
	MARIETTA	Georgia	30062	0.228	Screened Out
	GALLIPOLIS FERRY	West Virginia	25515	0.222	Screened Out
	HASKELL	New Jersey	07420	0.2215	Screened Out
	NEW IBERIA	Louisiana	70560	0.22	Screened Out
	WAXAHACHIE	Texas	75165	0.2115	Screened Out
	KENDALLVILLE	Indiana	46755	0.21	Screened Out
	MOREHEAD	Kentucky	40351	0.203	Screened Out
	DORAVILLE	Georgia	30340	0.2025	Screened Out
	CHARLESTON	Missouri	63834	0.1985	Screened Out
	KILGORE	Texas	75662	0.196	Screened Out
	WINDER	Georgia	30680	0.1935	Screened Out
	SHEBOYGAN	Wisconsin	53081	0.193	Screened Out
	MABLETON	Georgia	30126	0.191	Screened Out
	WESTLAKE	Louisiana	70669	0.1885	Screened Out
	SEATTLE	Washington	98107	0.1875	Screened Out
	SAINT LOUIS	Missouri	63111	0.186	Screened Out
	MACHESNEY PARK	Illinois	61115	0.1855	Screened Out
	GARLAND	Texas	75041	0.182	Screened Out
	PAGEDALE	Missouri	63133	0.182	Screened Out
	JAMESTOWN	Pennsylvania	16134	0.1795	Screened Out
	WHEELING	Illinois	60090	0.177	Screened Out
	CHANDLER	Arizona	85226	0.177	Screened Out
	ORANGEBURG	New York	10962	0.176	Screened Out
	BATON ROUGE	Louisiana	70805	0.176	Screened Out
	SAINT CLAIR	Missouri	63077	0.1745	Screened Out
	SAINT ALBANS	Vermont	05478	0.174	Screened Out
	WALLINGFORD	Connecticut	06492	0.173	Screened Out
	BATON ROUGE	Louisiana	70815	0.173	Screened Out
	FREEPORT	Texas	77541	0.168	Screened Out
	FRONT ROYAL	Virginia	22630	0.168	Screened Out
	TULSA	Oklahoma	74112	0.167	Screened Out
	MARCUS HOOK	Pennsylvania	19061	0.1615	Screened Out
	INDIAN TRAIL	North Carolina	28079	0.161	Screened Out
	STATESVILLE	North Carolina	28625	0.156	Screened Out
	EDINBURGH	Indiana	46124	0.1545	Screened Out
	NEW CENTURY	Kansas	66031	0.154	Screened Out
	DUNN	North Carolina	28335	0.153	Screened Out
	BATAVIA	Illinois	60510	0.151	Screened Out
	NORTH KANSAS CITY	Missouri	64116	0.1465	Screened Out
	CIRCLEVILLE	Ohio	43113	0.1455	Screened Out
	DETROIT	Michigan	48234	0.145	Screened Out
	CLEARWATER	Florida	33760	0.142	Screened Out
	CRESTWOOD	Missouri	63126	0.1415	Screened Out
	DEEPWATER	New Jersey	08023	0.14	Screened Out
	BURLINGTON	North Carolina	27215	0.14	Screened Out
	PLAQUEMINE	Louisiana	70765	0.139	Screened Out
	FORT MADISON	Iowa	52627	0.135	Screened Out
	MEMPHIS	Tennessee	38113	0.1345	Screened Out
	SAND SPRINGS	Oklahoma	74063	0.1325	Screened Out
	MARIETTA	Georgia	30062	0.1315	Screened Out
	LEBANON	Pennsylvania	17046	0.1315	Screened Out
	PONTIAC	Michigan	48341	0.131	Screened Out
	CHICAGO HEIGHTS	Illinois	60411	0.1295	Screened Out
	STAFFORD	Texas	77477	0.1275	Screened Out
	LOUISVILLE	Kentucky	40210	0.1275	Screened Out
	MARTIN	South Carolina	29836	0.1275	Screened Out
	PACOIMA	California	91331	0.1275	Screened Out
	WOODBURN	Indiana	46797	0.1275	Screened Out

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	BATAVIA	Illinois	60510	0.1275	Screened Out
	CHICAGO	Illinois	60608	0.1275	Screened Out
	SAINT CHARLES	Illinois	60174	0.1275	Screened Out
	SAINT LOUIS	Missouri	63147	0.1275	Screened Out
	LA VERGNE	Tennessee	37086	0.1275	Screened Out
	PELHAM	Alabama	35124	0.1275	Screened Out
	MENOMONEE FALLS	Wisconsin	53051	0.1275	Screened Out
	ORANGE	Texas	77630	0.1275	Screened Out
	FOOTHILL RANCH	California	92610	0.1275	Screened Out
	FOUNTAIN INN	South Carolina	29644	0.1275	Screened Out
	BAYTOWN	Texas	77520	0.1275	Screened Out
	WEATHERFORD	Texas	76086	0.1275	Screened Out
	SPARTANBURG	South Carolina	29302	0.1275	Screened Out
	SOLON	Ohio	44139	0.1275	Screened Out
	PONCA CITY	Oklahoma	74601	0.1275	Screened Out
	OKLAHOMA CITY	Oklahoma	73117	0.1275	Screened Out
	ABBEVILLE	Louisiana	70510	0.1275	Screened Out
	NORTHVALE	New Jersey	07647	0.1275	Screened Out
	HARWICK	Pennsylvania	15049	0.1275	Screened Out
	CROYDON	Pennsylvania	19021	0.1275	Screened Out
	RUTHERFORDTON	North Carolina	28139	0.125	Screened Out
	MONTOURSVILLE	Pennsylvania	17754	0.125	Screened Out
	MCCARRAN	Nevada	89434	0.125	Screened Out
	DALTON	Georgia	30720	0.125	Screened Out
	PHOENIX	Arizona	85043	0.125	Screened Out
	HARRISON	Ohio	45030	0.125	Screened Out
	ODESSA	Texas	79765	0.125	Screened Out
	HIGH POINT	North Carolina	27261	0.125	Screened Out
	CHICAGO	Illinois	60632	0.125	Screened Out
	MEMPHIS	Tennessee	38113	0.125	Screened Out
	HOMEWOOD	Illinois	60430	0.125	Screened Out
	HUNTINGTON	West Virginia	25704	0.125	Screened Out
	OSSEO	Minnesota	55369	0.125	Screened Out
	SPRINGFIELD	Virginia	22153	0.125	Screened Out
	DE PERE	Wisconsin	54115	0.125	Screened Out
	ROMULUS	Michigan	48174	0.125	Screened Out
	HOUSTON	Texas	77051	0.125	Screened Out
	PITTSTON	Pennsylvania	18640	0.125	Screened Out
	NEW BRUNSWICK	New Jersey	08901	0.125	Screened Out
	WAXAHACHIE	Texas	75165	0.125	Screened Out
	WILLOUGHBY	Ohio	44094	0.125	Screened Out
	THOMAS	Oklahoma	73669	0.125	Screened Out
	DALLAS	Texas	75236	0.125	Screened Out
	HOLCOMB	Kansas	67851	0.125	Screened Out
	SAINT LOUIS	Missouri	63147	0.125	Screened Out
	YPSILANTI	Michigan	48197	0.124	Screened Out
	INMAN	South Carolina	29349	0.123	Screened Out
	LOUISVILLE	Kentucky	40211	0.121	Screened Out
	HICKORY	North Carolina	28602	0.1185	Screened Out
	CHARLOTTE	North Carolina	28208	0.118	Screened Out
	GRIFFIN	Georgia	30224	0.1175	Screened Out
	WILMERDING	Pennsylvania	15148	0.1165	Screened Out
	SOUTH HOLLAND	Illinois	60473	0.116	Screened Out
	YUMA	Arizona	85369	0.1145	Screened Out
	CLEBURNE	Texas	76033	0.1135	Screened Out
	PHILADELPHIA	Pennsylvania	19116	0.1125	Screened Out
	EVENDALE	Ohio	45241	0.1125	Screened Out
	GREENSBORO	North Carolina	27403	0.11	Screened Out
	NEVADA	Missouri	64772	0.11	Screened Out
	OCALA	Florida	34475	0.109	Screened Out
	HOLLAND	Michigan	49423	0.106	Screened Out
	SAN DIEGO	California	92121	0.103	Screened Out
	PARIS	Kentucky	40361	0.103	Screened Out
	FAIRFIELD	California	94533	0.1025	Screened Out
	RANCHO CUCAMONGA	California	91730	0.101	Screened Out
	CARSON	California	90810	0.098	Screened Out
	LANGLEY	South Carolina	29834	0.0935	Screened Out
	MIAMI	Florida	33162	0.093	Screened Out
	BRATTLEBORO	Vermont	05301	0.093	Screened Out
	SCOTTSBURG	Indiana	47170	0.091	Screened Out
	MILWAUKEE	Wisconsin	53224	0.0905	Screened Out

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	WARREN	Michigan	48091	0.088	Screened Out
	KANSAS CITY	Kansas	66106	0.0875	Screened Out
	SANTA FE SPRINGS	California	90670	0.0875	Screened Out
	OAK CREEK	Wisconsin	53154	0.086	Screened Out
	MENOMINEE	Michigan	49858	0.085	Screened Out
	LEMONT	Illinois	60439	0.0835	Screened Out
	ALEXANDRIA	Louisiana	71303	0.0835	Screened Out
	CORPUS CHRISTI	Texas	78405	0.0825	Screened Out
	TEWKSBURY	Massachusetts	01876	0.082	Screened Out
	CRESSON	Texas	76035	0.08	Screened Out
	ORWELL	Ohio	44076	0.0795	Screened Out
	GREENCASTLE	Indiana	46135	0.0795	Screened Out
	SCHERERVILLE	Indiana	46375	0.0795	Screened Out
	DALLAS	Texas	75243	0.0795	Screened Out
	PORT NECHES	Texas	77651	0.079	Screened Out
	CITY OF INDUSTRY	California	91748	0.079	Screened Out
	MC COOK	Illinois	60525	0.078	Screened Out
	BRANDENBURG	Kentucky	40108	0.078	Screened Out
	SAINT CLAIR	Missouri	63077	0.078	Screened Out
	KANSAS CITY	Kansas	66106	0.0775	Screened Out
	CLINTON	Mississippi	39056	0.0765	Screened Out
	PITTSBURGH	Pennsylvania	15238	0.0765	Screened Out
	FAIRFIELD	California	94533	0.0745	Screened Out
	MOUNT VERNON	New York	10550	0.074	Screened Out
	PITTSBURGH	Pennsylvania	15233	0.0735	Screened Out
	SALEM	Oregon	97302	0.073	Screened Out
	PETERSBURG	Virginia	23805	0.0725	Screened Out
	CLEVELAND	Ohio	44109	0.072	Screened Out
	PORT ARTHUR	Texas	77640	0.071	Screened Out
	SEDALIA	Missouri	65301	0.071	Screened Out
	AMARILLO	Texas	79187	0.07	Screened Out
	WARSAW	Indiana	46580	0.07	Screened Out
	MONTEBELLO	California	90640	0.07	Screened Out
	MAUMEE	Ohio	43537	0.0675	Screened Out
	CONNERSVILLE	Indiana	47331	0.066	Screened Out
	SOUTH EL MONTE	California	91733	0.066	Screened Out
	SHOREVIEW	Minnesota	55126	0.0655	Screened Out
	MEREDITH	New Hampshire	03253	0.0635	Screened Out
	CHANDLER	Arizona	85224	0.0625	Screened Out
	CAROLINA	Puerto Rico	00985	0.0615	Screened Out
	LEMONT	Illinois	60439	0.061	Screened Out
	GROTTOES	Virginia	24441	0.0595	Screened Out
	TERRE HAUTE	Indiana	47808	0.0585	Screened Out
	DURHAM	North Carolina	27703	0.058	Screened Out
	CAHOKIA	Illinois	62206	0.0575	Screened Out
	DELAWARE	Ohio	43015	0.057	Screened Out
	HANNIBAL	Missouri	63401	0.057	Screened Out
	MC DONOUGH	Georgia	30253	0.057	Screened Out
	MAULDIN	South Carolina	29662	0.057	Screened Out
	ALLENTOWN	Pennsylvania	18106	0.0565	Screened Out
	CORPUS CHRISTI	Texas	78410	0.055	Screened Out
	MOUNT HOLLY	North Carolina	28120	0.0545	Screened Out
	BUFFALO	New York	14204	0.054	Screened Out
	BEDFORD PARK	Illinois	60499	0.0535	Screened Out
	GRAND PRAIRIE	Texas	75050	0.0535	Screened Out
	PEKIN	Illinois	61554	0.053	Screened Out
	BURNET	Texas	78611	0.0515	Screened Out
	REIDSVILLE	North Carolina	27320	0.05	Screened Out
	BENTON	Arkansas	72015	0.0495	Screened Out
	MANITOWOC	Wisconsin	54220	0.049	Screened Out
	BETTENDORF	Iowa	52722	0.049	Screened Out
	MIDDLEFIELD	Ohio	44062	0.0485	Screened Out
	VERNON	California	90058	0.0485	Screened Out
	ELVERSON	Pennsylvania	19520	0.0485	Screened Out
	TOMBALL	Texas	77375	0.0485	Screened Out
	GREENSBORO	North Carolina	27409	0.048	Screened Out
	TAMPA	Florida	33634	0.047	Screened Out
	COLUMBUS	Ohio	43207	0.047	Screened Out

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	HILLSBOROUGH	New Jersey	08844	0.046	Screened Out
	BARDSTOWN	Kentucky	40004	0.044	Screened Out
	JOLIET	Illinois	60436	0.043	Screened Out
	DENVER	Colorado	80216	0.042	Screened Out
	BRIDGEVIEW	Illinois	60455	0.0415	Screened Out
	WAYNE	Michigan	48184	0.0405	Screened Out
	TUSCALOOSA	Alabama	35401	0.0395	Screened Out
	CONYERS	Georgia	30012	0.039	Screened Out
	VALLEY CENTER	Kansas	67147	0.039	Screened Out
	KANSAS CITY	Kansas	66111	0.039	Screened Out
	ANDOVER	Kansas	67002	0.0385	Screened Out
	PASADENA	Texas	77507	0.038	Screened Out
	HOUSTON	Texas	77047	0.0375	Screened Out
	EL DORADO	Arkansas	71730	0.037	Screened Out
	HEBRON	Ohio	43025	0.037	Screened Out
	FAIRFIELD	Ohio	45014	0.0365	Screened Out
	JONESBOROUGH	Tennessee	37659	0.0365	Screened Out
	MILTON	Wisconsin	53563	0.036	Screened Out
	STURTEVANT	Wisconsin	53177	0.0355	Screened Out
	MARTINSBURG	West Virginia	25405	0.0355	Screened Out
	MC INTOSH	Alabama	36553	0.0355	Screened Out
	LANCASTER	Texas	75134	0.035	Screened Out
	GREENVILLE	South Carolina	29605	0.035	Screened Out
	GARLAND	Texas	75041	0.0345	Screened Out
	READING	Pennsylvania	19605	0.0335	Screened Out
	WICKLIFFE	Ohio	44092	0.033	Screened Out
	PARLIN	New Jersey	08859	0.032	Screened Out
	WEST BEND	Wisconsin	53095	0.0315	Screened Out
	KNOXVILLE	Iowa	50138	0.0315	Screened Out
	INDIANAPOLIS	Indiana	46219	0.0305	Screened Out
	FERNDALE	Michigan	48220	0.0285	Screened Out
	DERIDDER	Louisiana	70634	0.028	Screened Out
	LAKE CHARLES	Louisiana	70601	0.028	Screened Out
	LANSING	Michigan	48906	0.0275	Screened Out
	HAMILTON	Ohio	45015	0.027	Screened Out
	GARLAND	Texas	75041	0.0265	Screened Out
	TOLEDO	Ohio	43615	0.0265	Screened Out
	DES MOINES	Iowa	50313	0.026	Screened Out
	MIDDLESEX	New Jersey	08846	0.026	Screened Out
	NASHUA	New Hampshire	03062	0.026	Screened Out
	MOBILE	Alabama	36614	0.0255	Screened Out
	PHILADELPHIA	Pennsylvania	19127	0.025	Screened Out
	FOUNTAIN INN	South Carolina	29644	0.025	Screened Out
	CORSICANA	Texas	75109	0.0245	Screened Out
	DYERSBURG	Tennessee	38024	0.0245	Screened Out
	HOUSTON	Texas	77034	0.0245	Screened Out
	GREENSBORO	North Carolina	27409	0.0245	Screened Out
	ROTTERDAM JUNCTION	New York	12150	0.0235	Screened Out
	NORCROSS	Georgia	30071	0.0235	Screened Out
	MANOR	Pennsylvania	15665	0.023	Screened Out
	COUNCIL BLUFFS	Iowa	51502	0.023	Screened Out
	SAN JOSE	California	95133	0.023	Screened Out
	THREE RIVERS	Texas	78071	0.023	Screened Out
	AVENEL	New Jersey	07001	0.0225	Screened Out
	WALBRIDGE	Ohio	43465	0.0225	Screened Out
	CHICAGO	Illinois	60638	0.022	Screened Out
	COUNCE	Tennessee	38326	0.0205	Screened Out
	BELVIDERE	New Jersey	07823	0.02	Screened Out
	SPRINGFIELD	Missouri	65802	0.02	Screened Out
	BEDFORD PARK	Illinois	60501	0.0195	Screened Out
	FERNDALE	Michigan	48220	0.0195	Screened Out
	PICAYUNE	Mississippi	39466	0.019	Screened Out
	MIDDLETOWN	Virginia	22645	0.019	Screened Out
	EMERSON	Georgia	30137	0.019	Screened Out
	BONHAM	Texas	75418	0.0185	Screened Out
	BUTLER	Indiana	46721	0.0185	Screened Out
	BRIGHTON	Michigan	48114	0.018	Screened Out
	ROCHESTER	New York	14652	0.0175	Screened Out
	TWINSBURG	Ohio	44087	0.017	Screened Out
	LAWRENCE	Massachusetts	01843	0.0165	Screened Out
	SANTA ANA	California	92704	0.0165	Screened Out

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	SAINT GABRIEL	Louisiana	70776	0.0155	Screened Out
	HILLSDALE	Illinois	61257	0.015	Screened Out
	COLUMBUS	Ohio	43207	0.015	Screened Out
	IOWA CITY	Iowa	52240	0.015	Screened Out
	ENOREE	South Carolina	29335	0.015	Screened Out
	MARINETTE	Wisconsin	54143	0.0145	Screened Out
	MUSCATINE	Iowa	52761	0.0145	Screened Out
	MORROW	Georgia	30260	0.0145	Screened Out
	JOHNSTOWN	New York	12095	0.014	Screened Out
	HOUSTON	Texas	77029	0.014	Screened Out
	HOLTSVILLE	New York	11742	0.014	Screened Out
	BOLTON	Connecticut	06043	0.0135	Screened Out
	JAY	Maine	04239	0.0125	Screened Out
	INDIANAPOLIS	Indiana	46205	0.0125	Screened Out
	THEODORE	Alabama	36582	0.0125	Screened Out
	COMMERCE	California	90040	0.0125	Screened Out
	WATERBURY	Connecticut	06708	0.012	Screened Out
	HUNGERFORD	Texas	77448	0.0115	Screened Out
	INDIANAPOLIS	Indiana	46268	0.0115	Screened Out
	SAINT LOUIS	Missouri	63111	0.0115	Screened Out
	LAWRENCEVILLE	Georgia	30043	0.0115	Screened Out
	DELAWARE	Ohio	43015	0.0115	Screened Out
	BALTIMORE	Maryland	21230	0.0105	Screened Out
	TUSCALOOSA	Alabama	35401	0.01	Screened Out
	MOJAVE	California	93501	0.01	Screened Out
	SAN ANTONIO	Texas	78218	0.01	Screened Out
	DALLAS	Texas	75207	0.01	Screened Out
	GREENSBORO	North Carolina	27406	0.0095	Screened Out
	UNIVERSITY PARK	Illinois	60466	0.0095	Screened Out
	CARY	Illinois	60013	0.0095	Screened Out
	HAMMOND	Indiana	46320	0.0095	Screened Out
	SANTA FE SPRINGS	California	90670	0.0095	Screened Out
	SANTA ANA	California	92704	0.009	Screened Out
	ONTARIO	California	91761	0.009	Screened Out
	PELL CITY	Alabama	35125	0.0085	Screened Out
	LUFKIN	Texas	75901	0.0085	Screened Out
	HOBBS	New Mexico	88240	0.008	Screened Out
	NEW CASTLE	Delaware	19720	0.008	Screened Out
	PORTLAND	Oregon	97227	0.008	Screened Out
	CHANNAHON	Illinois	60410	0.008	Screened Out
	TULSA	Oklahoma	74131	0.0075	Screened Out
	STANLEY	North Carolina	28164	0.0075	Screened Out
	UPPER MARLBORO	Maryland	20774	0.0075	Screened Out
	LESAGE	West Virginia	25537	0.0075	Screened Out
	VICTORVILLE	California	92392	0.0075	Screened Out
	INDIANAPOLIS	Indiana	46226	0.0075	Screened Out
	PAINESVILLE	Ohio	44077	0.0075	Screened Out
	FOREST PARK	Georgia	30297	0.007	Screened Out
	SANTA FE SPRINGS	California	90670	0.007	Screened Out
	CINNAMINSON	New Jersey	08077	0.0065	Screened Out
	CHANNAHON	Illinois	60410	0.0065	Screened Out
	CALHOUN	Georgia	30701	0.0065	Screened Out
	SAN JOSE	California	95131	0.0065	Screened Out
	BATH	Pennsylvania	18014	0.0065	Screened Out
	KANSAS CITY	Kansas	66105	0.006	Screened Out
	INDIANAPOLIS	Indiana	46225	0.006	Screened Out
	SOMERVILLE	New Jersey	08876	0.0055	Screened Out
	RIDGEFIELD PARK	New Jersey	07660	0.0055	Screened Out
	LA PLACE	Louisiana	70068	0.005	Screened Out
	DOVER	Delaware	19904	0.005	Screened Out
	EAST LIVERPOOL	Ohio	43920	0.005	Screened Out
	MARLBOROUGH	Massachusetts	01752	0.005	Screened Out
	WOODRIDGE	Illinois	60517	0.005	Screened Out
	CHATHAM	Virginia	24531	0.005	Screened Out
	LAKEVILLE	Minnesota	55044	0.005	Screened Out
	MIAMI	Florida	33155	0.005	Screened Out
	WEST CHESTER	Pennsylvania	19382	0.005	Screened Out
	HILLSBORO	Oregon	97124	0.005	Screened Out
	CONNERSVILLE	Indiana	47331	0.005	Screened Out
	GARDEN GROVE	California	92841	0.005	Screened Out
	CHANDLER	Arizona	85248	0.005	Screened Out

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	INDIANAPOLIS	Indiana	46203	0.005	Screened Out
	GARDENA	California	90248	0.005	Screened Out
	ANDERSON	South Carolina	29625	0.005	Screened Out
	SPARTANBURG	South Carolina	29306	0.005	Screened Out
	DUDLEY	Massachusetts	01571	0.005	Screened Out
	WAYNE	New Jersey	07470	0.005	Screened Out
	LAFAYETTE	Indiana	47905	0.005	Screened Out
	MORRISVILLE	Pennsylvania	19067	0.0045	Screened Out
	INDIANAPOLIS	Indiana	46225	0.0045	Screened Out
	CLEARFIELD	Utah	84016	0.0045	Screened Out
	ROCKFORD	Illinois	61104	0.0045	Screened Out
	LOUISVILLE	Kentucky	40216	0.004	Screened Out
	HAMPTON	Iowa	50441	0.004	Screened Out
	CHARLOTTE	North Carolina	28273	0.004	Screened Out
	NORWALK	Connecticut	06852	0.004	Screened Out
	HOUSTON	Texas	77061	0.0035	Screened Out
	WALPOLE	Massachusetts	02081	0.0035	Screened Out
	CITY OF COMMERCE	California	90040	0.0035	Screened Out
	WINDSOR	Colorado	80550	0.0035	Screened Out
	PASADENA	Texas	77507	0.0035	Screened Out
	GARLAND	Texas	75040	0.003	Screened Out
	BAKERSFIELD	California	93308	0.003	Screened Out
	COHOES	New York	12047	0.003	Screened Out
	DEARBORN	Michigan	48121	0.003	Screened Out
	PALMYRA	New Jersey	08065	0.003	Screened Out
	LYNWOOD	California	90262	0.003	Screened Out
	CANTON	Massachusetts	02021	0.003	Screened Out
	KNOXVILLE	Tennessee	37921	0.0025	Screened Out
	ELMENDORF	Texas	78112	0.0025	Screened Out
	FERNLEY	Nevada	89408	0.0025	Screened Out
	MEMPHIS	Tennessee	38118	0.0025	Screened Out
	CHAGRIN FALLS	Ohio	44023	0.0025	Screened Out
	ROBSTOWN	Texas	78380	0.0025	Screened Out
	HOUSTON	Texas	77049	0.0025	Screened Out
	ROCHESTER	New York	14605	0.0025	Screened Out
	MEMPHIS	Tennessee	38118	0.0025	Screened Out
	NIAGARA FALLS	New York	14304	0.0025	Screened Out
	HOPEWELL	Virginia	23860	0.0025	Screened Out
	LINDEN	New Jersey	07036	0.0025	Screened Out
	SEAFORD	Delaware	19973	0.0025	Screened Out
	CITY OF INDUSTRY	California	91746	0.0025	Screened Out
	PHILLIPSBURG	New Jersey	08865	0.0025	Screened Out
	RIO RANCHO	New Mexico	87124	0.0025	Screened Out
	ROCK HILL	South Carolina	29730	0.0025	Screened Out
	SINCLAIR	Wyoming	82334	0.0025	Screened Out
	DENVER	Colorado	80216	0.0025	Screened Out
	NEWBURYPORT	Massachusetts	01950	0.0025	Screened Out
	YOUNGSTOWN	Ohio	44502	0.0025	Screened Out
	SPARTANBURG	South Carolina	29307	0.0025	Screened Out
	WAXAHACHIE	Texas	75165	0.0025	Screened Out
	WYNNEWOOD	Oklahoma	73098	0.0025	Screened Out
	MOUNT VERNON	Missouri	65712	0.0025	Screened Out
	CONCORD	North Carolina	28025	0.0025	Screened Out
	WOODRIDGE	Illinois	60517	0.0025	Screened Out
	KIMBALL	Nebraska	69145	0.0025	Screened Out
	SALEM	Massachusetts	01970	0.002	Screened Out
	CHATSWORTH	California	91311	0.002	Screened Out
	HARLEYVILLE	South Carolina	29448	0.002	Screened Out
	BEDFORD HEIGHTS	Ohio	44146	0.002	Screened Out
	COTTAGE GROVE	Minnesota	55016	0.002	Screened Out
	MIDLOTHIAN	Illinois	60445	0.002	Screened Out
	MILWAUKEE	Wisconsin	53207	0.002	Screened Out
	HAYWARD	California	94545	0.002	Screened Out
	CINCINNATI	Ohio	45246	0.002	Screened Out
	SPRINGFIELD	Massachusetts	01104	0.002	Screened Out
	ROLLING MEADOWS	Illinois	60008	0.002	Screened Out
	ORLANDO	Florida	32809	0.0015	Screened Out
	LEETSDALE	Pennsylvania	15056	0.0015	Screened Out
	DEER PARK	Texas	77536	0.0015	Screened Out
	MEMPHIS	Tennessee	38108	0.0015	Screened Out

Table C-1. Comparisons of 2009 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2009 Air Emissions (tpy)	Outcome
[redacted]	MILWAUKEE	Wisconsin	53223	0.0015	Screened Out
	SAN CARLOS	California	94070	0.0015	Screened Out
	CLEVELAND	Ohio	44109	0.0015	Screened Out
	RAYNE	Louisiana	70578	0.0015	Screened Out
	DAYTON	Texas	77535	0.001	Screened Out
	DEARBORN	Michigan	48121	0.001	Screened Out
	WHEELING	Illinois	60090	0.001	Screened Out
	ELK GROVE VILLAGE	Illinois	60007	0.001	Screened Out
	MILWAUKEE	Wisconsin	53226	0.001	Screened Out
	FRANKFORT	Indiana	46041	0.001	Screened Out
	OLIVE BRANCH	Mississippi	38654	0.001	Screened Out
	MEMPHIS	Tennessee	38109	0.001	Screened Out
	BRANCHBURG	New Jersey	08876	0.001	Screened Out
	TEXARKANA	Texas	75501	0.001	Screened Out
	FREEHOLD	New Jersey	07728	0.001	Screened Out
	CHARLOTTE	North Carolina	28273	0.001	Screened Out
	LOUISVILLE	Kentucky	40214	0.001	Screened Out
	MILWAUKEE	Wisconsin	53218	0.001	Screened Out
	TOLEDO	Ohio	43612	0.001	Screened Out
	MOUNT PLEASANT	Iowa	52641	0.0005	Screened Out
	CHATSWORTH	California	91311	0.0005	Screened Out
	DALLAS	Texas	75247	0.0005	Screened Out
	UNION CITY	Tennessee	38261	0.0005	Screened Out
	LINDEN	New Jersey	07036	0.0005	Screened Out
	PASADENA	Texas	77507	0.0005	Screened Out
	ITASCA	Illinois	60143	0.0005	Screened Out
	AUGUSTA	Georgia	30906	0.0005	Screened Out
	SACRAMENTO	California	95826	0.0005	Screened Out
	FLORA	Illinois	62839	0.0005	Screened Out
	SAN LORENZO	Puerto Rico	00754	0.0005	Screened Out
	NORTH CHARLESTON	South Carolina	29406	0.0005	Screened Out
	ARVONIA	Virginia	23004	0.0005	Screened Out
	CHATTANOOGA	Tennessee	37406	0.0005	Screened Out

tpy: tons per year

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
[redacted]	WINSTON-SALEM	North Carolina	27107	188.7835	Retain
	WILLIAMSBURG	Virginia	23185	178.5	Retain
	FINDLAY	Ohio	45840	155	Retain
	OWATONNA	Minnesota	55060	122.646	Retain
	FREMONT	Ohio	43420	106.3225	Retain
	BISHOPVILLE	South Carolina	29010	96.762	Retain
	WEIRTON	West Virginia	26062	96.088	Retain
	REIDSVILLE	North Carolina	27320	94.5	Retain
	GREER	South Carolina	29651	91.2125	Retain
	SAINT PAUL	Minnesota	55107	89.498	Retain
	KENT	Washington	98032	83.081	Retain
	OLYMPIA	Washington	98501	77.6895	Retain
	OLIVE BRANCH	Mississippi	38654	76.824	Retain
	COLUMBUS	Ohio	43213	76.5	Retain
	LA PORTE	Indiana	46350	68.35	Retain
	AURORA	Indiana	47001	68.17917	Retain
	CHICAGO	Illinois	60609	68.005	Retain
	WHITEHOUSE	Ohio	43571	67.836	Retain
	DEARBORN	Michigan	48121	66.5	Retain
	BRADLEY	Illinois	60915	64.0775	Retain
	LAWRENCE	Massachusetts	01843	62.726	Retain
	LONGVIEW	Texas	75604	57.4525	Retain
	MARION	Ohio	43302	57.2125	Retain
	ROME	Georgia	30161	55.5	Retain
	WINDSOR	Colorado	80550	54.9985	Retain
	CLAYCOMO	Missouri	64119	51.5	Retain
	WORLAND	Wyoming	82401	51.128	Retain
	EAST LIBERTY	Ohio	43319	47.2	Retain
	ARNOLD	Missouri	63010	46.317	Retain
	HOMERVILLE	Georgia	31634	45.9635	Retain
	CHATSWORTH	California	91311	44.4135	Retain
	CHICAGO	Illinois	60609	43.1447	Retain
	HARRISONBURG	Virginia	22802	42.3835	Retain
	MARYSVILLE	Ohio	43040	42.3	Retain
	NEW WINDSOR	New York	12553	42.266	Retain
	PHOENIX	Arizona	85043	38.161	Retain
	MILWAUKEE	Wisconsin	53224	38	Retain
	TOLEDO	Ohio	43608	37.65	Retain
	CHICAGO HEIGHTS	Illinois	60411	37.48	Retain
	CONROE	Texas	77305	35.875	Retain
	LAFAYETTE	Indiana	47905	35.69	Retain
	DETROIT	Michigan	48215	35.6	Retain
	SMYRNA	Tennessee	37167	35.5795	Retain
	GOLDEN	Colorado	80401	35.5	Retain
	LOUISVILLE	Kentucky	40241	35.4	Retain
	PLOVER	Wisconsin	54467	35.35	Retain
	JACKSONVILLE	Florida	32254	34.9825	Retain
	FLORENCE	Kentucky	41042	34.946	Retain
	BALTIMORE	Maryland	21221	34.066	Retain
	SUGAR LAND	Texas	77478	32.335	Retain
	MIRA LOMA	California	91752	32.253	Retain
	TORRANCE	California	90503	32	Retain
	HARRISBURG	North Carolina	28075	31.510045	Retain
	BARABOO	Wisconsin	53913	30.575	Retain
	BUTLER	Indiana	46721	29.7775	Retain
	GOLDEN	Colorado	80403	29	Retain
	MONTICELLO	Indiana	47960	28.5	Retain
	CAROLINA	Puerto Rico	00985	27.6395	Retain
	RED WING	Minnesota	55066	27.586	Retain
	WHITE PIGEON	Michigan	49099	26.3225	Retain
	VANCE	Alabama	35490	25.946605	Retain
	OAK CREEK	Wisconsin	53154	25.631	Retain
	CINCINNATI	Ohio	45242	25.585	Retain

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
[redacted]	HARVEY	Illinois	60426	25.519	Retain
	CHICAGO	Illinois	60623	25.49802	Retain
	FLINT	Michigan	48551	24.95	Retain
	GREENFIELD	Indiana	46140	24.2775	Retain
	HANOVER	Pennsylvania	17331	24.2	Retain
	PRINCETON	Indiana	47670	24.1785	Retain
	CHERAW	South Carolina	29520	24.1435	Retain
	TAMPA	Florida	33617	24	Retain
	LINCOLN	Alabama	35096	23.9835	Retain
	LA CROSSE	Wisconsin	54603	23.799	Retain
	WESTBROOK	Maine	04098	23.5025	Retain
	LANSING	Michigan	48917	23.5	Retain
	CLYDE	Ohio	43410	23.358	Retain
	ALSIP	Illinois	60803	23.257	Retain
	WEIRTON	West Virginia	26062	22.5	Retain
	BATESVILLE	Mississippi	38606	22.4855	Retain
	FINDLAY	Ohio	45840	22.375	Retain
	SHAWNEE	Oklahoma	74804	21.875	Retain
	HARRISBURG	PENNSYLVANIA	17104	21.639	Retain
	PASADENA	Texas	77503	21.563	Retain
	CLEVELAND	Ohio	44105	21.231	Retain
	FORT ATKINSON	Wisconsin	53538	20.85	Retain
	PONCA CITY	Oklahoma	74601	20.6415	Retain
	PELLA	Iowa	50219	20.3955	Retain
	SARATOGA SPRINGS	New York	12866	20.35	Retain
	OAK CREEK	WISCONSIN	53154	20.3365	Retain
	MANCHESTER	Tennessee	37355	20.3255	Retain
	MILAN	Tennessee	38358	20.165	Retain
	FAIRFIELD	California	94533	19.5	Retain
	CRAWFORDSVILLE	Indiana	47933	18.97	Retain
	CONROE	Texas	77303	18.55	Retain
	HIGH POINT	NORTH CAROLINA	27263	17.92	Retain
	SEADRIFT	Texas	77983	17.4725	Retain
	TARBORO	North Carolina	27886	16.7595	Retain
	NASHVILLE	Tennessee	37218	16.7	Retain
	CHATTANOOGA	Tennessee	37402	16.67	Retain
	TERRELL	Texas	75160	16.5975	Retain
	YOUNGSTOWN	Ohio	44512	16.53	Retain
	BEREA	Kentucky	40403	16.4665	Retain
	MILWAUKEE	Wisconsin	53212	15.463	Retain
	BUSHNELL	Florida	33513	14.8635	Retain
	FREMONT	California	94538	14.564	Retain
	LONGVIEW	Texas	75602	14.5535	Retain
	CLAIRTON	Pennsylvania	15025	14.5	Retain
	CHICAGO	Illinois	60608	14.275	Retain
	URBANA	Ohio	43078	14.1725	Retain
	MANNS CHOICE	Pennsylvania	15550	14.104	Retain
	MIDDLETOWN	New York	10940	14	Retain
	HARTFORD	Wisconsin	53027	13.935	Retain
	SHEBOYGAN FALLS	Wisconsin	53085	13.9125	Retain
	EVANSVILLE	Indiana	47710	13.9	Retain
	TOLEDO	Ohio	43612	13.8175	Retain
	WOOSTER	Ohio	44691	13.79	Retain
	MARION	Virginia	24354	13.7645	Retain
	MC DONOUGH	Georgia	30253	13.7	Retain
	LEEDS	Alabama	35094	13.661	Retain
	HUNTSVILLE	Alabama	35811	13.637	Retain
	QUINCY	Illinois	62305	13.6135	Retain
	HANOVER	Pennsylvania	17331	13.5285	Retain
	GRAPELAND	Texas	75844	13.507	Retain
	FORT WORTH	Texas	76140	13.5	Retain
	TOLEDO	Ohio	43607	13.32944	Retain
	PIGGOTT	Arkansas	72454	13.31	Retain
	AIKEN	South Carolina	29801	13.1095	Retain
	KAPOLEI	Hawaii	96707	12.8	Retain
	GUIN	Alabama	35563	12.751	Retain
	GEORGETOWN	Kentucky	40324	12.677	Retain
	SIDNEY	Ohio	45365	12.659	Retain
	LAKELAND	Florida	33810	12.3785	Retain
	CHEMUNG	New York	14825	12.2325	Retain

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
[redacted]	SWEETWATER	Tennessee	37874	12.168	Retain
	ROANOKE	Indiana	46783	12.15	Retain
	WARREN	Ohio	44483	12.122	Retain
	MASON	Ohio	45040	11.7955	Retain
	MADISON HEIGHTS	Michigan	48071	11.7535	Retain
	MOUNT VERNON	Missouri	65712	11.677	Retain
	FRANKLIN	Pennsylvania	16323	11.6	Retain
	CHICAGO	Illinois	60623	11.337	Retain
	LAVONIA	GEORGIA	30553	11.244	Retain
	CHICAGO	Illinois	60623	11.1945	Retain
	WAYNE	Michigan	48184	11.125	Retain
	JACKSON	Mississippi	39272	11.0325	Retain
	EVERETT	Washington	98204	11	Retain
	HAGERSTOWN	MARYLAND	21742	11	Retain
	BLOOMINGTON	Indiana	47404	11	Retain
	MEXIA	TEXAS	76667	10.7145	Retain
	CONROE	TEXAS	77301	10.5724638	Retain
	ELK GROVE VILLAGE	Illinois	60007	10.445	Retain
	ASHLAND CITY	TENNESSEE	37015	10.4155	Retain
	VICKSBURG	MISSISSIPPI	39181	10.4095	Retain
	NORFOLK	Nebraska	68701	10.26	Retain
	MAXTON	North Carolina	28364	10.1855	Retain
	SYCAMORE	ILLINOIS	60178	10.144	Retain
	ASHLEY	Indiana	46705	10.1	Retain
	WHITE HALL	Arkansas	71602	10.0855	Retain
	NEW BRITAIN	Connecticut	06052	9.969	Retain
	OCONOMOWOC	Wisconsin	53066	9.95	Retain
	WILLARD	Ohio	44890	9.915	Retain
	BIRMINGHAM	Alabama	35234	9.895	Retain
	BLANDON	Pennsylvania	19510	9.889	Retain
	FENTON	MISSOURI	63026	9.812685	Retain
	FLORENCE	South Carolina	29501	9.777	Retain
	LEXINGTON	South Carolina	29073	9.7255	Retain
	FORT PAYNE	Alabama	35967	9.6915	Retain
	DUBLIN	Georgia	31021	9.616	Retain
	SUSSEX	Wisconsin	53089	9.595	Retain
	BRIDGEVIEW	Illinois	60455	9.5	Retain
	LEXINGTON	Kentucky	40511	9.4845	Retain
	FAIRFIELD	California	94533	9.37	Retain
	MILWAUKEE	Wisconsin	53224	9.296	Retain
	GALESBURG	ILLINOIS	61401	9.247	Retain
	SAINT JOSEPH	Missouri	64504	9.015	Retain
	NEW ORLEANS	Louisiana	70123	8.708	Retain
	WAUPACA	Wisconsin	54981	8.605	Retain
	DAYTON	Tennessee	37321	8.57306025	Retain
	NEWTON	Mississippi	39345	8.5565	Retain
	GOODFIELD	ILLINOIS	61742	8.4305	Retain
	AKRON	New York	14001	8.413	Retain
	LAKELAND	Florida	33801	8.3945	Retain
	ELGIN	Illinois	60120	8.35	Retain
	NAPOLEON	Ohio	43545	8.3375	Retain
	LUFKIN	Texas	75904	8.303	Retain
	SPRINGDALE	Arkansas	72764	8.213	Retain
	MISHAWAKA	INDIANA	46545	8.1875	Retain
	BURLINGTON	Iowa	52601	8.175	Retain
	MENOMONIE	Wisconsin	54751	7.85	Retain
	AURORA	Illinois	60504	7.8365	Retain
	MISSOURI VALLEY	Iowa	51555	7.834	Retain
	HARTFORD	Wisconsin	53027	7.737	Retain
	LA PORTE	Indiana	46350	7.7325	Retain
	OWENSVILLE	Missouri	65066	7.665	Retain
	LANSING	Michigan	48921	7.55	Retain
	WINFIELD	Kansas	67156	7.533	Retain
	MANSFIELD	MISSOURI	65704	7.505	Retain
	WINNEMUCCA	NEVADA	89445	7.4985	Retain
	ROSSFORD	Ohio	43460	7.4105	Retain
	EL RENO	OKLAHOMA	73036	7.409	Retain
	PASADENA	Texas	77507	7.4035	Retain
	SAINT CLOUD	Minnesota	56303	7.33722	Retain

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
[redacted]	WARREN	Ohio	44483	7.305	Retain
	FAYETTEVILLE	ARKANSAS	72701	7.3	Retain
	TINKER A F B	Oklahoma	73145	7.3	Retain
	BELVIDERE	Illinois	61008	7.3	Retain
	WENTZVILLE	Missouri	63385	7.25	Retain
	WEIRTON	West Virginia	26062	7.2295	Retain
	GASTONIA	North Carolina	28052	7.2025	Retain
	CARSON	California	90745	7.184775	Retain
	CRAWFORDSVILLE	Indiana	47933	7.1225	Retain
	SAINT FRANCIS	Wisconsin	53235	7.09505	Retain
	ANKENY	IOWA	50023	7.0485	Retain
	LENOIR	North Carolina	28645	7.0455	Retain
	NEWBURGH	Indiana	47629	7	Retain
	PARIS	Texas	75460	6.953	Retain
	COLUMBUS	Indiana	47201	6.95	Retain
	PHILADELPHIA	Pennsylvania	19120	6.9415	Retain
	WOODBRIDGE	New Jersey	07095	6.8305	Retain
	WEST HENRIETTA	New York	14586	6.7935	Retain
	MC DONOUGH	GEORGIA	30253	6.7395	Retain
	ROGERS	ARKANSAS	72756	6.735	Retain
	SAINT MARYS	Ohio	45885	6.7315	Retain
	CLARENDON	Pennsylvania	16313	6.726985	Retain
	MARION	New York	14505	6.6935	Retain
	LANCASTER	Pennsylvania	17601	6.6375	Retain
	DURHAM	North Carolina	27703	6.601	Retain
	ORANGEBURG	South Carolina	29116	6.56	Retain
	STARR	South Carolina	29684	6.559	Retain
	PINE BLUFF	ARKANSAS	71602	6.5	Retain
	FORT DODGE	IOWA	50501	6.49178	Retain
	CHICAGO	ILLINOIS	60632	6.45	Retain
	SAINT JOE	Indiana	46785	6.3715	Retain
	CANTON	Mississippi	39046	6.3555	Retain
	HAMMOND	Indiana	46320	6.331	Retain
	YANKTON	South Dakota	57078	6.31004485	Retain
	MIDDLEVILLE	Michigan	49333	6.2995	Retain
	CLEVELAND	Tennessee	37311	6.25	Retain
	MONETT	Missouri	65708	6.1935	Retain
	SHANNON	Mississippi	38868	6.164015	Retain
	SPRINGFIELD	Ohio	45502	6.1	Retain
	SACRAMENTO	California	95824	6.085	Retain
	WICHITA	KANSAS	67219	6.051	Retain
	GWINNER	NORTH DAKOTA	58040	5.964	Retain
	BAXTER SPRINGS	Kansas	66713	5.9425	Retain
	WARREN	Michigan	48091	5.915	Retain
	MERCED	California	95348	5.866	Retain
	MYRTLE BEACH	South Carolina	29577	5.8645	Retain
	SAINT LOUIS	Missouri	63104	5.84243	Retain
	CHILTON	Wisconsin	53014	5.8315	Retain
	ROCHELLE	Illinois	61068	5.806	Retain
	SHAWNEE	Kansas	66227	5.745	Retain
	WINCHESTER	Virginia	22603	5.73718	Retain
	CRANSTON	RHODE ISLAND	02920	5.7195	Retain
	CEDAR FALLS	Iowa	50613	5.66847	Retain
	DIXON	California	95620	5.621	Retain
	GRANITE CITY	Illinois	62040	5.6115	Retain
	EDISON	New Jersey	08817	5.55	Retain
	ZACHARY	Louisiana	70791	5.545	Retain
	CAROL STREAM	Illinois	60188	5.496	Retain
	RUSSELLVILLE	Kentucky	42276	5.398	Retain
	NAVASOTA	Texas	77868	5.391	Retain
	DETROIT	MICHIGAN	48207	5.384	Retain
	LOWVILLE	New York	13367	5.3625	Retain
	SPRINGDALE	Pennsylvania	15144	5.3045	Retain
	BATESVILLE	Indiana	47006	5.297	Retain
	FLAT ROCK	Michigan	48134	5.28	Retain
	ONEIDA	Tennessee	37841	5.22175	Retain

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
	INDEPENDENCE	Missouri	64051	5.166	Retain
	GENEVA	Alabama	36340	5.1155	Retain
	CARROLL	IOWA	51401	5.05	Retain
	MONETT	MISSOURI	65708	5.0365	Retain
	SIDNEY	Ohio	45365	5.0325	Retain
	LANCASTER	Pennsylvania	17601	4.8597	Screened Out
	LONGMONT	Colorado	80501	4.85	Screened Out
	HOUSTON	Texas	77015	4.815	Screened Out
	NORTH BRUNSWICK	New Jersey	08902	4.773	Screened Out
	RIVERBANK	California	95367	4.728	Screened Out
	FARIBAULT	Minnesota	55021	4.7155	Screened Out
	MONTGOMERY	Alabama	36105	4.714	Screened Out
	ZANESVILLE	Ohio	43701	4.7	Screened Out
	CHICAGO	Illinois	60624	4.65	Screened Out
	SAINT LOUIS	Missouri	63116	4.6395	Screened Out
	SAINT PAUL	Minnesota	55116	4.59	Screened Out
	HARTLAND	Maine	04943	4.587	Screened Out
	HOUSTON	TEXAS	77043	4.5785	Screened Out
	DUBLIN	VIRGINIA	24084	4.55	Screened Out
	DANVILLE	Kentucky	40422	4.5025	Screened Out
	WEIRTON	West Virginia	26062	4.485	Screened Out
	TERMINAL ISLAND	California	90731	4.475	Screened Out
	WASECA	Minnesota	56093	4.474	Screened Out
	STERLING HEIGHTS	Michigan	48313	4.4615	Screened Out
	YORK	South Carolina	29745	4.4225	Screened Out
	CLARKSVILLE	Tennessee	37040	4.3865	Screened Out
	ENDICOTT	New York	13760	4.3655	Screened Out
	LOGAN	Utah	84321	4.32	Screened Out
	FOREST GROVE	Oregon	97116	4.273	Screened Out
	LA CROSSE	Wisconsin	54601	4.2335	Screened Out
	GAINESVILLE	Georgia	30504	4.226	Screened Out
	MONTROSS	VIRGINIA	22520	4.1765	Screened Out
	REDMOND	Washington	98052	4.14645	Screened Out
	PORTAGE	Indiana	46368	4.1135	Screened Out
	WOODSTOCK	Illinois	60098	4.005	Screened Out
	JACKSON	Mississippi	39272	3.9925	Screened Out
	DOVER	Delaware	19904	3.984	Screened Out
	OAKDALE	California	95361	3.984	Screened Out
	MENOMONEE FALLS	Wisconsin	53051	3.95	Screened Out
	LORDSTOWN	Ohio	44481	3.9	Screened Out
	TOLEDO	Ohio	43607	3.885	Screened Out
	EFFINGHAM	Illinois	62401	3.83	Screened Out
	NEWAYGO	MICHIGAN	49337	3.8065	Screened Out
	SHREVEPORT	Louisiana	71129	3.745	Screened Out
	FONTANA	California	92337	3.7	Screened Out
	PORTLAND	Oregon	97203	3.6305	Screened Out
	WARMINSTER	Pennsylvania	18974	3.5965	Screened Out
	EAST GREENVILLE	Pennsylvania	18041	3.5415	Screened Out
	ORANGEBURG	South Carolina	29115	3.5095	Screened Out
	MATTOON	ILLINOIS	61938	3.465	Screened Out
	BESSEMER	Alabama	35023	3.42	Screened Out
	STAFFORD	Connecticut	06075	3.3675	Screened Out
	TOMAH	Wisconsin	54660	3.331	Screened Out
	LEWISPORT	Kentucky	42351	3.3235	Screened Out
	STRONGSVILLE	Ohio	44149	3.316	Screened Out
	BRILLION	Wisconsin	54110	3.30905	Screened Out
	LYONS	New York	14489	3.2625	Screened Out
	SPRING HILL	Tennessee	37174	3.2565	Screened Out
	WEST ALLIS	WISCONSIN	53214	3.255	Screened Out
	BATESVILLE	Mississippi	38606	3.2525	Screened Out
	HUEYTOWN	Alabama	35023	3.2315	Screened Out
	MIDDLEBURY	INDIANA	46540	3.2215	Screened Out
	LEBANON	Ohio	45036	3.186	Screened Out
	WYANDOTTE	Michigan	48192	3.136775	Screened Out
	MEMPHIS	Tennessee	38113	3.122	Screened Out
	STRASBURG	Virginia	22657	3.1	Screened Out
	PASADENA	Texas	77507	3.079167767	Screened Out
	LOS ANGELES	California	90016	3.075	Screened Out
	TORRANCE	California	90502	3.0235	Screened Out
	CRAIGSVILLE	WEST VIRGINIA	26205	3.0215	Screened Out
	LINCOLN	Nebraska	68524	2.951	Screened Out
	COLUMBUS	Ohio	43228	2.8845	Screened Out

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
	MIDLAND	Michigan	48667	2.85	Screened Out
	LOMIRA	WISCONSIN	53048	2.843	Screened Out
	SAN ANTONIO	Texas	78264	2.8200666	Screened Out
	ROBINS AFB	Georgia	31098	2.7925	Screened Out
	KANSAS CITY	Kansas	66115	2.782	Screened Out
	LANCASTER	South Carolina	29721	2.758	Screened Out
	WEST POINT	GEORGIA	31833	2.7465	Screened Out
	CHARLOTTE	North Carolina	28273	2.6575	Screened Out
	OLATHE	Kansas	66061	2.612	Screened Out
	AVON LAKE	Ohio	44012	2.595	Screened Out
	MULBERRY	Florida	33860	2.5845	Screened Out
	CHEEKTOWAGA	New York	14225	2.58	Screened Out
	MARINETTE	Wisconsin	54143	2.5585	Screened Out
	TULSA	Oklahoma	74116	2.55	Screened Out
	CINCINNATI	Ohio	45244	2.54489	Screened Out
	FOND DU LAC	Wisconsin	54935	2.5235	Screened Out
	ADA	Michigan	49355	2.5035	Screened Out
	LOS ANGELES	California	90031	2.5	Screened Out
	ATHENS	Georgia	30607	2.4385	Screened Out
	MARENGO	Iowa	52301	2.429	Screened Out
	CAMBRIDGE	Ohio	43725	2.4205	Screened Out
	FRIDLEY	Minnesota	55432	2.42	Screened Out
	AGUADILLA	Puerto Rico	00605	2.373	Screened Out
	EAST LONGMEADOW	MASSACHUSETTS	01028	2.3645	Screened Out
	RICHMOND	VIRGINIA	23228	2.34746	Screened Out
	FOSTORIA	Ohio	44830	2.345	Screened Out
	HERMITAGE	Pennsylvania	16148	2.332	Screened Out
	LUFKIN	Texas	75901	2.304	Screened Out
	LAWRENCEVILLE	Georgia	30043	2.288	Screened Out
	CARTHAGE	Tennessee	37030	2.279	Screened Out
	NILES	Michigan	49120	2.275	Screened Out
	MARYVILLE	Tennesee	37801	2.2585	Screened Out
	HUTCHINSON	Minnesota	55350	2.2255	Screened Out
	GREENSBURG	Indiana	47240	2.2	Screened Out
	FRIENDLY	West Virginia	26146	2.1965	Screened Out
	INDIAN TRAIL	North Carolina	28079	2.1845	Screened Out
	LA PORTE	Texas	77571	2.1395	Screened Out
	MOUNT VERNON	Illinois	62864	2.1145	Screened Out
	WESTLAND	Michigan	48186	2.104	Screened Out
	MIDLAND	Texas	79703	2.103	Screened Out
	MOUNT VERNON	Indiana	47620	2.1	Screened Out
	MANASSAS	VIRGINIA	20109	2.0505	Screened Out
	PORTLAND	Oregon	97218	2.02415295	Screened Out
	NILES	Ohio	44446	2.021	Screened Out
	BUFFALO	New York	14207	2.0045	Screened Out
	QUAKERTOWN	PENNSYLVANIA	18951	1.995	Screened Out
	FONDA	New York	12068	1.9865	Screened Out
	KANKAKEE	Illinois	60901	1.9835	Screened Out
	STRUTHERS	Ohio	44471	1.952	Screened Out
	PENSACOLA	Florida	32502	1.9355	Screened Out
	TAMPA	FLORIDA	33611	1.9325	Screened Out
	COLUMBIA	South Carolina	29201	1.925	Screened Out
	WEST MEMPHIS	Arkansas	72301	1.899	Screened Out
	FAIRFIELD	Alabama	35064	1.8805	Screened Out
	WEIRTON	West Virginia	26062	1.873	Screened Out
	MADISON	Alabama	35756	1.859	Screened Out
	WAUKEGAN	Illinois	60085	1.834	Screened Out
	DETROIT	Michigan	48211	1.8155	Screened Out
	LOUISVILLE	Kentucky	40213	1.815	Screened Out
	RENO	Nevada	89512	1.8	Screened Out
	DETROIT	Michigan	48211	1.79	Screened Out
	SPRINGDALE	Arkansas	72764	1.79	Screened Out
	LOUISVILLE	Kentucky	40210	1.765	Screened Out
	COLUMBUS	Nebraska	68601	1.753	Screened Out
	KINGSPORT	Tennessee	37662	1.726	Screened Out
	PINEVILLE	North Carolina	28134	1.717	Screened Out
	FAIRFIELD	Alabama	35064	1.71311	Screened Out
	ANTIOCH	California	94509	1.7065	Screened Out
	NORTH KANSAS CITY	Missouri	64116	1.683	Screened Out
	TAUNTON	Massachusetts	02780	1.637	Screened Out

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
[redacted]	TOLEDO	Ohio	43612	1.60765	Screened Out
	JEFFERSON CITY	Missouri	65109	1.572395	Screened Out
	ROCKFORD	Illinois	61104	1.5395	Screened Out
	PLAQUEMINE	Louisiana	70765	1.538	Screened Out
	DYERSBURG	Tennessee	38024	1.529	Screened Out
	HAZLETON	Pennsylvania	18201	1.5	Screened Out
	JACKSONVILLE	Texas	75766	1.4775	Screened Out
	CARROLLTON	Texas	75006	1.4565	Screened Out
	TAFT	Louisiana	70057	1.4555	Screened Out
	STERLING HEIGHTS	Michigan	48312	1.45	Screened Out
	STILLWATER	Oklahoma	74075	1.448	Screened Out
	CHARLESTOWN	Indiana	47111	1.4255	Screened Out
	NEW IBERIA	LOUISIANA	70560	1.4245	Screened Out
	DECATUR	Alabama	35601	1.414	Screened Out
	ARLINGTON	Texas	76010	1.41	Screened Out
	LOUISVILLE	Kentucky	40219	1.4025	Screened Out
	WELLSBURG	West Virginia	26070	1.4	Screened Out
	BRYAN	Ohio	43506	1.388	Screened Out
	ARLINGTON	Texas	76011	1.375	Screened Out
	ROCHESTER	Pennsylvania	15074	1.3745	Screened Out
	COLUMBIA CITY	Indiana	46725	1.338	Screened Out
	BEDFORD PARK	Illinois	60638	1.3125	Screened Out
	CEDARTOWN	Georgia	30125	1.312	Screened Out
	GRAND RAPIDS	Michigan	49507	1.312	Screened Out
	CARSON CITY	Nevada	89701	1.295	Screened Out
	AVON	Connecticut	06001	1.2875	Screened Out
	PEOTONE	Illinois	60468	1.267	Screened Out
	LAFAYETTE	Indiana	47905	1.2555	Screened Out
	AVENEL	New Jersey	07001	1.248	Screened Out
	SAINT CHARLES	Illinois	60174	1.234	Screened Out
	COLUMBUS	Ohio	43211	1.225	Screened Out
	ORLANDO	FLORIDA	32837	1.2105	Screened Out
	SAUKVILLE	Wisconsin	53080	1.202	Screened Out
	CHICAGO	Illinois	60633	1.201	Screened Out
	HOUSTON	Texas	77054	1.19	Screened Out
	WAVERLY	Ohio	45690	1.173	Screened Out
	YORK	PENNSYLVANIA	17402	1.17007	Screened Out
	MILWAUKEE	Wisconsin	53214	1.159	Screened Out
	EVANSVILLE	Indiana	47711	1.156	Screened Out
	MOLINE	Illinois	61265	1.15	Screened Out
	MENOMONEE FALLS	Wisconsin	53051	1.1195	Screened Out
	BOURBONNAIS	Illinois	60914	1.1105	Screened Out
	DALTON	Georgia	30721	1.1095	Screened Out
	MANDAN	North Dakota	58554	1.1005	Screened Out
	INDIANAPOLIS	Indiana	46218	1.0982	Screened Out
	MARIETTA	Ohio	45750	1.078	Screened Out
	LIBERTY	Indiana	47353	1.077	Screened Out
	GARLAND	Texas	75042	1.068	Screened Out
	NORTH KANSAS CITY	Missouri	64116	1.0665	Screened Out
	BROWNWOOD	Texas	76801	1.0435	Screened Out
	BALTIMORE	Maryland	21224	1.029	Screened Out
	SOUTHFIELD	Michigan	48034	1.023	Screened Out
	HOUSTON	Texas	77051	1.019	Screened Out
	CHIPPEWA FALLS	Wisconsin	54729	1.002	Screened Out
	BOWLING GREEN	Kentucky	42101	1	Screened Out
	SANTA CLARA	California	95050	0.9985	Screened Out
	DAVENPORT	Iowa	52802	0.9965	Screened Out
	CRANBERRY TOWNSHIP	Pennsylvania	16066	0.9945	Screened Out
	TOLEDO	Ohio	43615	0.975	Screened Out
	CLEVELAND	Ohio	44111	0.9675	Screened Out
	TRENTON	New Jersey	08648	0.952	Screened Out
	RANCHO CUCAMONGA	CALIFORNIA	91730	0.925	Screened Out
	SAINT JOSEPH	Missouri	64501	0.9205	Screened Out
	MORRIS	Illinois	60450	0.896	Screened Out

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
[redacted]	VALENCIA	Pennsylvania	16059	0.893	Screened Out
	SCHOFIELD	Wisconsin	54476	0.89296195	Screened Out
	TUSCALOOSA	Alabama	35401	0.8905	Screened Out
	LAWRENCE	MASSACHUSETTS	1841	0.89	Screened Out
	MAUMEE	Ohio	43537	0.8875	Screened Out
	SUGAR GROVE	Illinois	60554	0.876	Screened Out
	HOUSTON	TEXAS	77041	0.875	Screened Out
	ELK GROVE VILLAGE	Illinois	60007	0.8735	Screened Out
	COVINGTON	Georgia	30014	0.863	Screened Out
	STILLWATER	Oklahoma	74075	0.85822	Screened Out
	NORMAL	Illinois	61761	0.8485	Screened Out
	GRAYSLAKE	Illinois	60030	0.82	Screened Out
	LANCASTER	Ohio	43130	0.8195	Screened Out
	PAINESVILLE	Ohio	44077	0.81	Screened Out
	ORLANDO	Florida	32837	0.81	Screened Out
	SAGINAW	Michigan	48601	0.8	Screened Out
	TWIN LAKES	WISCONSIN	53181	0.798	Screened Out
	PEORIA	Illinois	61615	0.7925	Screened Out
	BATAVIA	Illinois	60510	0.786	Screened Out
	HOUSTON	Texas	77073	0.785	Screened Out
	SAVAGE	Minnesota	55378	0.785	Screened Out
	BLOOMSBURG	Pennsylvania	17815	0.7755	Screened Out
	LUBBOCK	Texas	79415	0.7665	Screened Out
	CORDOVA	Illinois	61242	0.765	Screened Out
	JEFFERSONVILLE	Indiana	47130	0.763	Screened Out
	LAFAYETTE	Indiana	47905	0.7535	Screened Out
	PLEASANT PRAIRIE	Wisconsin	53158	0.75	Screened Out
	MIDDLEBURY	Indiana	46540	0.733	Screened Out
	LOUISVILLE	Kentucky	40202	0.7075	Screened Out
	FONTANA	California	92335	0.70305	Screened Out
	CHRISTIANSTED	Virgin Islands	00820	0.702	Screened Out
	HARWICK	Pennsylvania	15049	0.6935	Screened Out
	EAST POINT	Georgia	30344	0.691	Screened Out
	CARROLLTON	Texas	75006	0.69	Screened Out
	WARREN	Pennsylvania	16365	0.678	Screened Out
	HOUSTON	Texas	77007	0.672	Screened Out
	WESTLAKE	Louisiana	70669	0.6685	Screened Out
	MESQUITE	Texas	75149	0.663	Screened Out
	VISALIA	California	93291	0.658	Screened Out
	BLYTHEVILLE	Arkansas	72315	0.6505	Screened Out
	ELKRIDGE	Maryland	21075	0.634	Screened Out
	KALAMA	Washington	98625	0.632015	Screened Out
	FORT WORTH	Texas	76110	0.628	Screened Out
	LEBANON	Ohio	45036	0.608	Screened Out
	CHICAGO	Illinois	60630	0.6065	Screened Out
	BATON ROUGE	Louisiana	70805	0.6	Screened Out
	MONROE	Ohio	45050	0.5925	Screened Out
	HOUSTON	Texas	77053	0.59	Screened Out
	BIRMINGHAM	Alabama	35215	0.5885	Screened Out
	ASHVILLE	Ohio	43103	0.5885	Screened Out
	WILLOW SPRINGS	Illinois	60480	0.586	Screened Out
	HAWESVILLE	Kentucky	42348	0.58	Screened Out
	TULSA	Oklahoma	74115	0.5795	Screened Out
	ALLENTOWN	Pennsylvania	18103	0.568	Screened Out
	CHICO	California	95928	0.5605	Screened Out
	CEDAR RAPIDS	IOWA	52404	0.55984	Screened Out
	COTTAGE GROVE	Wisconsin	53527	0.55	Screened Out
	ROSEMOUNT	Minnesota	55068	0.55	Screened Out
	VALLEY PARK	Missouri	63088	0.549875	Screened Out
	FORT MADISON	Iowa	52627	0.544	Screened Out
	AMBRIDGE	Pennsylvania	15003	0.5315	Screened Out
	PATERSON	New Jersey	07503	0.5275	Screened Out
	MOUNT CLEMENS	Michigan	48043	0.5265	Screened Out
	TALLULAH	Louisiana	71282	0.525	Screened Out
	SAN ANTONIO	Texas	78251	0.517	Screened Out
	PALMDALE	California	93599	0.514	Screened Out
	ROXBORO	North Carolina	27573	0.513	Screened Out

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
	SAINT CLAIR	Missouri	63077	0.509	Screened Out
	SHREVEPORT	Louisiana	71115	0.5085	Screened Out
	STURTEVANT	Wisconsin	53177	0.5	Screened Out
	WESTON	Michigan	49289	0.5	Screened Out
	WASHINGTON	Pennsylvania	15301	0.5	Screened Out
	LAFAYETTE	Indiana	47909	0.5	Screened Out
	VERNON	California	90023	0.5	Screened Out
	HOPKINSVILLE	Kentucky	42240	0.48455	Screened Out
	GREAT BEND	Kansas	67530	0.4825	Screened Out
	COLORADO SPRINGS	COLORADO	80916	0.475	Screened Out
	CHICAGO	Illinois	60622	0.4735	Screened Out
	ALGONA	Iowa	50511	0.4705	Screened Out
	MOLINE	Illinois	61265	0.47	Screened Out
	STREETSBORO	Ohio	44241	0.468	Screened Out
	CLINTON	Iowa	52732	0.466	Screened Out
	FREEPORT	Texas	77541	0.4635	Screened Out
	BEDFORD PARK	Illinois	60501	0.458	Screened Out
	EUGENE	Oregon	97402	0.437	Screened Out
	SYCAMORE	ILLINOIS	60178	0.434	Screened Out
	SANTA FE SPRINGS	California	90670	0.43	Screened Out
	PORTLAND	Oregon	97203	0.4295	Screened Out
	ANAHEIM	California	92801	0.428	Screened Out
	JERSEY CITY	New Jersey	07304	0.428	Screened Out
	NASHVILLE	Illinois	62263	0.42766	Screened Out
	BIRMINGHAM	Alabama	35234	0.4215	Screened Out
	LANSING	Illinois	60438	0.40825	Screened Out
	FULLERTON	California	92831	0.4065	Screened Out
	EL RENO	OKLAHOMA	73036	0.403	Screened Out
	ELK GROVE VILLAGE	Illinois	60007	0.3955	Screened Out
	CANTON	Massachusetts	02021	0.3895	Screened Out
	ELKTON	Virginia	22827	0.38	Screened Out
	MORROW	Georgia	30260	0.3775	Screened Out
	DES PLAINES	ILLINOIS	60016	0.3775	Screened Out
	MILLEDGEVILLE	GEORGIA	31061	0.3775	Screened Out
	HOUSTON	Texas	77091	0.3775	Screened Out
	EASTON	Pennsylvania	18045	0.375	Screened Out
	HOUSTON	Texas	77041	0.375	Screened Out
	PORTLAND	INDIANA	47371	0.375	Screened Out
	HARVEY	Illinois	60426	0.3715	Screened Out
	ANNISTON	Alabama	36207	0.37	Screened Out
	RANCHO CUCAMONGA	California	91730	0.368665	Screened Out
	GRANITE CITY	ILLINOIS	62040	0.367	Screened Out
	BRAZIL	INDIANA	47834	0.36605	Screened Out
	HAVRE DE GRACE	Maryland	21078	0.354	Screened Out
	GALLIPOLIS FERRY	West Virginia	25515	0.3506	Screened Out
	CHICAGO	Illinois	60633	0.35	Screened Out
	PLAQUEMINE	Louisiana	70765	0.347535	Screened Out
	MENOMONEE FALLS	WISCONSIN	53051	0.3475	Screened Out
	GREENVILLE SOUTH	SOUTH CAROLINA	29605	0.3375	Screened Out
	MINNETONKA	Minnesota	55343	0.336	Screened Out
	RICHMOND	Kentucky	40475	0.336	Screened Out
	ATLANTA	Georgia	30318	0.3355	Screened Out
	ELK GROVE VILLAGE	Illinois	60007	0.335	Screened Out
	LANCASTER	Pennsylvania	17603	0.3325	Screened Out
	FREMONT	Michigan	49412	0.331	Screened Out
	PERTH AMBOY	NEW JERSEY	08861	0.3185	Screened Out
	HELENA	ARKANSAS	72342	0.30835	Screened Out
	MACHESNEY PARK	Illinois	61115	0.3075	Screened Out
	WAUSAU	Wisconsin	54401	0.302	Screened Out
	WAYNE	Michigan	48184	0.3015	Screened Out
	BREMEN	Indiana	46506	0.3	Screened Out
	WESTLAKE	Ohio	44145	0.296	Screened Out
	SAN JOSE	California	95134	0.295	Screened Out
	MILWAUKEE	Wisconsin	53223	0.29	Screened Out
	ELK GROVE VILLAGE	Illinois	60007	0.287	Screened Out
	PAGEDALE	Missouri	63133	0.2865	Screened Out
	WEST HAVEN	Connecticut	06516	0.28527	Screened Out

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
[redacted]	FRANKLIN	Pennsylvania	16323	0.284	Screened Out
	CONNELLSVILLE	Pennsylvania	15425	0.28171	Screened Out
	MOUNT VERNON	New York	10550	0.274	Screened Out
	RIO RANCHO	New Mexico	87124	0.273	Screened Out
	LAKELAND	Florida	33803	0.268	Screened Out
	LOUISVILLE	Kentucky	40203	0.2655	Screened Out
	MORRISVILLE	Pennsylvania	19067	0.265	Screened Out
	WEST BEND	Wisconsin	53095	0.2645	Screened Out
	CASA GRANDE	Arizona	85222	0.2600625	Screened Out
	SAYRE	PENNSYLVANIA	18840	0.26	Screened Out
	SAINT PAUL	Minnesota	55102	0.2595	Screened Out
	CARTERET	New Jersey	07008	0.2595	Screened Out
	BATAVIA	Illinois	60510	0.259455	Screened Out
	BRISTOL	Pennsylvania	19007	0.255	Screened Out
	TWINSBURG	Ohio	44087	0.2505	Screened Out
	GREENVILLE	Ohio	45331	0.25	Screened Out
	MANCHESTER	TENNESSEE	37355	0.25	Screened Out
	SEARCY	ARKANSAS	72143	0.25	Screened Out
	WARREN	Michigan	48091	0.25	Screened Out
	OKLAHOMA CITY	Oklahoma	73129	0.25	Screened Out
	COLUMBUS	Ohio	43219	0.25	Screened Out
	PELHAM	Alabama	35124	0.25	Screened Out
	READING	Pennsylvania	19605	0.25	Screened Out
	MARIETTA	Georgia	30062	0.25	Screened Out
	BARBERTON	Ohio	44203	0.25	Screened Out
	INDEPENDENCE	KENTUCKY	41051	0.25	Screened Out
	INMAN	South Carolina	29349	0.25	Screened Out
	CARSON	California	90810	0.25	Screened Out
	CONROE	Texas	77303	0.25	Screened Out
	FONTANA	California	92335	0.25	Screened Out
	FAYETTEVILLE	NORTH CAROLINA	28306	0.247	Screened Out
	CARPENTERSVILLE	Illinois	60110	0.246	Screened Out
	MANSFIELD	Texas	76063	0.239	Screened Out
	ATGLEN	Pennsylvania	19310	0.238	Screened Out
	HOLYOKE	Massachusetts	01040	0.238	Screened Out
	SANTA FE SPRINGS	California	90670	0.2365	Screened Out
	CLEARWATER	Florida	33760	0.236	Screened Out
	CANNON FALLS	Minnesota	55009	0.236	Screened Out
	HATFIELD	Pennsylvania	19440	0.234	Screened Out
	PHILADELPHIA	Pennsylvania	19132	0.234	Screened Out
	SUMTER	South Carolina	29150	0.2335	Screened Out
	KILLONA	Louisiana	70066	0.232	Screened Out
	BURLINGTON	North Carolina	27215	0.230497	Screened Out
	STERLING HEIGHTS	Michigan	48312	0.228	Screened Out
	CIRCLEVILLE	Ohio	43113	0.226	Screened Out
	FRAZEYSBURG	Ohio	43822	0.22475	Screened Out
	LOS ANGELES	California	90023	0.2225	Screened Out
	NEW IBERIA	Louisiana	70560	0.22	Screened Out
	WINDER	Georgia	30680	0.216	Screened Out
	KENDALLVILLE	Indiana	46755	0.215	Screened Out
	SAINT GABRIEL	Louisiana	70776	0.2125	Screened Out
	DORAVILLE	Georgia	30340	0.2115	Screened Out
	ATLANTA	Georgia	30339	0.21	Screened Out
	DUNN	North Carolina	28335	0.208	Screened Out
	SOUTH CHARLESTON	West Virginia	25303	0.2045	Screened Out
	MABLETON	Georgia	30126	0.203	Screened Out
	MARCUS HOOK	Pennsylvania	19061	0.2015	Screened Out
	RENTON	Washington	98055	0.1975	Screened Out
	SEATTLE	Washington	98107	0.1975	Screened Out
	ELGIN	ILLINOIS	60123	0.196	Screened Out
	HASKELL	New Jersey	07420	0.195	Screened Out
	HILLSBORO	Oregon	97124	0.1925	Screened Out
	GARLAND	Texas	75041	0.187	Screened Out
	WHEELING	Illinois	60090	0.18	Screened Out
	OWEGO	New York	13827	0.177	Screened Out
	NASHVILLE	TENNESSEE	37207	0.177	Screened Out

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
[redacted]	RICHMOND	Indiana	47375	0.175	Screened Out
	WALLINGFORD	Connecticut	06492	0.174	Screened Out
	BATON ROUGE	Louisiana	70815	0.1735	Screened Out
	ODESSA	Texas	79762	0.1695	Screened Out
	SAINT LOUIS	Missouri	63111	0.1685	Screened Out
	GREENSBORO	North Carolina	27409	0.165	Screened Out
	MARIETTA	Georgia	30062	0.1625	Screened Out
	BATON ROUGE	Louisiana	70805	0.1615	Screened Out
	HIGH POINT	North Carolina	27261	0.16	Screened Out
	TULSA	Oklahoma	74112	0.16	Screened Out
	SAINT ALBANS	Vermont	05478	0.1595	Screened Out
	SEATTLE	Washington	98108	0.1595	Screened Out
	CHANDLER	Arizona	85248	0.1565	Screened Out
	SAINT CLAIR	Missouri	63077	0.152	Screened Out
	CRESTWOOD	Missouri	63126	0.151	Screened Out
	EDINBURGH	Indiana	46124	0.14951	Screened Out
	PARIS	Kentucky	40361	0.1475	Screened Out
	BROADVIEW	Illinois	60155	0.1455	Screened Out
	NORFOLK	Nebraska	68701	0.145215	Screened Out
	LYNCHBURG	VIRGINIA	24506	0.1415	Screened Out
	PORT NECHES	Texas	77651	0.141	Screened Out
	SAND SPRINGS	Oklahoma	74063	0.1368	Screened Out
	LEBANON	Pennsylvania	17046	0.136	Screened Out
	ORANGEBURG	New York	10962	0.135135	Screened Out
	KENEDY	Texas	78119	0.13416	Screened Out
	PORT NECHES	TEXAS	77651	0.132	Screened Out
	MEMPHIS	Tennessee	38113	0.13	Screened Out
	STAFFORD	Texas	77477	0.1275	Screened Out
	LOUISVILLE	Kentucky	40210	0.1275	Screened Out
	MARTIN	South Carolina	29836	0.1275	Screened Out
	ROCK HILL	South Carolina	29730	0.1275	Screened Out
	PACOIMA	California	91331	0.1275	Screened Out
	WOODBURN	Indiana	46797	0.1275	Screened Out
	LONG BEACH	CALIFORNIA	90810	0.1275	Screened Out
	SAINT CHARLES	Illinois	60174	0.1275	Screened Out
	CHICAGO	Illinois	60608	0.1275	Screened Out
	LA VERGNE	Tennessee	37086	0.1275	Screened Out
	WEATHERFORD	Texas	76086	0.1275	Screened Out
	SOLON	Ohio	44139	0.1275	Screened Out
	CLEARWATER	FLORIDA	33760	0.1275	Screened Out
	FOOTHILL RANCH	California	92610	0.1275	Screened Out
	FOUNTAIN INN	South Carolina	29644	0.1275	Screened Out
	ORANGE	Texas	77630	0.1275	Screened Out
	CARROLLTON	TEXAS	75006	0.1275	Screened Out
	SAINT LOUIS	Missouri	63147	0.1275	Screened Out
	DEER PARK	Texas	77536	0.1275	Screened Out
	ABBEVILLE	Louisiana	70510	0.1275	Screened Out
	BAYTOWN	Texas	77520	0.1275	Screened Out
	MENOMONEE FALLS	Wisconsin	53051	0.1275	Screened Out
	SPARTANBURG	South Carolina	29302	0.1275	Screened Out
	CHARLOTTE	North Carolina	28208	0.1255	Screened Out
	MONTOURSVILLE	Pennsylvania	17754	0.125	Screened Out
	AUBURN	WASHINGTON	98002	0.125	Screened Out
	HARRISON	Ohio	45030	0.125	Screened Out
	MEMPHIS	Tennessee	38118	0.125	Screened Out
	SANDUSKY	OHIO	44870	0.125	Screened Out
	MEMPHIS	TENNESSEE	38113	0.125	Screened Out
	HOLCOMB	Kansas	67851	0.125	Screened Out
	SAINT LOUIS	Missouri	63147	0.125	Screened Out
	NORTH KANSAS CITY	Missouri	64116	0.125	Screened Out
	SPRINGFIELD	Virginia	22153	0.125	Screened Out
	MCCARRAN	Nevada	89434	0.125	Screened Out
	MENOMINEE	Michigan	49858	0.125	Screened Out
	CITY OF INDUSTRY	California	91746	0.125	Screened Out
	WAXAHACHIE	Texas	75165	0.125	Screened Out

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
[redacted]	WILLOUGHBY	Ohio	44094	0.125	Screened Out
	ORANGE	TEXAS	77630	0.125	Screened Out
	HOPEWELL	Virginia	23860	0.125	Screened Out
	MIDDLEFIELD	OHIO	44062	0.125	Screened Out
	CHICAGO	Illinois	60632	0.125	Screened Out
	TORRANCE	CALIFORNIA	90509	0.125	Screened Out
	THOMAS	Oklahoma	73669	0.125	Screened Out
	HUNTINGTON	West Virginia	25704	0.125	Screened Out
	DE PERE	Wisconsin	54115	0.125	Screened Out
	ROMULUS	Michigan	48174	0.125	Screened Out
	OSSEO	Minnesota	55369	0.125	Screened Out
	ARLINGTON	Texas	76011	0.125	Screened Out
	WAYNE	MICHIGAN	48184	0.125	Screened Out
	HIGH POINT	North Carolina	27261	0.125	Screened Out
	NEW BRUNSWICK	New Jersey	08901	0.125	Screened Out
	PITTSTON	Pennsylvania	18640	0.125	Screened Out
	SALT LAKE CITY	Utah	84108	0.124456	Screened Out
	CLEBURNE	Texas	76033	0.123	Screened Out
	LANGLEY	South Carolina	29834	0.123	Screened Out
	GRIFFIN	Georgia	30224	0.12275	Screened Out
	EVENDALE	Ohio	45241	0.1215	Screened Out
	SAN DIEGO	California	92121	0.12	Screened Out
	PHILADELPHIA	Pennsylvania	19116	0.119	Screened Out
	NEW CENTURY	Kansas	66031	0.118	Screened Out
	JACKSONVILLE	FLORIDA	32212	0.115	Screened Out
	HOUSTON	Texas	77086	0.1105	Screened Out
	YPSILANTI	Michigan	48197	0.11	Screened Out
	DALLAS	Texas	75243	0.1095	Screened Out
	OCALA	Florida	34475	0.1085	Screened Out
	BOWLING GREEN	Kentucky	42101	0.108	Screened Out
	HOLLAND	Michigan	49423	0.106	Screened Out
	HICKORY	North Carolina	28602	0.104	Screened Out
	LEMONT	Illinois	60439	0.1035	Screened Out
	SOUTH HOLLAND	Illinois	60473	0.1035	Screened Out
	MIAMI	Florida	33162	0.102	Screened Out
	MILWAUKEE	WISCONSIN	53209	0.10066	Screened Out
	GREENCASTLE	Indiana	46135	0.1	Screened Out
	SANTA FE SPRINGS	California	90670	0.1	Screened Out
	CARSON	California	90810	0.1	Screened Out
	BRANDENBURG	Kentucky	40108	0.1	Screened Out
	PONTIAC	Michigan	48341	0.099	Screened Out
	BRATTLEBORO	Vermont	05301	0.0985	Screened Out
	KANSAS CITY	Kansas	66106	0.097	Screened Out
	MIDWAY	Tennessee	37809	0.0945	Screened Out
	WILMERDING	Pennsylvania	15148	0.0945	Screened Out
	TAYLORS	South Carolina	29687	0.092	Screened Out
	BALTIMORE	Maryland	21222	0.09	Screened Out
	RANCHO CUCAMONGA	California	91730	0.089945	Screened Out
	MILWAUKEE	Wisconsin	53224	0.0888	Screened Out
	FAIRFIELD	California	94533	0.0855	Screened Out
	KANSAS CITY	Kansas	66106	0.084	Screened Out
	TERRE HAUTE	Indiana	47808	0.0835	Screened Out
	CLINTON	Mississippi	39056	0.082	Screened Out
	MUSKEGON HEIGHTS	MICHIGAN	49444	0.08	Screened Out
	TEWKSBURY	Massachusetts	01876	0.0795	Screened Out
	CHICAGO HEIGHTS	Illinois	60411	0.0787	Screened Out
	PITTSBURGH	Pennsylvania	15238	0.0775	Screened Out
	CAROLINA	Puerto Rico	00985	0.077225	Screened Out
	CORSICANA	Texas	75109	0.07708	Screened Out
	PORTLAND	OREGON	97210	0.076	Screened Out
	CONNERSVILLE	Indiana	47331	0.075	Screened Out
	SALEM	Oregon	97302	0.07415	Screened Out
	CLEVELAND	Ohio	44109	0.07396	Screened Out
	ELVERSON	Pennsylvania	19520	0.0729	Screened Out
	MANATI	PUERTO RICO	00674	0.0725	Screened Out
	BROUSSARD	Louisiana	70518	0.072	Screened Out
	DELAWARE	Ohio	43015	0.06956	Screened Out
	ORWELL	Ohio	44076	0.069	Screened Out

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
[redacted]	WARSAW	Indiana	46580	0.069	Screened Out
	MAUMEE	Ohio	43537	0.0675	Screened Out
	MC COOK	Illinois	60525	0.067	Screened Out
	SOUTH EL MONTE	California	91733	0.067	Screened Out
	SEDALIA	Missouri	65301	0.0665	Screened Out
	MONTEBELLO	California	90640	0.0655	Screened Out
	WARREN	Michigan	48091	0.06	Screened Out
	MIDDLESEX	New Jersey	08846	0.0595	Screened Out
	CHANDLER	Arizona	85224	0.0595	Screened Out
	GRAND PRAIRIE	Texas	75050	0.059	Screened Out
	NASHUA	New Hampshire	03062	0.0574235	Screened Out
	SHOREVIEW	Minnesota	55126	0.057	Screened Out
	JOLIET	Illinois	60436	0.057	Screened Out
	CORPUS CHRISTI	Texas	78405	0.05615	Screened Out
	MOUNT HOLLY	North Carolina	28120	0.0555	Screened Out
	MIDDLEFIELD	Ohio	44062	0.0555	Screened Out
	PASCAGOULA	MISSISSIPPI	39581	0.055	Screened Out
	COMMERCE	California	90040	0.0545	Screened Out
	KILGORE	TEXAS	75662	0.0545	Screened Out
	YORK	Pennsylvania	17402	0.05435	Screened Out
	NEVADA	Missouri	64772	0.054	Screened Out
	WALBRIDGE	Ohio	43465	0.0535	Screened Out
	SHEBOYGAN	Wisconsin	53081	0.0535	Screened Out
	COLUMBUS	Ohio	43207	0.0535	Screened Out
	FAIRFIELD	California	94533	0.0535	Screened Out
	MARTINSBURG	West Virginia	25405	0.053	Screened Out
	MC DONOUGH	Georgia	30253	0.0525	Screened Out
	BURNET	Texas	78611	0.05151	Screened Out
	PEKIN	Illinois	61554	0.05061	Screened Out
	REIDSVILLE	North Carolina	27320	0.05	Screened Out
	OKLAHOMA CITY	Oklahoma	73117	0.05	Screened Out
	PELL CITY	Alabama	35125	0.05	Screened Out
	FRESNO	Texas	77545	0.0496	Screened Out
	BENTON	Arkansas	72015	0.0495	Screened Out
	MEMPHIS	TENNESSEE	38109	0.0495	Screened Out
	HAMILTON	Ohio	45015	0.049	Screened Out
	BETTENDORF	Iowa	52722	0.049	Screened Out
	CALVERT CITY	Kentucky	42029	0.049	Screened Out
	JONESBOROUGH	Tennessee	37659	0.0485	Screened Out
	BUFFALO	New York	14204	0.048	Screened Out
	INDIANAPOLIS	Indiana	46225	0.0465	Screened Out
	HILLSBOROUGH	New Jersey	08844	0.0455	Screened Out
	WICKLIFFE	Ohio	44092	0.0455	Screened Out
	NEVILLE ISLAND	Pennsylvania	15225	0.044	Screened Out
	DURHAM	North Carolina	27703	0.044	Screened Out
	DALLAS	Texas	75236	0.0435	Screened Out
	LANCASTER	Texas	75134	0.0425	Screened Out
	ANDERSON	South Carolina	29625	0.0425	Screened Out
	TAMPA	Florida	33634	0.042	Screened Out
	KANSAS CITY	Kansas	66111	0.0415	Screened Out
	ANDOVER	Kansas	67002	0.041	Screened Out
	HUNGERFORD	Texas	77448	0.0405	Screened Out
	PASADENA	Texas	77507	0.0405	Screened Out
	TUSCALOOSA	Alabama	35401	0.04	Screened Out
	SAND SPRINGS	Oklahoma	74063	0.04	Screened Out
	PITTSBURGH	Pennsylvania	15233	0.0395	Screened Out
	MILTON	Wisconsin	53563	0.0395	Screened Out
	CONYERS	Georgia	30012	0.03915	Screened Out
	MC INTOSH	Alabama	36553	0.0388	Screened Out
	ROMULUS	Michigan	48174	0.038	Screened Out
	MOBILE	Alabama	36614	0.0365	Screened Out
	CAHOKIA	Illinois	62206	0.0355	Screened Out
	HANNIBAL	Missouri	63401	0.035125	Screened Out
	READING	Pennsylvania	19605	0.03375	Screened Out
	BERKELEY	Missouri	63134	0.033	Screened Out
	BRIGHTON	Michigan	48114	0.032545	Screened Out
	PICAYUNE	Mississippi	39466	0.0315	Screened Out

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
	PARLIN	New Jersey	08859	0.031	Screened Out
	LANSING	Michigan	48906	0.031	Screened Out
	TOMBALL	Texas	77375	0.0305	Screened Out
	GARLAND	Texas	75041	0.03	Screened Out
	LEMONT	Illinois	60439	0.03	Screened Out
	LUFKIN	Texas	75901	0.0295	Screened Out
	CITY OF INDUSTRY	California	91748	0.0295	Screened Out
	BONHAM	Texas	75418	0.029	Screened Out
	DES MOINES	Iowa	50313	0.029	Screened Out
	GREENSBORO	North Carolina	27409	0.0285	Screened Out
	WEST BEND	Wisconsin	53095	0.028	Screened Out
	HOUSTON	Texas	77034	0.0275	Screened Out
	PORT ARTHUR	Texas	77640	0.026795	Screened Out
	PHILADELPHIA	Pennsylvania	19127	0.02673425	Screened Out
	OAK CREEK	Wisconsin	53154	0.026	Screened Out
	MANITOWOC	Wisconsin	54220	0.025225	Screened Out
	HOUSTON	Texas	77047	0.025	Screened Out
	ROTTERDAM JUNCTION	New York	12150	0.0245	Screened Out
	NORTHLAKE	ILLINOIS	60164	0.0245	Screened Out
	THREE RIVERS	Texas	78071	0.023	Screened Out
	VALLEY CENTER	Kansas	67147	0.023	Screened Out
	COUNCIL BLUFFS	Iowa	51502	0.023	Screened Out
	CHICAGO	Illinois	60638	0.02295	Screened Out
	FAIRFIELD	Ohio	45014	0.02254	Screened Out
	DENVER	Colorado	80216	0.0225	Screened Out
	SANTA ANA	California	92704	0.0225	Screened Out
	COUNCE	Tennessee	38326	0.0215	Screened Out
	FERNDALE	Michigan	48220	0.0215	Screened Out
	GREENSBORO	North Carolina	27403	0.021	Screened Out
	BELVIDERE	New Jersey	07823	0.02	Screened Out
	AVENEL	New Jersey	07001	0.02	Screened Out
	BURTON	OHIO	44021	0.02	Screened Out
	SAUGET	ILLINOIS	62201	0.02	Screened Out
	SPRINGFIELD	Missouri	65802	0.02	Screened Out
	TOLEDO	Ohio	43615	0.019	Screened Out
	BUTLER	Indiana	46721	0.0185	Screened Out
	GARLAND	Texas	75041	0.0185	Screened Out
	EMERSON	Georgia	30137	0.018	Screened Out
	JACKSONVILLE	Florida	32254	0.018	Screened Out
	ALLENTOWN	Pennsylvania	18106	0.0179	Screened Out
	NORTHVALE	New Jersey	07647	0.01762	Screened Out
	HILLSDALE	Illinois	61257	0.0175	Screened Out
	STRONGSVILLE	Ohio	44136	0.0175	Screened Out
	MORROW	Georgia	30260	0.0175	Screened Out
	COLUMBUS	Ohio	43207	0.0175	Screened Out
	HAMMOND	Indiana	46320	0.0175	Screened Out
	HOBBS	New Mexico	88240	0.01735	Screened Out
	IOWA CITY	Iowa	52240	0.0165	Screened Out
	WILLIAMSPORT	MARYLAND	21795	0.0165	Screened Out
	DELAWARE	Ohio	43015	0.0165	Screened Out
	SCHERERVILLE	Indiana	46375	0.016	Screened Out
	FOUNTAIN INN	South Carolina	29644	0.0153	Screened Out
	HOUSTON	Texas	77029	0.015	Screened Out
	TWINSBURG	Ohio	44087	0.015	Screened Out
	JOHNSTOWN	New York	12095	0.014811	Screened Out
	INDIANAPOLIS	Indiana	46219	0.0145	Screened Out
	BOLTON	Connecticut	06043	0.0145	Screened Out
	HOLTSVILLE	New York	11742	0.0145	Screened Out
	DERIDDER	Louisiana	70634	0.0145	Screened Out
	GREENVILLE	South Carolina	29605	0.0145	Screened Out
	HERMITAGE	PENNSYLVANIA	16148	0.014	Screened Out
	MAULDIN	South Carolina	29662	0.014	Screened Out
	LAWRENCE	Massachusetts	01843	0.01365	Screened Out
	MOJAVE	California	93501	0.0135	Screened Out
	DYERSBURG	Tennessee	38024	0.0135	Screened Out
	LAKE CHARLES	Louisiana	70601	0.0135	Screened Out
	TAMPA	Florida	33619	0.013	Screened Out
	MEDINA	OHIO	44258	0.0125	Screened Out
	LAWRENCEVILLE	Georgia	30043	0.0125	Screened Out
	CARY	Illinois	60013	0.01213	Screened Out
	CINNAMINSON	New Jersey	08077	0.0115	Screened Out

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
[redacted]	SAN JOSE	California	95131	0.0115	Screened Out
	THEODORE	Alabama	36582	0.0115	Screened Out
	STURTEVANT	Wisconsin	53177	0.010815	Screened Out
	DAKOTA CITY	NEBRASKA	68731	0.01	Screened Out
	BATAVIA	Illinois	60510	0.01	Screened Out
	KIMBALL	Nebraska	69145	0.01	Screened Out
	DALLAS	Texas	75207	0.01	Screened Out
	SAN ANTONIO	Texas	78218	0.01	Screened Out
	EL DORADO	Arkansas	71730	0.0098	Screened Out
	GREENSBORO	North Carolina	27406	0.009535	Screened Out
	BALTIMORE	Maryland	21230	0.0095	Screened Out
	UNIVERSITY PARK	Illinois	60466	0.0095	Screened Out
	CALHOUN	Georgia	30701	0.0095	Screened Out
	STANLEY	North Carolina	28164	0.0093	Screened Out
	SCOTTSBURG	Indiana	47170	0.008625	Screened Out
	TEXAS CITY	Texas	77590	0.0085	Screened Out
	EAST SETAUKET	NEW YORK	11733	0.008	Screened Out
	FOREST PARK	Georgia	30297	0.00797	Screened Out
	CORPUS CHRISTI	Texas	78410	0.0075	Screened Out
	ELMENDORF AFB	ALASKA	99506	0.0075	Screened Out
	LESAGE	West Virginia	25537	0.0075	Screened Out
	PHILLIPSBURG	New Jersey	08865	0.0075	Screened Out
	CHANNAHON	Illinois	60410	0.0075	Screened Out
	INDIANAPOLIS	Indiana	46226	0.0075	Screened Out
	INDIANAPOLIS	Indiana	46225	0.007465	Screened Out
	INDIANAPOLIS	Indiana	46205	0.0072575	Screened Out
	TUSCALOOSA	Alabama	35401	0.007	Screened Out
	SAINT LOUIS	Missouri	63111	0.007	Screened Out
	INDIANAPOLIS	Indiana	46222	0.007	Screened Out
	FREEHOLD	New Jersey	07728	0.007	Screened Out
	DEARBORN	Michigan	48121	0.007	Screened Out
	SAN LORENZO	Puerto Rico	00754	0.00684	Screened Out
	UPPER MARLBORO	Maryland	20774	0.006732805	Screened Out
	NORCROSS	Georgia	30071	0.0065	Screened Out
	VICTORVILLE	California	92392	0.0065	Screened Out
	RUTHERFORDTON	North Carolina	28139	0.00625	Screened Out
	KANSAS CITY	Kansas	66105	0.006095	Screened Out
	LA PLACE	Louisiana	70068	0.006	Screened Out
	MANOR	Pennsylvania	15665	0.006	Screened Out
	WHITING	Indiana	46394	0.006	Screened Out
	WICHITA	KANSAS	67219	0.0059	Screened Out
	HOMEWOOD	Illinois	60430	0.00566	Screened Out
	CHARLESTON	Missouri	63834	0.0056	Screened Out
	BUNOLA	Pennsylvania	15020	0.0055	Screened Out
	PAINESVILLE	Ohio	44077	0.0055	Screened Out
	WATERBURY	Connecticut	06708	0.0055	Screened Out
	GARDEN GROVE	California	92841	0.0055	Screened Out
	RIDGEFIELD PARK	New Jersey	07660	0.0055	Screened Out
	BRIDGEVIEW	Illinois	60455	0.005295	Screened Out
	EAST LIVERPOOL	Ohio	43920	0.005065	Screened Out
	MARLBOROUGH	Massachusetts	01752	0.005	Screened Out
	DOVER	Delaware	19904	0.005	Screened Out
	WYANDOTTE	Michigan	48192	0.005	Screened Out
	LAKEVILLE	Minnesota	55044	0.005	Screened Out
	DUDLEY	Massachusetts	01571	0.005	Screened Out
	WEST CHESTER	Pennsylvania	19382	0.005	Screened Out
	CHATHAM	Virginia	24531	0.005	Screened Out
	DETROIT	MICHIGAN	48228	0.005	Screened Out
	BEREA	OHIO	44017	0.005	Screened Out
	GARDENA	California	90248	0.005	Screened Out
	BAKERSFIELD	CALIFORNIA	93308	0.005	Screened Out
	NEW PHILADELPHIA	OHIO	44663	0.005	Screened Out
	ADDISON	ILLINOIS	60101	0.005	Screened Out
	DEARBORN	Michigan	48121	0.005	Screened Out
	SPARTANBURG	South Carolina	29306	0.005	Screened Out
	CONNERSVILLE	Indiana	47331	0.005	Screened Out
	MIAMI	Florida	33155	0.005	Screened Out

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
[redacted]	WAYNE	New Jersey	07470	0.005	Screened Out
	PASADENA	Texas	77507	0.004635	Screened Out
	ROCHESTER	New York	14652	0.0045	Screened Out
	LOUISVILLE	Kentucky	40216	0.0045	Screened Out
	NORTH CHARLESTON	South Carolina	29406	0.0045	Screened Out
	FREDONIA	KANSAS	66736	0.0045	Screened Out
	CHARLOTTE	North Carolina	28273	0.0045	Screened Out
	HOPKINS	MINNESOTA	55343	0.0045	Screened Out
	BELLEVILLE	MICHIGAN	48111	0.004	Screened Out
	WALTON HILLS	OHIO	44146	0.004	Screened Out
	HAMPTON	Iowa	50441	0.004	Screened Out
	SANTA FE SPRINGS	California	90670	0.004	Screened Out
	CONCORD	North Carolina	28025	0.004	Screened Out
	TONAWANDA	New York	14150	0.004	Screened Out
	COHOES	New York	12047	0.00378	Screened Out
	BAKERSFIELD	California	93308	0.00346	Screened Out
	SAUGET	ILLINOIS	62201	0.003	Screened Out
	ORANGE CITY	Iowa	51041	0.003	Screened Out
	CINCINNATI	Ohio	45246	0.003	Screened Out
	DENVER	Colorado	80216	0.003	Screened Out
	PORTLAND	Oregon	97210	0.003	Screened Out
	MEMPHIS	Tennessee	38109	0.003	Screened Out
	COTTAGE GROVE	Minnesota	55016	0.003	Screened Out
	GARLAND	Texas	75040	0.00299	Screened Out
	MOUNT VERNON	Missouri	65712	0.00296	Screened Out
	FERNDALE	Michigan	48220	0.00275	Screened Out
	PONCA CITY	Oklahoma	74601	0.00266	Screened Out
	WAXAHACHIE	Texas	75165	0.0025	Screened Out
	FERNLEY	Nevada	89408	0.0025	Screened Out
	MEMPHIS	TENNESSEE	38109	0.0025	Screened Out
	MANSFIELD	OHIO	44903	0.0025	Screened Out
	SEAFORD	Delaware	19973	0.0025	Screened Out
	JAY	Maine	04239	0.0025	Screened Out
	WYNNEWOOD	Oklahoma	73098	0.0025	Screened Out
	NEWBURYPORT	Massachusetts	01950	0.0025	Screened Out
	HOUSTON	Texas	77092	0.0025	Screened Out
	HOUSTON	Texas	77051	0.0025	Screened Out
	NIAGARA FALLS	New York	14304	0.0025	Screened Out
	MILWAUKEE	Wisconsin	53207	0.0025	Screened Out
	BATH	Pennsylvania	18014	0.0025	Screened Out
	ROCHESTER	New York	14605	0.0025	Screened Out
	WOODRIDGE	Illinois	60517	0.0025	Screened Out
	MIDLOTHIAN	Illinois	60445	0.0025	Screened Out
	SPARTANBURG	South Carolina	29307	0.0025	Screened Out
	LINDEN	New Jersey	07036	0.0025	Screened Out
	CLEVELAND	Ohio	44109	0.0025	Screened Out
	TULSA	OKLAHOMA	74147	0.0025	Screened Out
	ASHLEY	INDIANA	46705	0.0025	Screened Out
	ROCK HILL	South Carolina	29730	0.0025	Screened Out
	SPRINGFIELD	Massachusetts	01104	0.0025	Screened Out
	HOUSTON	Texas	77049	0.0024345	Screened Out
	NORWALK	Connecticut	06852	0.0024	Screened Out
	IOLA	KANSAS	66749	0.0023	Screened Out
	PASADENA	Texas	77507	0.0023	Screened Out
	MILWAUKEE	Wisconsin	53218	0.002185	Screened Out
	CANTON	Massachusetts	02021	0.00215	Screened Out
	WINDSOR	Colorado	80550	0.002	Screened Out
	DAYTON	Texas	77535	0.002	Screened Out
	SALEM	Massachusetts	01970	0.002	Screened Out
	ORLANDO	Florida	32809	0.002	Screened Out
	CHATSWORTH	California	91311	0.002	Screened Out
	BEDFORD HEIGHTS	Ohio	44146	0.002	Screened Out
	SANTA FE SPRINGS	California	90670	0.002	Screened Out
	HAYWARD	California	94545	0.002	Screened Out
	WALPOLE	Massachusetts	02081	0.002	Screened Out
	CLEARFIELD	Utah	84016	0.002	Screened Out
	NEW CASTLE	Delaware	19720	0.001905	Screened Out
	PORTLAND	Oregon	97227	0.001825	Screened Out

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome
[redacted]	CUYAHOGA FALLS	OHIO	44223	0.0016295	Screened Out
	BRANCHBURG	New Jersey	08876	0.0015	Screened Out
	SAN CARLOS	California	94070	0.0015	Screened Out
	MILWAUKEE	Wisconsin	53223	0.0015	Screened Out
	HARLEYVILLE	South Carolina	29448	0.0015	Screened Out
	MEMPHIS	Tennessee	38108	0.0015	Screened Out
	RAYNE	Louisiana	70578	0.0015	Screened Out
	ROLLING MEADOWS	Illinois	60008	0.00125	Screened Out
	MILWAUKEE	Wisconsin	53226	0.00125	Screened Out
	WARWICK	Rhode Island	02886	0.00112	Screened Out
	SEATTLE	Washington	98108	0.001	Screened Out
	ELK GROVE VILLAGE	Illinois	60007	0.001	Screened Out
	WHEELING	Illinois	60090	0.001	Screened Out
	FLORA	Illinois	62839	0.001	Screened Out
	MUSCATINE	Iowa	52761	0.001	Screened Out
	PAULDING	OHIO	45879	0.001	Screened Out
	LA PORTE	TEXAS	77571	0.001	Screened Out
	CHARLOTTE	North Carolina	28273	0.001	Screened Out
	NEWARK	New Jersey	07105	0.001	Screened Out
	LOUISVILLE	Kentucky	40214	0.0008	Screened Out
	CHESTER	South Carolina	29706	0.00077	Screened Out
	MOUNT PLEASANT	Iowa	52641	0.0005	Screened Out
	POPLAR BLUFF	MISSOURI	63901	0.0005	Screened Out
	MESA	Arizona	85210	0.0005	Screened Out
	ITASCA	Illinois	60143	0.0005	Screened Out
	TEXARKANA	Texas	75501	0.0005	Screened Out
	AKRON	Ohio	44305	0.0005	Screened Out
	ALBANY	New York	12204	0.000485	Screened Out
	SCOTT	Louisiana	70583	0.0003385	Screened Out
	BUCKSPORT	MAINE	4416	0.0003	Screened Out
	WILSON	North Carolina	27893	0.00029	Screened Out
	DALLAS	Texas	75247	0.00026	Screened Out
	CHATTANOOGA	Tennessee	37406	0.0002205	Screened Out
	CHATSWORTH	California	91311	0.000185	Screened Out
	JACKSON	Michigan	49203	0.0001654	Screened Out
	WATERTOWN	Wisconsin	53094	0.00014	Screened Out
	AUGUSTA	Georgia	30906	0.000085	Screened Out
	TOLEDO	Ohio	43612	0.000082	Screened Out
	KILGORE	Texas	75662	0.0000807	Screened Out
	ELLWOOD CITY	Pennsylvania	16117	0.0000118	Screened Out
	TACOMA	Washington	98421	0.000005	Screened Out
	RESERVE	Louisiana	70084	0.000002	Screened Out
	LINCOLN	Nebraska	68504	0.00000001	Screened Out

Table C-2. Comparisons of 2010 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	City	State	Zip Code	2010 Air Emissions (tpy)	Outcome

tpy: tons per year

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tp

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
[redacted]	1202 FONES RD	OLYMPIA	WA	98501	63.9665	Retain
	3003 W CASINO RD	EVERETT	WA	98204	20.45	Retain
	1220 N SECOND AVE	KENT	WA	98032	82.946	Retain
	91-320 KOMOHANA ST	KAPOLEI	HI	96707	10.95	Retain
	6200 FRANKLIN BLVD SUITE #100	SACRAMENTO	CA	95824	5.0385	Retain
	3250 PATTERSON RD	RIVERBANK	CA	95367	7.8095	Retain
	2433 CROCKER CIR	FAIRFIELD	CA	94533	9.161	Retain
	2400 HUNTINGTON DR	FAIRFIELD	CA	94533	21.5	Retain
	10980 INLAND AVE	MIRA LOMA	CA	91752	31.1755	Retain
	20730 PRAIRIE ST	CHATSWORTH	CA	91311	29.0045	Retain
	500 CRENSHAW BLVD	TORRANCE	CA	90503	16.65	Retain
	5300 WESTMORELAND RD	WINNEMUCCA	NV	89445	5.0015	Retain
	211 N 51AVE	PHOENIX	AZ	85043	41.904	Retain
	710 N 600 W	LOGAN	UT	84321	5.851	Retain
	620 N 4TH ST	WORLAND	WY	82401	53.3405	Retain
	1201 METAL CONTAINER CT	WINDSOR	CO	80550	54.2575	Retain
	120 9TH AVE	LONGMONT	CO	80501	5	Retain
	4525 INDIANA ST	GOLDEN	CO	80403	31.5	Retain
	17755 W 32ND AVE	GOLDEN	CO	80401	33.5	Retain
	1 LONE STAR PASS	SAN ANTONIO	TX	78264	9.93683575	Retain
	7501 N HWY 185	SEADRIFT	TX	77983	17.666	Retain
	10850 STRANG RD	LA PORTE	TX	77571	5.00805	Retain
	5761 UNDERWOOD RD	PASADENA	TX	77507	5.2385	Retain
	3000 N S ST	PASADENA	TX	77503	23.8115	Retain
	12910 JESS PIRTLE BLVD	SUGAR LAND	TX	77478	31.488	Retain
	2501 N FRAZIER ST	CONROE	TX	77303	32.064	Retain
	1001 N FM 3083 E	CONROE	TX	77303	17.15	Retain
	699 F.M. 3083	CONROE	TX	77301	6.9444811	Retain
	6600 WILL ROGERS BLVD	FORT WORTH	TX	76140	12.5	Retain
	175 COUNTY RD 2345	GRAPELAND	TX	75844	12.204	Retain
	300 KODAK BLVD	LONGVIEW	TX	75602	15.3195	Retain
	1001 FISHER RD	LONGVIEW	TX	75604	52.485	Retain
	500 NW LOOP 286 SUITE 101	PARIS	TX	75460	6.6505	Retain
	803 AIRPORT RD	TERRELL	TX	75160	15.309	Retain
	41501 WOLVERINE RD	SHAWNEE	OK	74804	19.075	Retain
	900 DARR PARK DR	PONCA CITY	OK	74601	19.8795	Retain
	72 CEG/CEA 7535 FIFTH ST	TINKER AFB	OK	73145	5.1	Retain
	500 SE 27TH	EL RENO	OK	73036	7.514	Retain
	10300 ROBERTS BLVD	FORT SMITH	AR	72916	13.2445	Retain
	600 KAWNEER DR	SPRINGDALE	AR	72764	9.9965	Retain
	1301 N DIXIELAND RD	ROGERS	AR	72756	12.883	Retain
	1901 E BORICK DR	FAYETTEVILLE	AR	72701	10.9685	Retain
	HWY 49 S	PIGGOTT	AR	72454	5.4585	Retain
	4708 KRUEGER DR	JONESBORO	AR	72401	5.85	Retain
	4950 N COUNTY RD 967	BLYTHEVILLE	AR	72315	11.16161105	Retain
	5411 INDUSTRIAL DR S	PINE BLUFF	AR	71602	6	Retain
	3300 N HUTCHINSON ST	WHITE HALL	AR	71602	8.5085	Retain
	111 W IRENE RD	ZACHARY	LA	70791	5.355	Retain
	6000 JEFFERSON HWY	NEW ORLEANS	LA	70123	9.5545	Retain
	1601 W OMAHA AVE	NORFOLK	NE	68701	10.25	Retain
	7002 N 288TH ST	VALLEY	NE	68064	5	Retain
	3600 N HYDRAULIC	WICHITA	KS	67219	5.858	Retain

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tp

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
[redacted]	7604 RAILROAD AVE	WINFIELD	KS	67156	9.1095	Retain
	1005 COMMERCIAL DR	OWENSVILLE	MO	65066	5.0775	Retain
	2115 SW LOWER LAKE RD	SAINT JOSEPH	MO	64504	8.9735	Retain
	8121 E U.S. HWY 69	CLAYCOMO	MO	64119	56.55	Retain
	1500 E RT A	WENTZVILLE	MO	63385	9.05	Retain
	101 S ELM	WARRENTON	MO	63383	21.4795	Retain
	102 BARTON ST	SAINT LOUIS	MO	63104	6.34465	Retain
	2391 CASSENS DR	FENTON	MO	63026	9.628	Retain
	42 TENBROOK INDUSTRIAL PARK	ARNOLD	MO	63010	42.0245	Retain
	1848 WESTPHALIA STRASSE	QUINCY	IL	62305	16.081	Retain
	25 NORTHGATE INDUSTRIAL DR	GRANITE CITY	IL	62040	5.2675	Retain
	600 E PEORIA ST	GOODFIELD	IL	61742	16.723	Retain
	604 US HWY 150 E	GALESBURG	IL	61401	7.3525	Retain
	400 N 15TH ST	ROCHELLE	IL	61068	11.045	Retain
	100 A.J. HARLE DR	GALENA	IL	61036	12.185	Retain
	3000 W CHRYSLER DR	BELVIDERE	IL	61008	11.15	Retain
	1035 E N ST	BRADLEY	IL	60915	64.844	Retain
	4300 W 130TH ST	ALSIP	IL	60803	18.7305	Retain
	4900 S KILBOURN AVE	CHICAGO	IL	60632	8.8	Retain
	4242 W FILLMORE	CHICAGO	IL	60624	5.4	Retain
	2000 S KILBOURN AVE	CHICAGO	IL	60623	12.2775	Retain
	3200 S KILBOURN AVE	CHICAGO	IL	60623	22.99445	Retain
	1846 S KILBOURN AVE	CHICAGO	IL	60623	10.8335	Retain
	1101 W 43RD ST	CHICAGO	IL	60609	33.1715	Retain
	4400 S PACKER	CHICAGO	IL	60609	33.9425	Retain
	3737 E EXCHANGE AVE	AURORA	IL	60504	5.7695	Retain
	7701 W 71ST ST	BRIDGEVIEW	IL	60455	8.35	Retain
	16100 S LATHROP AVE	HARVEY	IL	60426	6.864	Retain
	211 E MAIN ST	CHICAGO HEIGHTS	IL	60411	35.8595	Retain
	475 RANDY RD	CAROL STREAM	IL	60188	8.80855	Retain
	449 N CALIFORNIA ST	SYCAMORE	IL	60178	6.722	Retain
	11595 MCCONNELL RD	WOODSTOCK	IL	60098	6.265	Retain
	1595 E OAKTON ST	ELK GROVE VILLAGE	IL	60007	8.79	Retain
	7000 SAUKVIEW DR	SAINT CLOUD	MN	56303	5.856965	Retain
	2300 BROWN AVE	WASECA	MN	56093	6.7615	Retain
	5005 COUNTY RD 25	MINNEAPOLIS	MN	55416	6.3187	Retain
	966 S MISSISSIPPI RIVER BLVD	SAINT PAUL	MN	55116	7.08	Retain
	139 EVA ST	SAINT PAUL	MN	55107	78.8155	Retain
	805 BENCH ST	RED WING	MN	55066	24.362	Retain
	2929 W BRIDGE ST	OWATONNA	MN	55060	127.5625	Retain
	N 2467 VAUGHAN RD	WAUPACA	WI	54981	10.415	Retain
	1416 INDIANHEAD DR	MENOMONIE	WI	54751	7.75	Retain
	200 SIME AVE	TOMAH	WI	54660	5.426	Retain
	1501 ST JAMES ST	LA CROSSE	WI	54603	25.777	Retain
	801 SAUK AVE	BARABOO	WI	53913	25.711	Retain
	105 E BLACKHAWK DR	FORT ATKINSON	WI	53538	11.95	Retain
	8500 W TOWER AVE	MILWAUKEE	WI	53224	35	Retain
	8448 N 87TH ST	MILWAUKEE	WI	53224	9.352	Retain
	2529 E NORWICH AVE	SAINT FRANCIS	WI	53235	9.7653	Retain
	10800 S 13TH ST	OAK CREEK	WI	53154	35.58	Retain
	8570 S CHICAGO RD	OAK CREEK	WI	53154	18.578	Retain
	N61 W23044 HARRY'S WAY ATTN: ENVIRONMENTAL	SUSSEX	WI	53089	12.85	Retain
	300 MILL ST	SHEBOYGAN FALLS	WI	53085	12.7415	Retain
	520 W 2ND ST	OCONOMOWOC	WI	53066	6.475	Retain
	N11896 HWY 175 PO BOX 2718	LOMIRA	WI	53048	5.3675	Retain
	300 N VINE ST	HORICON	WI	53032	5.5	Retain
	1900 W SUMNER ST	HARTFORD	WI	53027	11.85	Retain
	926 W STATE ST	HARTFORD	WI	53027	8.7795	Retain
	300 E BREED ST	CHILTON	WI	53014	5.270385	Retain
	476 CLAY ST	CHILTON	WI	53014	6.272	Retain
	1930 DES MOINES AVE	BURLINGTON	IA	52601	11.18	Retain
	1965 HWY 30	MISSOURI VALLEY	IA	51555	5.464	Retain
	1750 E US HWY 30 E	CARROLL	IA	51401	5.5825	Retain

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tp

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
	3591 MAPLE DR	FORT DODGE	IA	50501	13.686535	Retain
	102 MAIN ST	PELLA	IA	50219	19.5195	Retain
	825 SW IRVINEDALE DR	ANKENY	IA	50023	21.1695	Retain
	200 LAFAYETTE ST	MIDDLEVILLE	MI	49333	7.1365	Retain
	501 S MILLER DR	WHITE PIGEON	MI	49099	16.1035	Retain
	1500 N PITCHER ST	KALAMAZOO	MI	49007	8.6	Retain
	920 TOWNSEND ST MAIL CODE: 489-066-600	LANSING	MI	48921	5.8	Retain
	8175 MILLETT HWY	LANSING	MI	48917	24.55	Retain
	2100 BRISTOL RD	FLINT	MI	48552	26.1855	Retain
	2101 CONNOR AVE	DETROIT	MI	48215	56	Retain
	4651 BELLEVUE AVE	DETROIT	MI	48207	7.4295	Retain
	38303 MICHIGAN AVE	WAYNE	MI	48184	6.065	Retain
	3001 MILLER RD	DEARBORN	MI	48121	66.15	Retain
	21500 MOUND RD	WARREN	MI	48091	8.655	Retain
	6645 SIMS DR	STERLING HEIGHTS	MI	48313	6.169	Retain
	32565 DEQUINDRE	MADISON HEIGHTS	MI	48071	12.3605	Retain
	501 N SIXTH ST	MONTICELLO	IN	47960	33	Retain
	1009 SLOAN ST	CRAWFORDSVILLE	IN	47933	6.608	Retain
	400 N WALNUT ST	CRAWFORDSVILLE	IN	47933	21.597	Retain
	5500 STATE RD 38E	LAFAYETTE	IN	47905	29.635	Retain
	2201 W MARYLAND ST	EVANSVILLE	IN	47710	15.4125	Retain
	4000 TULIP TREE DR	PRINCETON	IN	47670	17.969	Retain
	HWYS 66 & 61	NEWBURGH	IN	47629	8.5	Retain
	1 LEXAN LN	MOUNT VERNON	IN	47620	5.25	Retain
	310 S WABASH	ASHLEY	IN	46705	6	Retain
	301 N CURRY PIKE	BLOOMINGTON	IN	47404	6.5	Retain
	2900 W INWOOD DR	COLUMBUS	IN	47201	6	Retain
	1000 E PEARL ST	BATESVILLE	IN	47006	5.3525	Retain
	6610 COUNTY RD 60	SAINT JOE	IN	46785	8.231	Retain
	12200 LAFAYETTE CENTER RD	ROANOKE	IN	46783	15.2	Retain
	601 RE JONES RD	BUTLER	IN	46721	24.3635	Retain
	101 JOAN DR	MIDDLEBURY	IN	46540	5.3965	Retain
	US HWY 12 AT RT 249	PORTAGE	IN	46368	4.9	Screened Out
	300 N FAIL RD	LA PORTE	IN	46350	65.4225	Retain
	858 E HUPP RD	LA PORTE	IN	46350	6.935	Retain
	2501 165TH ST	HAMMOND	IN	46320	5.873	Retain
	1950 E MAIN ST	GREENFIELD	IN	46140	7.843	Retain
	2600 E STATE RD 240	GREENCASTLE	IN	46135	6.75701	Retain
	1100 MCKINLEY RD	SAINT MARYS	OH	45885	7.502	Retain
	4901 N MAIN ST	FINDLAY	OH	45840	21.509	Retain
	12340 TOWNSHIP RD 99 E	FINDLAY	OH	45840	160.5	Retain
	1501 W MICHIGAN ST	SIDNEY	OH	45365	11.892	Retain
	2615 CAMPBELL RD	SIDNEY	OH	45365	12.155	Retain
	9017 BLUE ASH RD	CINCINNATI	OH	45242	32.5	Retain
	1229 CASTLE DR	MASON	OH	45040	12.689	Retain
	1145 CONWELL AVE	WILLARD	OH	44890	8.7445	Retain
	1425 E BOWMAN ST	WOOSTER	OH	44691	13.3625	Retain
	390 GRISWOLD ST NE	WARREN	OH	44483	14.966	Retain
	2100 GRISWOLD NE	WARREN	OH	44483	7.365	Retain
	2300 HALLOCK-YOUNG RD	LORDSTOWN	OH	44481	5	Retain
	3765 SUNNYBROOK RD	BRIMFIELD	OH	44240	5	Retain
	8806 CRANE AVE	CLEVELAND	OH	44105	17.316	Retain
	1724 LINDEN AVE	ZANESVILLE	OH	43701	6	Retain
	5201 ENTERPRISE BLVD	TOLEDO	OH	43612	12.7245	Retain
	3770 STICKNEY AVE	TOLEDO	OH	43612	16.5510995	Retain
	2900 HILL AVE	TOLEDO	OH	43607	13.1405	Retain
	10444 WATERVILLE	WHITEHOUSE	OH	43571	76.328	Retain

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Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
	12-773 ST RT 110	NAPOLEON	OH	43545	12.7305	Retain
	63 DIXIE HWY	ROSSFORD	OH	43460	7.819	Retain
	2145 CEDAR	FREMONT	OH	43420	126.955	Retain
	11000 STATE RT 347	EAST LIBERTY	OH	43319	38.3	Retain
	1300 MARION-AGOSTA RD	MARION	OH	43302	51.461	Retain
	350 MCCORMICK BLVD	COLUMBUS	OH	43213	82	Retain
	24000 HONDA PKWY	MARYSVILLE	OH	43040	40.2	Retain
	2604 RIVER RD	HAWESVILLE	KY	42348	5.218	Retain
	US HWY 431 N	RUSSELLVILLE	KY	42276	4.9495	Retain
	7425 INDUSTRIAL RD	FLORENCE	KY	41042	34.7245	Retain
	1601 MERCER RD	LEXINGTON	KY	40511	9.092	Retain
	301 MAYDE RD	BEREA	KY	40403	14.7982	Retain
	1001 CHERRY BLOSSOM WAY	GEORGETOWN	KY	40324	9.387	Retain
	3001 CHAMBERLAIN LN	LOUISVILLE	KY	40241	44.25	Retain
	9098 EASTSIDE DR EXT.	NEWTON	MS	39345	9.578	Retain
	1095 MENDELL DAVIS DR	JACKSON	MS	39272	10.9045	Retain
	1725 N WASHINGTON ST	VICKSBURG	MS	39181	14.1275	Retain
	300 NISSAN DR	CANTON	MS	39046	9.612	Retain
	RT. 2 LEE INDUSTRIAL PARK E	SHANNON	MS	38868	6.1565	Retain
	10800 MARINA DR	OLIVE BRANCH	MS	38654	82.2945	Retain
	195 CROWN RD	BATESVILLE	MS	38606	22.1595	Retain
	9159 TELECOM DR	MILAN	TN	38358	16.754	Retain
	2000 N 5TH ST	UNION CITY	TN	38261	5.347	Retain
	751 DUPREE ST	BROWNSVILLE	TN	38012	6.669	Retain
	177 INDUSTRIAL PARK RD	SWEETWATER	TN	37874	13.094	Retain
	8001 VOLKSWAGEN DR	CHATTANOOGA	TN	37416	11.0214265	Retain
	1119 RIVERFRONT PKWY	CHATTANOOGA	TN	37402	23.9355	Retain
	175 MONOGARD DR	MANCHESTER	TN	37355	34.1765	Retain
	500 WALNUT GROVE RD	DAYTON	TN	37321	6.58324085	Retain
	740 KING EDWARD AVE SE	CLEVELAND	TN	37311	6.264	Retain
	1604 COUNTY HOSPITAL RD	NASHVILLE	TN	37218	18.35	Retain
	2947 BRICK CHURCH PIKE	NASHVILLE	TN	37207	7.102	Retain
	983 NISSAN DR	SMYRNA	TN	37167	30.74138035	Retain
	500 TENNESSEE WALTZ PKWY	ASHLAND CITY	TN	37015	9.4075	Retain
	HWY 27 N	GENEVA	AL	36340	12.793	Retain
	1101 TECHNOLOGY DR	DOTHAN	AL	36303	5.3	Retain
	7205 GAULT AVE N	FORT PAYNE	AL	35967	6.3425	Retain
	4910 MOORES MILL RD	HUNTSVILLE	AL	35811	8.525	Retain
	3101 SEXTON RD	DECATUR	AL	35603	19.2556	Retain
	6675 US HWY 43	GUIN	AL	35563	12.501	Retain
	1 MERCEDES DR	VANCE	AL	35490	28.302	Retain
	1629 VANDERBILT RD	BIRMINGHAM	AL	35234	12.3625	Retain
	1800 HONDA DR	LINCOLN	AL	35096	25.27	Retain
	1313 PKWY DR SE	LEEDS	AL	35094	13.472	Retain
	2540 KNIGHTS STATION RD	LAKELAND	FL	33810	8.999	Retain
	2525 S COMBEE RD	LAKELAND	FL	33801	8.3575	Retain
	4700 WHITEWAY DR	TAMPA	FL	33617	17	Retain
	400 W WALKER AVE	BUSHNELL	FL	33513	10.6975	Retain
	1100 N ELLIS RD	JACKSONVILLE	FL	32254	25.615	Retain
	7777 KIA PKWY	WEST POINT	GA	31833	4.9645	Retain
	1601 VALDOSTA HWY	HOMERVILLE	GA	31634	7.80461	Retain
	1229 HWY 441 N BYPASS	DUBLIN	GA	31021	9.392	Retain
	200 NEWTON BRIDGE RD	ATHENS	GA	30607	5.246	Retain
	101 JOE HARVEY ST	LAVONIA	GA	30553	17.346	Retain
	1131 HWY 155 S	MC DONOUGH	GA	30253	11.15	Retain
	535 MACON RD	MC DONOUGH	GA	30253	9.043	Retain
	110 BALL DR	ROME	GA	30161	44.5	Retain
	2556 WAGENER RD	AIKEN	SC	29801	14.516	Retain

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Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
	1400 HWY 101 S	GREER	SC	29651	152.52	Retain
	100 EVANS ROW	CHERAW	SC	29520	23.876	Retain
	1501 W DARLINGTON ST	FLORENCE	SC	29501	12.2435	Retain
	172 OLD ELLOREE RD	ORANGEBURG	SC	29116	6.604	Retain
	609 COUSAR ST	BISHOPVILLE	SC	29010	89.26	Retain
	950 GERMAN ST	LENOIR	NC	28645	5.734	Retain
	2120 NC HWY N UNIT A	MAXTON	NC	28364	9.7895	Retain
	12180 UNIVERSITY CITY BLVD	HARRISBURG	NC	28075	5.351	Retain
	2900 NW BLVD	GASTONIA	NC	28052	5.9525	Retain
	3301 N MAIN ST	TARBORO	NC	27886	16.5235	Retain
	1900 BARNES ST	REIDSVILLE	NC	27320	102	Retain
	715 W FAIRFIELD RD	HIGH POINT	NC	27263	15.9935	Retain
	4000 OLD MILWAUKEE LN	WINSTON-SALEM	NC	27107	136.173	Retain
	3011 BIRCH DR	WEIRTON	WV	26062	92.2445	Retain
	3010 BIRCH DR	WEIRTON	WV	26062	13.25	Retain
	135 BEAR CREEK RD	MARION	VA	24354	8.9435	Retain
	300 E GRAYSON ST	GALAX	VA	24333	4.99620635	Retain
	8935 POCAHONTAS TRAIL JAMES RIVER COMMERCE CENTER	WILLIAMSBURG	VA	23185	173	Retain
	2347 KRATZER RD	HARRISONBURG	VA	22802	48.2645	Retain
	18249 PHOENIX DR	HAGERSTOWN	MD	21742	8.5	Retain
	8801 CITATION RD	BALTIMORE	MD	21221	34.548	Retain
	326 JUNE AVE	BLANDON	PA	19510	6.5965	Retain
	695 LOUIS DR	WARMINSTER	PA	18974	6.028	Retain
	1220 INDUSTRIAL BLVD	SOUTHAMPTON	PA	18966	7.5855	Retain
	216 GREENFIELD RD	LANCASTER	PA	17601	7.936	Retain
	1375 HARRISBURG PIKE	LANCASTER	PA	17601	9.08235	Retain
	500 E MIDDLE ST	HANOVER	PA	17331	28.0405	Retain
	1650 BROADWAY	HANOVER	PA	17331	5.2265	Retain
	1500 S CAMERON ST	HARRISBURG	PA	17104	27.6195	Retain
	600 ATLANTIC AVE	FRANKLIN	PA	16323	8.5	Retain
	7676 ALLEGHENY RD	MANNS CHOICE	PA	15550	14.205	Retain
	125 COLFAX ST	SPRINGDALE	PA	15144	5.8125	Retain
	400 STATE ST	CLAIRTON	PA	15025	41	Retain
	5362 RAILROAD ST	CHEMUNG	NY	14825	10.4555	Retain
	200 LUCIUS GORDON DR	WEST HENRIETTA	NY	14586	8.2645	Retain
	3709 MILL ST	MARION	NY	14505	5.423	Retain
	113 CEDAR ST	AKRON	NY	14001	11.6965	Retain
	11 ADAMS RD	SARATOGA SPRINGS	NY	12866	19.25	Retain
	130 BREUNIG RD	NEW WINDSOR	NY	12553	40.4295	Retain
	95 BALLARD RD	MIDDLETOWN	NY	10940	17.5	Retain
	135 NATIONAL RD	EDISON	NJ	08817	4.995	Retain
	14 CONVERY BLVD	WOODBRIDGE	NJ	07095	8.8765	Retain
	600 MYRTLE ST	NEW BRITAIN	CT	06052	10.5515	Retain
	89 CUMBERLAND ST	WESTBROOK	ME	04098	35.20941	Retain
	1160 CRANSTON ST	CRANSTON	RI	02920	5.7265	Retain
	GLEN & SHEPARD ST	LAWRENCE	MA	01843	70.1775	Retain
	380 CALLE FABRIL ST KM 126 PR-3, PR INDUSTRIAL PARK	CAROLINA	PR	00985	24.194	Retain
	3211 E CHESTNUT EXPY	SPRINGFIELD	MO	65802	0.02	Screened Out
	261 HWY 155 S	MC DONOUGH	GA	30253	0.041	Screened Out
	2811 S HARBOR BLVD	SANTA ANA	CA	92704	0.2365	Screened Out
	2701 OAKES RD	STURTEVANT	WI	53177	0.317	Screened Out
	22614 RT 84 N	CORDOVA	IL	61242	0.614	Screened Out
	4501 HWY 377 S	BROWNWOOD	TX	76801	0.91	Screened Out
	905/915 ADAMS ST SE	HUTCHINSON	MN	55350	1.585	Screened Out
	1030 LAKE RD	MEDINA	OH	44256	0.168	Screened Out
	2120 E AUSTIN BLVD	NEVADA	MO	64772	0.385	Screened Out
	10746 INNOVATION RD	COTTAGE GROVE	MN	55016	0.112	Screened Out
	3217 WOOD DR	GARLAND	TX	75041	0.0025	Screened Out
	6970 JONESBORO RD	MORROW	GA	30260	0.3775	Screened Out
	1102 AVE J E	GRAND PRAIRIE	TX	75050	0.06	Screened Out
	7575 FULTON ST E	ADA	MI	49355	1.9855	Screened Out
	192 W 155TH ST	SOUTH HOLLAND	IL	60473	0.1335	Screened Out
	1050 TAYLORS LN	CINNAMINSON	NJ	08077	0.01	Screened Out
	100 THOMPSON ST	PITTSTON	PA	18640	0.005	Screened Out
	900 W MAIN ST	SEDALIA	MO	65301	0.0605	Screened Out

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Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
	1201 S PINE HILL RD	GRIFFIN	GA	30224	0.11925	Screened Out
	501 MONSANTO AVE	SAUGET	IL	62201	0.02	Screened Out
	725 CANNON BRIDGE RD	ORANGEBURG	SC	29115	3.301	Screened Out
	474 W 19TH ST	RESERVE	LA	70084	0.0000025	Screened Out
	337 VINCENT DR	MILTON	WI	53563	0.0135	Screened Out
	500 JERSEY AVE	NEW BRUNSWICK	NJ	08901	0.125	Screened Out
	1660 CROSS ST SE	SALEM	OR	97302	0.0519	Screened Out
	1000 INDUSTRIAL PARK DR	CLINTON	MS	39056	0.0945	Screened Out
	1431 PROGRESS AVE	HIGH POINT	NC	27260	0.125	Screened Out
	1313 WINDSOR AVE	COLUMBUS	OH	43211	1.416	Screened Out
	65TH INFANTRY AVE KM. 13.4	CAROLINA	PR	00985	0.081845	Screened Out
	15200 ALMEDA RD	HOUSTON	TX	77053	0.174	Screened Out
	1872 HWY 9 BYPASS W	LANCASTER	SC	29720	2.6435	Screened Out
	1 E WATER ST	WAUKEGAN	IL	60085	0.984	Screened Out
	120 FRANKLIN RD	PONTIAC	MI	48341	0.0605	Screened Out
	71 PROGRESS AVE	CRANBERRY TOWNS	PA	16066	0.7965	Screened Out
	1 REYNOLDS RD	ASHVILLE	OH	43103	0.379	Screened Out
	3321 DURHAM RD	ROXBORO	NC	27573	0.482	Screened Out
	1372 KY HWY 1957	LEWISPORT	KY	42351	2.696	Screened Out
	810 E S ST	MARENGO	IA	52301	2.1595	Screened Out
	3001 ATKINSON DR	LUFKIN	TX	75901	1.7455	Screened Out
	34136 MYRTLE	WAYNE	MI	48184	0.125	Screened Out
	1000 CROCKER RD	WESTLAKE	OH	44145	0.391	Screened Out
	215 PHILLIPS 324 RD	HELENA	AR	72342	0.154	Screened Out
	91 NORTHEASTERN BLVD	NASHUA	NH	03062	0.1182165	Screened Out
	990 INDUSTRIAL PARK DR	MARIETTA	GA	30062	0.244	Screened Out
	6707 E 14TH ST	TULSA	OK	74112	0.1155	Screened Out
	1415 E MICHIGAN ST	ADRIAN	MI	49221	0.005	Screened Out
	N82 W13118 LEON RD	MENOMONEE FALLS	WI	53051	1.355	Screened Out
	3225 E WASHINGTON BLVD	VERNON	CA	90058	0.25	Screened Out
	HWY 933	BRANDENBURG	KY	40108	0.124	Screened Out
	3030 BIRCH DR HALF MOON INDUSTRIAL PARK	WEIRTON	WV	26062	0.4445	Screened Out
	936 BARRACUDA ST	TERMINAL ISLAND	CA	90731	4.175	Screened Out
	2050 BYBERRY RD	PHILADELPHIA	PA	19116	0.1365	Screened Out
	340 RAILROAD ST	SAUKVILLE	WI	53080	0.9005	Screened Out
	13511 MAIN ST	LEMONT	IL	60439	0.03	Screened Out
	1415 STEELE AVE SW	GRAND RAPIDS	MI	49507	0.5	Screened Out
	565 HARTCO DR	ONEIDA	TN	37841	4.7345	Screened Out
	4115 N PERKINS RD	STILLWATER	OK	74075	1.4105	Screened Out
	4800 STATE RD 60 E	MULBERRY	FL	33860	2.9015	Screened Out
	1 THIRD AVE	HASKELL	NJ	07420	0.1685	Screened Out
	801 RAILROAD AVE	YORK	SC	29745	4.894	Screened Out
	126 MEMORIAL DR	SPRINGFIELD	MA	01104	0.002	Screened Out
	27 MAIN ST	STRUTHERS	OH	44471	2.651	Screened Out
	7855 N FAULKNER RD	MILWAUKEE	WI	53224	0.08166	Screened Out
	706 HOUSTON CLINTON DR	BURNET	TX	78611	0.05139	Screened Out
	1750 OVERVIEW DR	ROCK HILL	SC	29730	0.0025	Screened Out
	1 INTERNATIONAL DR	FLAT ROCK	MI	48134	4.85	Screened Out
	7700 MICHIGAN AVE	SALINE	MI	48176	3.56	Screened Out
	600 N BROAD ST	PHILLIPSBURG	NJ	08865	0.003	Screened Out
	17700 FOLTZ INDUSTRIAL PKWY	STRONGSVILLE	OH	44149	3.246	Screened Out
	603 W 7TH ST	CADILLAC	MI	49601	0.125	Screened Out
	801 17TH AVE S	MYRTLE BEACH	SC	29577	2.6925	Screened Out
	2220 S PROSPECT	OKLAHOMA CITY	OK	73129	0.25	Screened Out
	13200 BAYPARK RD	PASADENA	TX	77507	0.0001595	Screened Out
	16950 WALLISVILLE RD	HOUSTON	TX	77049	0.000219	Screened Out
	9100 W 21ST ST	SAND SPRINGS	OK	74063	0.01482	Screened Out
	806 PALUXY ST	KILGORE	TX	75662	0.0002725	Screened Out
	135 INDUSTRIAL DR	RAYNE	LA	70578	0.0005	Screened Out
	1717 GIFFORD RD	ELGIN	IL	60120	1.838	Screened Out
	1200 S CRUTCHER ST	SPRINGDALE	AR	72764	2.13	Screened Out
	300 W GREGER RD	OAKDALE	CA	95361	3.552	Screened Out
	204 36TH ST	BETTENDORF	IA	52722	0.049	Screened Out
	2135 9TH AVE	COUNCIL BLUFFS	IA	51502	0.023	Screened Out
	1970 NE BROADWAY	DES MOINES	IA	50313	0.0355	Screened Out
	901 S 66TH TERRACE	KANSAS CITY	KS	66111	0.035	Screened Out
	800 RAIL WAY	WEST BEND	WI	53095	0.0265	Screened Out
	201 S CEDAR	VALLEY CENTER	KS	67147	0.0195	Screened Out
	100 INDUSTRIAL BLVD	SEAFORD	DE	19973	0.0025	Screened Out
	1609 BIDDLE AVE	WYANDOTTE	MI	48192	0.005	Screened Out

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tp

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
	361 SHEEP PASTURE RD	EAST SETAUKET	NY	11733	0.008	Screened Out
	3455 SOUTHPORT RD	SPARTANBURG	SC	29302	0.1275	Screened Out
	1175 MARTIN ST	GREENVILLE	OH	45331	0.22	Screened Out
	310 CROWN RD	BATESVILLE	MS	38606	3.796	Screened Out
	5200 CURTIS LN	NEW IBERIA	LA	70560	1.5	Screened Out
	15310 ARROW BLVD	FONTANA	CA	92335	0.25	Screened Out
	270 STATE ST	CHICAGO HEIGHTS	IL	60411	0.3259	Screened Out
	130 DECLARATION DR	MC DONOUGH	GA	30253	0.30055	Screened Out
	4113 W INDUSTRIAL AVE	MIDLAND	TX	79703	3.7855	Screened Out
	700 W KEARNEY	MESQUITE	TX	75149	0.001327	Screened Out
	134 LISTER AVE	NEWARK	NJ	07105	0.00135	Screened Out
	UNION AVE EXTENSION	JOHNSTOWN	NY	12095	0.0188675	Screened Out
	109 BAMBERG DR	PELL CITY	AL	35125	0.10425	Screened Out
	31 RAILROAD ST	CLARENDON	PA	16313	4.429515	Screened Out
	301 WASHINGTON ST W	CANNON FALLS	MN	55009	0.249	Screened Out
	6515 FRATT RD	SAN ANTONIO	TX	78218	0.0085	Screened Out
	3800 E RANDOL MILL RD	ARLINGTON	TX	76011	0.125	Screened Out
	1001 BROWN AVE	TOLEDO	OH	43607	3.69	Screened Out
	18906 US 24 E	WOODBURN	IN	46797	0.005	Screened Out
	1735 DOGWOOD DR	CONYERS	GA	30012	0.03915	Screened Out
	707 N LEECH	HOBBS	NM	88240	0.011905	Screened Out
	1305 RYE ST	HOUSTON	TX	77029	0.0225	Screened Out
	2820 N NORMANDY DR	PETERSBURG	VA	23805	0.0035	Screened Out
	737 LOGAN AVE N	RENTON	WA	98055	0.577	Screened Out
	7500 E MARGINAL WAY S	SEATTLE	WA	98108	0.1425	Screened Out
	7755 E MARGINAL WAY S	SEATTLE	WA	98108	0.0305	Screened Out
	HWY 53 BONNELL RD	CARTHAGE	TN	37030	1.873	Screened Out
	2815 INDIANAPOLIS BLVD	WHITING	IN	46394	0.0005	Screened Out
	608 W CRAWFORD AVE	CONNELLSVILLE	PA	15425	0.364595	Screened Out
	4470 SW 74TH AVE	MIAMI	FL	33155	0.005	Screened Out
	1200 N PEORIA	TULSA	OK	74147	0.0025	Screened Out
	14765 W BOBOLINK AVE	MENOMONEE FALLS	WI	53051	0.1275	Screened Out
	81 W HULLER LN	READING	PA	19605	0.0349	Screened Out
	10747 PATTERSON PL	SANTA FE SPRINGS	CA	90670	0.0425	Screened Out
	11750 FRUEHAUF DR	CHARLOTTE	NC	28273	0.0025	Screened Out
	2000 E PETTIGREW ST	DURHAM	NC	27703	0.046	Screened Out
	704 E WINTERGREEN RD	LANCASTER	TX	75134	0.0475	Screened Out
	610 FISHER RD	LONGVIEW	TX	75604	0.026	Screened Out
	206 E MORROW RD	SAND SPRINGS	OK	74063	0.0375	Screened Out
	120 ENTERPRISE AVE	MORRISVILLE	PA	19067	1.317	Screened Out
	200 PARK AVE	BRILLION	WI	54110	2.93465	Screened Out
	668 GRAVEL PIKE	EAST GREENVILLE	PA	18041	3.38	Screened Out
	2920 DR ANDREW J BROWN AVE	INDIANAPOLIS	IN	46205	0.006137	Screened Out
	W6250 PIONEER RD	FOND DU LAC	WI	54935	1.27	Screened Out
	2700 WAGNER PL	MARYLAND HEIGHTS	MO	63043	1.7395	Screened Out
	1809 ROCK ISLAND ST	DALLAS	TX	75207	0.009	Screened Out
	1256 N MCLEAN BLVD	MEMPHIS	TN	38108	0.0015	Screened Out
	3301 S COUNTY RD 150 W	GREENCASTLE	IN	46135	0.119	Screened Out
	1202 AIRPORT RD	NORTH BRUNSWICK	NJ	08902	2.096	Screened Out
	8200 BROADWELL RD	CINCINNATI	OH	45244	1.61336	Screened Out
	6 LITHO RD	TRENTON	NJ	08648	0.631	Screened Out
	524 S CHERRY ST	WALLINGFORD	CT	06492	0.154	Screened Out
	196 S WATER	CONNERSVILLE	IN	47331	0.005	Screened Out
	3715 11TH ST	WYANDOTTE	MI	48192	3.118	Screened Out
	18 INDUSTRIAL RD	WALPOLE	MA	02081	0.002	Screened Out
	200 INDUSTRIAL AVE	RIDGEFIELD PARK	NJ	07660	0.0055	Screened Out
	1851 E 32ND AVE	COLUMBUS	NE	68601	1.94	Screened Out
	3610 N HOLLAND-SYLVANIA RD	TOLEDO	OH	43615	1.125	Screened Out
	460 W MAIN ST	CANFIELD	OH	44406	2	Screened Out
	630 BEAULIEU ST	HOLYOKE	MA	01040	0.196	Screened Out
	900 OPELOUSAS ST	LAKE CHARLES	LA	70601	0.0095	Screened Out
	4005 OAKLAWN DR	LOUISVILLE	KY	40219	1.4025	Screened Out
	5660 RISING SUN AVE	PHILADELPHIA	PA	19120	4.65	Screened Out
	2000 HOWARD SMITH AVE W C42	WINDSOR	CO	80550	0.0015	Screened Out
	2274 1ST ST SE	HICKORY	NC	28602	0.0945	Screened Out
	159 INDUSTRIAL PARK RD	MONTROSS	VA	22520	3.925	Screened Out
	11999 E HWY 158	GARDENDALE	TX	79758	1.35	Screened Out
	3701 STATE RD 26 E	LAFAYETTE	IN	47905	1.975	Screened Out
	15550 CANAL BANK RD	LEMONT	IL	60439	0.115	Screened Out
	ONE LLODIO DR	HERMITAGE	PA	16148	2.4165	Screened Out
	2434 HOLMES RD	HOUSTON	TX	77051	0.8026	Screened Out
	55 BENNETT DR	BRATTLEBORO	VT	05301	0.0845	Screened Out

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tp

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
	1354 OLD POST RD	HAVRE DE GRACE	MD	21078	0.344	Screened Out
	500 PERTH DR NEW ECONOMY BUSINESS PARK	AMBRIDGE	PA	15003	0.559	Screened Out
	530 N SECOND ST	CAMBRIDGE	OH	43725	2.746	Screened Out
	HWY 69 S	JACKSONVILLE	TX	75766	1.696	Screened Out
	325 HWY 81	OSSEO	MN	55369	0.25	Screened Out
	3342 EMERY ST	LOS ANGELES	CA	90023	0.179	Screened Out
	710 MARVIN A SMITH BLVD	LONGVIEW	TX	75662	0.0365	Screened Out
	1816 S JACKSON ST	MAGNOLIA	AR	71753	0.04205	Screened Out
	3130 FM 521	FRESNO	TX	77545	0.043	Screened Out
	115 PROCTOR	ODESSA	TX	79762	0.293	Screened Out
	2727 GARDNER RD	BROADVIEW	IL	60155	0.111	Screened Out
	2790 CANFIELDS LN	MONTOURSVILLE	PA	17754	0.0025	Screened Out
	1610 CLARA ST	JACKSON	MI	49203	0.0001654	Screened Out
	13177 HURON RIVER DR	ROMULUS	MI	48174	0.125	Screened Out
	204 S 6TH AVE	MANSFIELD	TX	76063	0.337	Screened Out
	1010 OLD DENISON AVE	CLEVELAND	OH	44109	0.0025	Screened Out
	3751 JENNINGS RD	CLEVELAND	OH	44109	0.25	Screened Out
	9733 MEADOR RD	CONROE	TX	77303	0.5	Screened Out
	2300 RANDOLPH AVE	GREENSBORO	NC	27406	0.00812	Screened Out
	2725 ARMENTROUT DR	CONCORD	NC	28025	0.0055	Screened Out
	2433 S CR 600 E	COLUMBIA CITY	IN	46725	1.453	Screened Out
	35777 VAN DYKE	STERLING HEIGHTS	MI	48312	0.7	Screened Out
	38111 VAN DYKE	STERLING HEIGHTS	MI	48312	4.34	Screened Out
	9502 BAYPORT BLVD - ETOX UNIT	PASADENA	TX	77507	0.0031	Screened Out
	788 CHERT QUARRY RD	MARTIN	SC	29836	0.1275	Screened Out
	2247 S HWY 71	KIMBALL	NE	69145	0.0075	Screened Out
	5 MILES E & 1 MILE N OF JUNCTION US HWYS 412 & 281	WAYNOKA	OK	73860	0.00165	Screened Out
	1997 AMERICAN BLVD	DE PERE	WI	54115	0.1275	Screened Out
	11200 BAY AREA BLVD	PASADENA	TX	77507	3.03655	Screened Out
	100 INDUSTRIAL DR (BLDG 180, 150, & 76)	LEETSDALE	PA	15056	0.006085	Screened Out
	5005 ELDER LAKE RD	KILGORE	TX	75662	0.0545	Screened Out
	115 ERIE ST	NILES	OH	44446	2.9905	Screened Out
	117 E LINCOLN ST	PEOTONE	IL	60468	0.518	Screened Out
	350 MILL ST	QUAKERTOWN	PA	18951	4.075	Screened Out
	10048 AURORA-HUDSON RD	STREETSBORO	OH	44241	2.7175	Screened Out
	17 LAKE MIRROR RD	FOREST PARK	GA	30297	0.005	Screened Out
	2600 HUNTINGTON DR	FAIRFIELD	CA	94533	0.059	Screened Out
	3520 VETERANS MEMORIAL BLVD	ABBEVILLE	LA	70510	0.1275	Screened Out
	1630 W HILL ST	LOUISVILLE	KY	40210	2.2275	Screened Out
	641 JACKSON AVE	HUNTINGTON	WV	25704	0.125	Screened Out
	231 S PROGRESS DR E	KENDALLVILLE	IN	46755	0.268	Screened Out
	1337 J WOOD BRANCH DR	CHARLOTTE	NC	28273	0.64	Screened Out
	4701 O'DONNELL ST	BALTIMORE	MD	21224	0.9215	Screened Out
	MADISON PARISH INDUSTRIAL PARK 177 COMPLEX CHEMICAL RD	TALLULAH	LA	71282	0.5	Screened Out
	2400 E 37TH ST N	WICHITA	KS	67219	0.00648	Screened Out
	3300 MISSISSIPPI AVE	CAHOKIA	IL	62206	0.036	Screened Out
	15138 HWY 96	MOUNT VERNON	MO	65712	0.003	Screened Out
	4700 NE 10TH ST	OKLAHOMA CITY	OK	73117	0.05	Screened Out
	1000 S PINE ST	PONCA CITY	OK	74602	0.052	Screened Out
	650 ROSEWOOD DR	COLUMBIA	SC	29201	2.0475	Screened Out
	10107 HWY 79	HANNIBAL	MO	63401	0.1275	Screened Out
	2449 RIVERSIDE PKWY	GRAND JUNCTION	CO	81505	4.8425	Screened Out
	2733 E HWY 31	CORSICANA	TX	75109	0.0465	Screened Out
	20245 SUNBURST ST	CHATSWORTH	CA	91311	0.002	Screened Out
	15 GRUMBACHER RD	YORK	PA	17402	1.01857	Screened Out
	200 TANNER DR	TAYLORS	SC	29687	0.108	Screened Out
	230 OLD CONVERSE RD	SPARTANBURG	SC	29307	0.0025	Screened Out

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tp

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
	141 VENTURE BLVD	SPARTANBURG	SC	29306	0.005	Screened Out
	4600 SILICON DR	DURHAM	NC	27703	0.125	Screened Out
	315 CHERRY LN	NEW CASTLE	DE	19720	0.001145	Screened Out
	4TH ST & PARK AVE	FARIBAULT	MN	55021	4.089	Screened Out
	940 MILL PARK DR	LANCASTER	OH	43130	1.1105	Screened Out
	10200 N LOMBARD ST	PORTLAND	OR	97203	2.759	Screened Out
	2608 ROSS AVE	SCHOFIELD	WI	54476	1.5361434	Screened Out
	1400 73RD AVE NE	FRIDLEY	MN	55432	2.4	Screened Out
	9917 N ALPINE	MACHESNEY PARK	IL	61115	0.831	Screened Out
	8707 MILLERGROVE DR	SANTA FE SPRINGS	CA	90670	0.005	Screened Out
	1704 DENVER RD	ANDERSON	SC	29625	0.0495	Screened Out
	403 CARLINE RD	LANGLEY	SC	29834	0.129	Screened Out
	23737 HWY 47	THOMAS	OK	73669	0.125	Screened Out
	4700 S CENTRAL AVE	CHICAGO	IL	60638	0.033205	Screened Out
	1275 STATE ST	HAMMOND	IN	46320	0.013	Screened Out
	3420 CANDLER'S MOUNTAIN RD	LYNCHBURG	VA	24506	0.221	Screened Out
	1 DECOMA DR	CARROLLTON	GA	30117	1.435	Screened Out
	26 BLANCHARD ST	NEWARK	NJ	07105	0.25	Screened Out
	3710 W COUNTY RD 326	OCALA	FL	34475	0.107	Screened Out
	1720, 1725, 1755 ROBERT C JACKSON DR	MARYVILLE	TN	37801	1.489	Screened Out
	3350 UNION RD	CHEEKTOWAGA	NY	14225	2.1335	Screened Out
	5111 E 36TH ST N	TULSA	OK	74115	0.6715	Screened Out
	7335 S 10TH ST	OAK CREEK	WI	53154	0.046	Screened Out
	316 HART ST	WATERTOWN	WI	53094	0.00012	Screened Out
	8311 16TH ST	STURTEVANT	WI	53177	0.005535	Screened Out
	309 ECHELON RD	GREENVILLE	SC	29605	0.387	Screened Out
	2301 N BRAZOSPORT BLVD	FREEPORT	TX	77541	0.015	Screened Out
	1635 AEROPLAZA DR	COLORADO SPRINGS	CO	80916	0.649	Screened Out
	1101 HWY 27 S	STANLEY	NC	28164	0.0112	Screened Out
	2644 HEGAN LN	CHICO	CA	95928	0.4186	Screened Out
	RT 130	DEEPWATER	NJ	08023	0.1615	Screened Out
	2520 BARRINGTON CT	HAYWARD	CA	94545	0.0025	Screened Out
	801 - 35TH ST	FORT MADISON	IA	52627	0.357	Screened Out
	7961 WINCHESTER RD	FRONT ROYAL	VA	22630	0.011	Screened Out
	400 GROESBECK HWY	MOUNT CLEMENS	MI	48043	0.575	Screened Out
	CHEESEQUAKE RD	PARLIN	NJ	08859	0.0155	Screened Out
	586 HWY 44	LA PLACE	LA	70068	0.0075	Screened Out
	192 PATTERSON BLVD	TOWANDA	PA	18848	2.2885	Screened Out
	3115 RIVER RD	BUFFALO	NY	14207	1.8625	Screened Out
	26655 PEOPLES RD	MADISON	AL	35756	2.03725	Screened Out
	330 PINE ST	CANTON	MA	02021	0.00145	Screened Out
	209 WATLINGTON INDUSTRIAL DR	REIDSVILLE	NC	27320	0.05	Screened Out
	100 EASTMAN RD	KINGSPORT	TN	37662	1.408	Screened Out
	1669 LAKE AVE	ROCHESTER	NY	14652	0.0035	Screened Out
	2305 SHERWIN ST	GARLAND	TX	75041	0.0205	Screened Out
	3001 CHANNAHON RD	JOLIET	IL	60436	0.0505	Screened Out
	18383 E RAILROAD ST	CITY OF INDUSTRY	CA	91748	0.055	Screened Out
	942 BAKER RD	MARTINSBURG	WV	25405	0.056	Screened Out
	11210 KATHERINE'S CROSSING SUITE 100	WOODRIDGE	IL	60517	0.0025	Screened Out
	8700 EXCELSIOR BLVD	HOPKINS	MN	55343	0.0045	Screened Out
	1000 COUNTY RD	MONETT	MO	65708	1.696	Screened Out
	1260 JAMES L HART PKWY	YPSILANTI	MI	48197	0.0485	Screened Out
	400 CLAREMONT AVE	JERSEY CITY	NJ	07304	0.184	Screened Out
	1378 KINGSLAND AVE	PAGEDALE	MO	63133	0.2585	Screened Out
	1825 E ALEXANDER AVE	TACOMA	WA	98421	0.00001	Screened Out
	1093 CLARK ST	ENDICOTT	NY	13760	4.3655	Screened Out
	75 SWANTON RD	SAINT ALBANS	VT	05478	0.162	Screened Out
	90 CARSON RD	BIRMINGHAM	AL	35215	0.5385	Screened Out
	5501 E SLAUSON AVE	CITY OF COMMERCE	CA	90040	0.0015	Screened Out
	1717 W ENGLISH RD	HIGH POINT	NC	27261	0.189	Screened Out
	2000 WESTHALL ST	PITTSBURGH	PA	15233	0.0405	Screened Out
	901 W UNION ST	MONTEBELLO	CA	90640	0.044	Screened Out
	3050 HANFORD DR	LEBANON	PA	17046	0.1225	Screened Out
	1991 S WHEELING RD	WHEELING	IL	60090	0.156	Screened Out

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tp

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
	411 N DARLING	FREMONT	MI	49412	0.3295	Screened Out
	347 CENTRAL AVE	BOWLING GREEN	KY	42101	0.37	Screened Out
	5400 23RD AVE	MOLINE	IL	61265	0.5755	Screened Out
	701 SHILOH RD	GARLAND	TX	75042	1.178	Screened Out
	372 CLEVELAND ST	ROCHESTER	PA	15074	1.3135	Screened Out
	901 N GREENWOOD AVE	KANKAKEE	IL	60901	1.8015	Screened Out
	1200 AMBOY AVE	PERTH AMBOY	NJ	08861	0.442	Screened Out
	350 FRONTAGE RD	WEST HAVEN	CT	06516	0.144915	Screened Out
	9809 INDUSTRIAL DR	BRIDGEVIEW	IL	60455	0.16206	Screened Out
	1923 FREDERICK	DETROIT	MI	48211	1.778	Screened Out
	20945 S WILMINGTON AVE	CARSON	CA	90810	0.25	Screened Out
	1801 PERIMETER RD	GREENVILLE	SC	29605	0.009	Screened Out
	450 RICHARDSON DR	LANCASTER	PA	17603	0.381	Screened Out
	4201 DEGUSSA RD	THEODORE	AL	36582	0.0045	Screened Out
	1650 LILLY RD	LAFAYETTE	IN	47909	0.331	Screened Out
	4999 SCENIC HWY	BATON ROUGE	LA	70805	0.032	Screened Out
	3700 W 190TH ST	TORRANCE	CA	90509	0.02	Screened Out
	4045 SCENIC HWY	BATON ROUGE	LA	70805	0.0565	Screened Out
	251 W WYLIE AVE	WASHINGTON	PA	15301	0.5	Screened Out
	7050 KRICK RD	WALTON HILLS	OH	44146	0.004	Screened Out
	5492 BOSTWICK ST	LOWVILLE	NY	13367	4.4445	Screened Out
	418-424 ST PAUL ST	ROCHESTER	NY	14605	0.0025	Screened Out
	482 WHEELER RD	SUGAR GROVE	IL	60554	0.891	Screened Out
	2030 RIVERVIEW INDUSTRIAL DR	MABLETON	GA	30126	0.195	Screened Out
	8365 VALLEY PIKE	MIDDLETOWN	VA	22645	0.0025	Screened Out
	36616 89TH ST	TWIN LAKES	WI	53181	1.4	Screened Out
	2675 HENKLE DR	LEBANON	OH	45036	0.608	Screened Out
	2825 SUNTIDE RD	CORPUS CHRISTI	TX	78409	0.1435	Screened Out
	650 MILLER RD	AVON LAKE	OH	44012	3.395	Screened Out
	12600 S TORRENCE AVE	CHICAGO	IL	60633	0.615	Screened Out
	3001 MILLER RD	DEARBORN	MI	48121	0.002	Screened Out
	3001 MILLER RD	DEARBORN	MI	48121	0.007	Screened Out
	4432 C ST NE	AUBURN	WA	98002	0.125	Screened Out
	1011 MCKINLEY ST	EUGENE	OR	97402	0.445	Screened Out
	2020 BRUCK ST	COLUMBUS	OH	43207	0.0575	Screened Out
	6625 MIRAMAR RD	SAN DIEGO	CA	92121	0.1517	Screened Out
	17050 S LATHROP AVE	HARVEY	IL	60426	0.329	Screened Out
	900 CARNEGIE ST	ROLLING MEADOWS	IL	60008	0.00112	Screened Out
	211 PUCKETTS FERRY RD	GREENWOOD	SC	29649	1.56	Screened Out
	20 W 14TH AVE	NORTH KANSAS CITY	MO	64116	1.677	Screened Out
	ONE FULLER WAY	GREAT BEND	KS	67530	0.373	Screened Out
	1245 CHAPMAN DR	WAUKESHA	WI	53186	0.0085	Screened Out
	625 WANDA AVE	FERNDALE	MI	48220	0.125	Screened Out
	471 HWY 3142	HAHNVILLE	LA	70057	0.1935	Screened Out
	1650 ROWE PKWY	POPLAR BLUFF	MO	63901	0.001	Screened Out
	1450 MONTANA RD	IOLA	KS	66749	0.00295	Screened Out
	1300 S PLANT RD	CHARLESTON	MO	63834	0.00555	Screened Out
	333 S LOMBARD RD	ADDISON	IL	60101	0.005	Screened Out
	2118 REISER AVE SE	NEW PHILADELPHIA	OH	44663	0.005	Screened Out
	3901 WILLIAMS DR	ORANGE	TX	77630	0.1275	Screened Out
	2300 HOLLOWAY DR	EL RENO	OK	73036	0.2215	Screened Out
	1200 N GLENBROOK	GARLAND	TX	75040	0.001995	Screened Out
	2500 E GENERAL MOTORS BLVD	DETROIT	MI	48211	1.06	Screened Out
	600 CORVETTE DR	BOWLING GREEN	KY	42101	0.815	Screened Out
	11 CRAGWOOD RD	AVENEL	NJ	07001	1.131	Screened Out
	1429 E LUFKIN AVE	LUFKIN	TX	75901	0.034	Screened Out

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tp

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
	333 BARRON BLVD	GRAYSLAKE	IL	60030	1.075	Screened Out
	HWY 453 & I-26 (654 JUDGE ST)	HARLEYVILLE	SC	29448	0.002	Screened Out
	300 LAWTON AVE	MONROE	OH	45050	0.727	Screened Out
	1900 N JOSEY LN	CARROLLTON	TX	75006	0.000285	Screened Out
	3201 FAIRFAX TRAFFICWAY	KANSAS CITY	KS	66115	3.45	Screened Out
	4555 GIDDINGS RD	LAKE ORION	MI	48359	1.75	Screened Out
	2525 E ABRAMS ST	ARLINGTON	TX	76010	1.27	Screened Out
	7600 GENERAL MOTORS BLVD	SHREVEPORT	LA	71129	2.575	Screened Out
	3783 STATE RD	CUYAHOGA FALLS	OH	44223	0.003787	Screened Out
	4400 S KILDARE AVE	CHICAGO	IL	60632	0.125	Screened Out
	12361 MONARCH ST	GARDEN GROVE	CA	92841	0.005	Screened Out
	700 PROGRESS CENTER AVE	LAWRENCEVILLE	GA	30043	0.01291	Screened Out
	400 EXCHANGE ST	BUFFALO	NY	14204	0.046	Screened Out
	8250 ALMERIA AVE	FONTANA	CA	92335	0.1818	Screened Out
	2400 COOPER AVE	MERCED	CA	95348	0.826	Screened Out
	1200 TAYLOR RD	OWEGO	NY	13827	0.155	Screened Out
	5851 W 73RD ST	BEDFORD PARK	IL	60638	1.327	Screened Out
	220 HANNA DR	PEKIN	IL	61554	0.038	Screened Out
	3812 COMMERCE AVE	FAIRFIELD	AL	35064	2.1105	Screened Out
	4606 NEW W DR	PASADENA	TX	77507	0.034	Screened Out
	5200 SPEAKER RD	KANSAS CITY	KS	66106	0.139	Screened Out
	1425 EDEN RD	YORK	PA	17402	0.0545	Screened Out
	60 S SEIBERLING ST	AKRON	OH	44305	0.0025	Screened Out
	7440 W DUPONT RD	MORRIS	IL	60450	0.3745	Screened Out
	923 MAULDIN RD	CALHOUN	GA	30701	0.0065	Screened Out
	421 LONDON RD	DELAWARE	OH	43015	0.031	Screened Out
	137 FOLLY MILL RD	SEABROOK	NH	03874	0.04955	Screened Out
	23343 SHERWOOD AVE	WARREN	MI	48091	0.25	Screened Out
	6937 W MILL RD	MILWAUKEE	WI	53218	0.0031	Screened Out
	1500 LATHEM ST	BATAVIA	IL	60510	1.4085	Screened Out
	1111 HERCULES RD	HOPEWELL	VA	23860	0.0025	Screened Out
	ONE MILL ST	KENEDY	TX	78119	0.1009555	Screened Out
	1250 ST GEORGE ST	EAST LIVERPOOL	OH	43920	0.00501	Screened Out
	HWY 110 N KM 5.1	AGUADILLA	PR	00605	3.2155	Screened Out
	14330 KINSMAN RD	BURTON	OH	44021	0.0195	Screened Out
	HWY 353 S	JONESBOROUGH	TN	37659	0.0275	Screened Out
	402 N 3TH ST	SAINT JOSEPH	MO	64501	1.1175	Screened Out
	1525 MCKEE RD	DOVER	DE	19904	2.6355	Screened Out
	200 SAFETY ST / HWY 453	HOLLY HILL	SC	29059	0.1225	Screened Out
	101 CASE ST	FOUNTAIN INN	SC	29644	0.010345	Screened Out
	2755 N MICHIGAN AVE	GREENSBURG	IN	47240	2.282	Screened Out
	563 S LEONARD ST	WATERBURY	CT	06708	0.0095	Screened Out
	1855 FAIRLAWN RD	TUSCALOOSA	AL	35401	0.932	Screened Out
	555 HUNTSMAN RD	MC INTOSH	AL	36553	0.05115	Screened Out
	3892 US HWY 90	DAYTON	TX	77535	0.001	Screened Out
	6001 HWY 366	PORT NECHES	TX	77651	0.11	Screened Out
	7300 W BRADLEY RD	MILWAUKEE	WI	53223	0.0015	Screened Out
	2545 BOND ST	UNIVERSITY PARK	IL	60466	0.011	Screened Out
	114 N MAIN ST	COTTAGE GROVE	WI	53527	0.53	Screened Out
	700 HYUNDAI BLVD	MONTGOMERY	AL	36105	4.1085	Screened Out
	2322 N MINGO RD	TULSA	OK	74116	2.65	Screened Out
	11636 HUNTINGTON	GALLIPOLIS FERRY	WV	25515	0.373145	Screened Out
	3005 INTERNATIONAL BLVD	AUGUSTA	GA	30906	0.0004385	Screened Out
	3300 WESTINGHOUSE BLVD	CHARLOTTE	NC	28273	0.0065	Screened Out
	2526 NW YEON AVE	PORTLAND	OR	97210	0.0635	Screened Out
	800 CEL-RIVER RD	ROCK HILL	SC	29730	0.2125	Screened Out
	1300 BRASS MILL RD	BELCAMP	MD	21017	1.52745	Screened Out
	14705 S AVALON BLVD	GARDENA	CA	90248	0.005	Screened Out
	21255A HWY 1 S	PLAQUEMINE	LA	70765	0.384	Screened Out
	2009 W AVE S	LA CROSSE	WI	54601	4.133	Screened Out
	4500 S DOBSON RD MAIL STOP: OC4-005	CHANDLER	AZ	85248	0.2225	Screened Out
	4100 SARA RD M/S RR5-491	RIO RANCHO	NM	87124	0.4075	Screened Out
	2501 NW 229TH ST	HILLSBORO	OR	97124	0.9525	Screened Out
	14029 W HARDY	HOUSTON	TX	77060	0.002	Screened Out
	640 N ROCKY RIVER DR	BEREA	OH	44017	0.005	Screened Out
	6001 ANTOINE DR	HOUSTON	TX	77091	0.1275	Screened Out

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tp

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
	7600 HWY 10 W	PINE HILL	AL	36769	0.058	Screened Out
	23247 W EAMES ST	CHANNAHON	IL	60410	0.0075	Screened Out
	2797 FREEDLAND RD	HERMITAGE	PA	16148	0.014	Screened Out
	3055A FM 1006	ORANGE	TX	77630	0.125	Screened Out
	405 INDUSTRIAL WAY	DIXON	CA	95620	4.3915	Screened Out
	1615 MAIN ST	PORT NECHES	TX	77651	0.132	Screened Out
	805 E OLD 56 HWY	OLATHE	KS	66061	2.002	Screened Out
	3606 CRAFTSMAN BLVD	LAKELAND	FL	33803	0.163	Screened Out
	550-560 W CENTENNIAL BLVD	CASA GRANDE	AZ	85122	0.26016	Screened Out
	1825 E NATIONAL AVE	BRAZIL	IN	47834	2.88926	Screened Out
	875 PROGRESS CENTER AVE	LAWRENCEVILLE	GA	30043	2.6895	Screened Out
	923 23RD AVE	ROCKFORD	IL	61104	1.4165	Screened Out
	108 MAIN ST	JAMESTOWN	PA	16134	0.201	Screened Out
	501 RIVER DR	MOLINE	IL	61265	1	Screened Out
	37721 STEVENS BLVD	WILLOUGHBY	OH	44094	0.125	Screened Out
	325 S PRICE RD	CHANDLER	AZ	85224	0.0655	Screened Out
	500 E 12TH ST	BLOOMSBURG	PA	17815	0.5055	Screened Out
	7200 DOE AVE	VISALIA	CA	93291	0.7835	Screened Out
	57 KAY INDUSTRIAL DR	LAKE ORION	MI	48359	2.2135	Screened Out
	8300 CAPITAL DR	GREENSBORO	NC	27409	0.0595	Screened Out
	1445 S 15TH ST	LOUISVILLE	KY	40210	0.4475	Screened Out
	1401 S 15TH ST	LOUISVILLE	KY	40210	1.3	Screened Out
	1 CYANAMID RD	MOBILE	AL	36610	0.1065	Screened Out
	1188 CAYADUTTA ST RT 334	FONDA	NY	12068	2.105	Screened Out
	2165 HWY 292	INMAN	SC	29349	0.25	Screened Out
	RT 329	BATH	PA	18014	0.0025	Screened Out
	9028 DICE RD	SANTA FE SPRINGS	CA	90670	0.255	Screened Out
	SCIENCE RD	NORWALK	CT	06852	0.00585	Screened Out
	16503 RAMSEY RD	CROSBY	TX	77532	0.25	Screened Out
	2430 ALBERT BROADFOOT ST	BONHAM	TX	75418	0.0355	Screened Out
	1600 S LAFLIN ST	CHICAGO	IL	60608	3.25	Screened Out
	4001 N HAWTHORNE ST	CHATTANOOGA	TN	37406	0.0005255	Screened Out
	HWY 59 AT COUNTY RD 212	HUNGERFORD	TX	77448	0.0495	Screened Out
	URB.APONTE #5	SAN LORENZO	PR	00754	0.00563	Screened Out
	9200 MASON AVE	CHATSWORTH	CA	91311	0.00017	Screened Out
	725 S 75TH AVE	WAUSAU	WI	54401	0.372	Screened Out
	1011 LOCKHEED WAY MZ 0824	PALMDALE	CA	93599	0.478	Screened Out
	5565 RAIDERS RD	FRAZEYSBURG	OH	43822	0.164	Screened Out
	9550 W 55TH ST	MC COOK	IL	60525	0.0745	Screened Out
	29400 LAKELAND BLVD	WICKLIFFE	OH	44092	0.0365	Screened Out
	155 FREEDOM RD	PAINESVILLE	OH	44077	0.0045	Screened Out
	1221 FARROW AVE	FERNDALE	MI	48220	0.00374	Screened Out
	260 S PACIFIC ST	SAN MARCOS	CA	92078	0.2615	Screened Out
	700 S PARK DR	NEWAYGO	MI	49337	2.673	Screened Out
	100 W STERRETT RD	WAXAHACHIE	TX	75165	0.125	Screened Out
	13300 E NELSON AVE	CITY OF INDUSTRY	CA	91746	0.125	Screened Out
	361 FAIRVIEW AVE	BARBERTON	OH	44203	0.25	Screened Out
	3134 POST RD	WARWICK	RI	02886	0.001055	Screened Out
	1304 OLIN AVE	INDIANAPOLIS	IN	46222	0.002	Screened Out
	235 E MARKET ST	LOUISVILLE	KY	40202	0.5225	Screened Out
	1330 REGAL ROW	DALLAS	TX	75247	0.00026	Screened Out
	1002 EISENHOWER DR N	GOSHEN	IN	46526	4.193	Screened Out
	101 FAIRVIEW AVE	PITTSBURGH	PA	15238	0.067	Screened Out
	3725 N FIRST ST	SAN JOSE	CA	95134	0.0615	Screened Out
	9651 WESTOVER HILLS BLVD	SAN ANTONIO	TX	78251	0.188	Screened Out
	7411 OAKWOOD ST	MEBANE	NC	27302	2.9255	Screened Out
	5598 VIRGINIA AVE	NORTH CHARLESTON	SC	29406	0.11118	Screened Out
	400 CROSBY RD	DERIDDER	LA	70634	0.14	Screened Out
	1150 MARIETTA INDUSTRIAL DR NE	MARIETTA	GA	30062	0.291	Screened Out
	9133 CENTER AVE	RANCHO CUCAMONG	CA	91730	0.38345	Screened Out
	951 PRISOCK RD	JACKSON	MS	39272	4.4805	Screened Out
	9315 WATSON INDUSTRIAL PARK	CRESTWOOD	MO	63126	0.1325	Screened Out
	9 KONZEN CT	GRANITE CITY	IL	62040	0.51	Screened Out
	600 CARDIGAN RD	SHOREVIEW	MN	55126	0.0585	Screened Out
	1048 STINSON DR	READING	PA	19605	0.25	Screened Out
	2434 BIRKDALE ST	LOS ANGELES	CA	90031	1.5	Screened Out
	100 N MITSUBISHI MOTORWAY	NORMAL	IL	61761	1.0215	Screened Out
	12306 MONTAGUE ST	PACOIMA	CA	91331	0.1275	Screened Out
	8600 W 71ST ST	BEDFORD PARK	IL	60501	1.168	Screened Out
	1323 S 65TH	MILWAUKEE	WI	53214	1.5915	Screened Out

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tp

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
	3500 S STATE RT 2	FRIENDLY	WV	26146	2.197	Screened Out
	16052 INDUSTRIAL PKWY	MIDDLEFIELD	OH	44062	0.047	Screened Out
	150 GRAND VALLEY AVE	ORWELL	OH	44076	0.07	Screened Out
	2281 S US 31	SCOTTSBURG	IN	47170	0.000156929	Screened Out
	125 NALCO WAY/RT 65	ELLWOOD CITY	PA	16117	0.00007224	Screened Out
	3901 TERRY ST	TEXARKANA	TX	75501	0.0005	Screened Out
	812 RENAUD DR	SCOTT	LA	70583	0.0008585	Screened Out
	7701 US HWY 90A	SUGAR LAND	TX	77478	0.0553553	Screened Out
	6717 S 61ST W AVE	TULSA	OK	74131	0.003785	Screened Out
	18310 ENTERPRISE AVE	NASHVILLE	IL	62263	0.379145	Screened Out
	1600 GLENLAKE AVE	ITASCA	IL	60143	0.0005	Screened Out
	6125 URBANA RD	SPRINGFIELD	OH	45502	3.815	Screened Out
	1087 N N BRANCH ST	CHICAGO	IL	60622	0.405	Screened Out
	8501 HEDGE LN TERRACE	SHAWNEE	KS	66227	3.6515	Screened Out
	2701 E 170TH ST	LANSING	IL	60438	0.4055	Screened Out
	225 FORT ST	NILES	MI	49120	2.1685	Screened Out
	1107 E KIMBERLY	ANAHEIM	CA	92801	0.3635	Screened Out
	1000 HAMILTON RD	WEIRTON	WV	26062	1.577	Screened Out
	16001 TRADE ZONE AVE	UPPER MARLBORO	MD	20774	0.0060048	Screened Out
	400 MAIN ST	TEWKSBURY	MA	01876	0.083	Screened Out
	5420 SPEAKER RD	KANSAS CITY	KS	66106	0.086	Screened Out
	3930 GLENWOOD DR	CHARLOTTE	NC	28208	0.14	Screened Out
	2011 TURNER ST	LANSING	MI	48906	0.146	Screened Out
	3101 WOOD DR	GARLAND	TX	75041	0.191	Screened Out
	7710 POLK ST	SAINT LOUIS	MO	63111	0.1945	Screened Out
	395 JAMES AVE	SAINT PAUL	MN	55102	0.2615	Screened Out
	8500 S WILLOW SPRINGS RD	WILLOW SPRINGS	IL	60480	0.5895	Screened Out
	2788 GLENDALE-MILFORD RD	EVENDALE	OH	45241	0.108	Screened Out
	20915 S WILMINGTON AVE	CARSON	CA	90810	0.1	Screened Out
	350 ROOSEVELT AVE	CARTERET	NJ	07008	0.254	Screened Out
	4550 NE EXPRESSWAY	DORAVILLE	GA	30340	0.2285	Screened Out
	2461 CROCKER CIR	FAIRFIELD	CA	94533	0.0625	Screened Out
	8901 OLD GALVESTON RD	HOUSTON	TX	77034	0.0315	Screened Out
	200 NE 181ST ST	MIAMI	FL	33162	0.102	Screened Out
	5125 W HANNA AVE	TAMPA	FL	33634	0.033	Screened Out
	1842 ENTERPRISE PKWY	TWINSBURG	OH	44087	0.0115	Screened Out
	1610 E HIGHLAND RD	TWINSBURG	OH	44087	0.248	Screened Out
	3900 HOLLAND RD	SAGINAW	MI	48601	2.0835	Screened Out
	400 47TH ST	NIAGARA FALLS	NY	14304	0.0025	Screened Out
	1044 S NELSON RD	FOUNTAIN INN	SC	29644	0.1275	Screened Out
	2001 HWY 20 W	DECATUR	AL	35601	1.207	Screened Out
	1725 ROCKINGHAM RD	DAVENPORT	IA	52802	0.773	Screened Out
	628 S SARATOGA ST	COHOES	NY	12047	0.001285	Screened Out
	705 6TH AVE	MENOMINEE	MI	49858	0.18	Screened Out
	5800 W DR	MANITOWOC	WI	54220	2.588	Screened Out
	2811 HOLMES RD	HOUSTON	TX	77051	0.0025	Screened Out
	9574 FM 1227	NAVASOTA	TX	77868	0.204565	Screened Out
	11120 BEREA RD	CLEVELAND	OH	44102	0.0585	Screened Out
	16961 KNOTT AVE	LA MIRADA	CA	90638	0.005	Screened Out
	1 ICON	FOOTHILL RANCH	CA	92610	0.1275	Screened Out
	ONE TOY ST	BRYAN	OH	43506	1.884	Screened Out
	920 POTTERTOWN RD	MIDWAY	TN	37809	0.0845	Screened Out
	TWO MILE RUN RD	FRANKLIN	PA	16323	0.248	Screened Out
	1280 IMPERIAL RD	HAMPTON	IA	50441	0.0055	Screened Out
	1455 J A COCHRAN BY-PASS	CHESTER	SC	29706	0.00098	Screened Out
	4837 HWY 81 S	STARR	SC	29684	4.7895	Screened Out
	HWY 57	COUNCE	TN	38326	0.025	Screened Out
	91 MICHIGAN AVE	PATERSON	NJ	07503	0.845	Screened Out
	2600 WILCO BLVD	WILSON	NC	27893	0.000405	Screened Out
	304 S BLAINE PIKE	PORTLAND	IN	47371	0.375	Screened Out
	400 E COTTAGE AVE	CARPENTERSVILLE	IL	60110	0.4295	Screened Out
	2755 BERGEY RD	HATFIELD	PA	19440	3.016805	Screened Out
	1801 ESTES AVE	ELK GROVE VILLAGE	IL	60007	0.001	Screened Out
	440 DENNISTON CT	WHEELING	IL	60090	0.001	Screened Out
	5008-11 CURTIS LN	NEW IBERIA	LA	70560	0.395	Screened Out
	6875 PARKLAND BLVD	SOLON	OH	44139	0.1275	Screened Out
	9215 SANTA FE SPRINGS RD	SANTA FE SPRINGS	CA	90670	0.369	Screened Out
	11623 N HOUSTON ROSSLYN RD	HOUSTON	TX	77086	0.106	Screened Out
	1000 LAKE RD	MEDINA	OH	44258	0.0865	Screened Out
	113 BOLTE LN	SAINT CLAIR	MO	63077	0.016	Screened Out

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tp

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
	1000 INTEGRAM DR	PACIFIC	MO	63069	0.025	Screened Out
	105 BOLTE LN	SAINT CLAIR	MO	63077	0.066	Screened Out
	46 STAFFORD ST	LAWRENCE	MA	01841	0.998	Screened Out
	117 E 14TH AVE	NORTH KANSAS CITY	MO	64116	1.0535	Screened Out
	513 PEASTER HWY	WEATHERFORD	TX	76086	0.25	Screened Out
	6804 ENTERPRISE DR	LOUISVILLE	KY	40214	0.0007	Screened Out
	1377 OAKLEIGH DR	EAST POINT	GA	30344	0.4615	Screened Out
	400 S 13TH ST	LOUISVILLE	KY	40203	0.1765	Screened Out
	3530 LANG RD	HOUSTON	TX	77092	0.0065	Screened Out
	1886 LYNNBURY WOODS RD	DOVER	DE	19904	0.0025	Screened Out
	1020 OLYMPIC DR	BATAVIA	IL	60510	0.821	Screened Out
	500 PITTSBURGH AVE	MCCARRAN	NV	89434	0.125	Screened Out
	760 PITTSBURGH DR	DELAWARE	OH	43015	0.06872	Screened Out
	3800 W 143 ST	CLEVELAND	OH	44111	1.0425	Screened Out
	559 PITTSBURGH RD	CIRCLEVILLE	OH	43113	0.1775	Screened Out
	11601 UNITED ST	MOJAVE	CA	93501	0.016	Screened Out
	6754 SANTA BARBARA CT	ELKRIDGE	MD	21075	0.628695	Screened Out
	5888 E COUNTY RD 180	BLYTHEVILLE	AR	72315	0.874	Screened Out
	3399 DAVEY ALLISON BLVD	HUEYTOWN	AL	35023	2.5915	Screened Out
	4502 FREEDOM WAY	WEIRTON	WV	26062	2.6315	Screened Out
	4301 S SPRING AVE	SAINT LOUIS	MO	63116	3.355	Screened Out
	16402 JACINTOPORT BLVD	HOUSTON	TX	77015	4.652	Screened Out
	10420 N STATE ST	HARRISON	OH	45030	0.125	Screened Out
	250 HALLS MILL RD	FREEHOLD	NJ	07728	0.004	Screened Out
	6 LONG ISLAND AVE	HOLTSVILLE	NY	11742	0.0125	Screened Out
	211 RANDOLPH AVE	AVENEL	NJ	07001	0.0195	Screened Out
	2233 26TH ST SW	ALLENTOWN	PA	18103	0.5515	Screened Out
	401 N GREAT SW PKWY	ARLINGTON	TX	76011	3.266895	Screened Out
	5348 VINE ST	CINCINNATI	OH	45217	0.0065	Screened Out
	2200 LOWER MUSCATINE RD	IOWA CITY	IA	52240	0.0295	Screened Out
	1900 KANSAS AVE	KANSAS CITY	KS	66105	0.00611	Screened Out
	TWO NICE-PAK PARK	ORANGEBURG	NY	10962	0.129005	Screened Out
	9000 HUBBELL AVE	DETROIT	MI	48228	0.005	Screened Out
	4581 LOWER VALLEY RD	ATGLEN	PA	19310	0.47	Screened Out
	420 W INDUSTRIAL AVE	EFFINGHAM	IL	62401	2.445	Screened Out
	100 W AIRPORT RD	STILLWATER	OK	74075	2.0405	Screened Out
	160 CENTURY LN STONEWALL INDUSTRIAL PARK	WINCHESTER	VA	22603	4.053425	Screened Out
	50 JOHN HANCOCK RD	TAUNTON	MA	02780	1.9616	Screened Out
	100 DUPLAINVILLE RD	THE ROCK	GA	30285	2.395	Screened Out
	555 S 108TH ST	WEST ALLIS	WI	53214	3.505	Screened Out
	56 DUPLAINVILLE RD	SARATOGA SPRINGS	NY	12866	3.8675	Screened Out
	1337 N WOOD BRANCH DR	CHARLOTTE	NC	28273	0.25	Screened Out
	N92 W14701 ANTHONY AVE	MENOMONEE FALLS	WI	53051	0.375	Screened Out
	12255 FM 529	HOUSTON	TX	77041	0.65	Screened Out
	3201 LEBANON RD	DANVILLE	KY	40422	4.1715	Screened Out
	600 RADIATOR RD	INDIAN TRAIL	NC	28079	0.146	Screened Out
	408 MANOR-HARRISON CITY RD	HARRISON CITY	PA	15636	0.0065	Screened Out
	799 RT 206 & HILLSBOROUGH RD	HILLSBOROUGH	NJ	08844	0.0545	Screened Out
	1016 E COLUMBIA ST	EVANSVILLE	IN	47711	1.047	Screened Out
	550 S EDWIN ST	WESTLAND	MI	48186	2.7255	Screened Out
	249 ST LOUIS AVE	VALLEY PARK	MO	63088	0.512645	Screened Out
	425 S PACE BLVD	PENSACOLA	FL	32502	1.7695	Screened Out
	237 S MOTOR AVE	AZUSA	CA	91702	0.005	Screened Out
	601 CRESTWOOD ST	JACKSONVILLE	FL	32208	0.0025	Screened Out
	402 INDUSTRIAL PARK DR	PELHAM	AL	35124	0.00425	Screened Out
	133 BAIN DR	LA VERGNE	TN	37086	0.01117	Screened Out
	2481 RIVER RD	WELLSBURG	WV	26070	1.4	Screened Out
	2ND ST & BLUEBALL AVE	MARCUS HOOK	PA	19061	0.192	Screened Out
	577 BANKHEAD HWY	WINDER	GA	30680	0.1985	Screened Out
	4202-24 MAIN ST	PHILADELPHIA	PA	19127	0.021111	Screened Out
	4901 STICKNEY AVE	TOLEDO	OH	43612	0.000945	Screened Out
	1100 US HWY 271 S	GILMER	TX	75644	0.041	Screened Out
	2301 S 21ST ST	CLINTON	IA	52732	0.6065	Screened Out

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tp

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
	1113 MARYLAND AVE	SHEBOYGAN	WI	53081	0.0995	Screened Out
	6123 N MARINE DR	PORTLAND	OR	97203	0.442	Screened Out
	2401 E PRATT BLVD	ELK GROVE VILLAGE	IL	60007	0.0015	Screened Out
	200 RT 413	BRISTOL	PA	19007	0.2424	Screened Out
	455 FOREST ST	MARLBOROUGH	MA	01752	0.005	Screened Out
	800 CHASE AVE	ELK GROVE VILLAGE	IL	60007	0.2235	Screened Out
	1602 N UNION ST	FOSTORIA	OH	44830	2.8505	Screened Out
	100 QUALITY CT	CHARLESTOWN	IN	47111	2.103	Screened Out
	60 SECURITY DR	AVON	CT	06001	1.5765	Screened Out
	6821 E COUNTY RD 1100 N	MATTOON	IL	61938	2.1105	Screened Out
	10519 INDUSTRIAL DR	PINEVILLE	NC	28134	1.9455	Screened Out
	321 WILSON DR	JEFFERSON CITY	MO	65109	1.82586	Screened Out
	1300 SAUK AVE	BARABOO	WI	53913	4.422	Screened Out
	19681 PACIFIC GATEWAY DR	TORRANCE	CA	90502	2.433	Screened Out
	ONE SHENANDOAH VALLEY DR	STRASBURG	VA	22657	3.14	Screened Out
	1645 W SAM HOUSTON PKWY N	HOUSTON	TX	77043	4.7265	Screened Out
	2353 S BLUE ISLAND AVE	CHICAGO	IL	60608	0.1275	Screened Out
	7401 KILMER LN	MAPLE GROVE	MN	55369	4.038	Screened Out
	1141 NW 50TH ST	SEATTLE	WA	98107	0.205	Screened Out
	7850 OHIO RIVER RD	LESAGE	WV	25537	0.0135	Screened Out
	8105 95TH ST	PLEASANT PRAIRIE	WI	53158	0.75	Screened Out
	16410 INDUSTRIAL LN	WILLIAMSPORT	MD	21795	0.271	Screened Out
	5540 NW HWY	CHICAGO	IL	60630	1.194	Screened Out
	6200 FRANKLIN BLVD	SACRAMENTO	CA	95824	0.125	Screened Out
	130 A FRONTAGE RD	LEXINGTON	SC	29073	0.125	Screened Out
	831 VOLUNTEER PKWY	MANCHESTER	TN	37355	0.3775	Screened Out
	2905 OLD OAKWOOD RD	GAINESVILLE	GA	30504	2.317	Screened Out
	2500 ALUMAX RD	YANKTON	SD	57078	2.4011901	Screened Out
	5325 NE SKYPORT WAY	PORTLAND	OR	97218	1.71267935	Screened Out
	601 TIGHTSQUEEZE INDUSTRIAL RD	CHATHAM	VA	24531	0.005	Screened Out
	610 S BOLMAR ST	WEST CHESTER	PA	19382	0.005	Screened Out
	2201 OLD SPANISH TRAIL	WESTLAKE	LA	70669	0.4905	Screened Out
	8311 16TH ST	STURTEVANT	WI	53177	0.5	Screened Out
	1990 SANDIFER BLVD	SENECA	SC	29678	2.35	Screened Out
	45 PARKER	IRVINE	CA	92618	0.001	Screened Out
	227 S TOWN E BLVD	MESQUITE	TX	75149	1.963	Screened Out
	3801 E DECORAH RD	WEST BEND	WI	53095	0.206	Screened Out
	909 MAGNOLIA AVE	AUBURNDALE	FL	33823	0.398	Screened Out
	917 CROSBY AVE	SYCAMORE	IL	60178	0.6485	Screened Out
	608 CANAL ST	CEDARTOWN	GA	30125	1.3205	Screened Out
	2150 W SAND LAKE RD	ORLANDO	FL	32809	0.0015	Screened Out
	26300 FARGO AVE	BEDFORD HEIGHTS	OH	44146	0.002	Screened Out
	14 INDUSTRIAL PARK	FLORA	IL	62839	0.0035	Screened Out
	404 E MALLORY AVE	MEMPHIS	TN	38109	0.0065	Screened Out
	12401 INDUSTRIAL BLVD	VICTORVILLE	CA	92392	0.01	Screened Out
	2325 HOLLINS FERRY RD	BALTIMORE	MD	21230	0.012	Screened Out
	6795 S MAIN ST	MORROW	GA	30260	0.0145	Screened Out
	2121 NEW WORLD DR	COLUMBUS	OH	43207	0.0215	Screened Out
	1025 HOWARD ST	GREENSBORO	NC	27403	0.0265	Screened Out
	2802 W MILLER RD	GARLAND	TX	75041	0.028	Screened Out
	113 STAGE COACH TRAIL	GREENSBORO	NC	27409	0.049	Screened Out
	630 E 13TH	ANDOVER	KS	67002	0.0505	Screened Out
	180 CANAL ST	TERRE HAUTE	IN	47808	0.0635	Screened Out
	636 E 40TH ST	HOLLAND	MI	49423	0.106	Screened Out
	395 BOGGS LN - S	RICHMOND	KY	40475	0.342	Screened Out
	1000 MAIN ST	ROTTERDAM JUNCTI	NY	12150	0.02354	Screened Out
	8000 RESEARCH WAY	SPRINGFIELD	VA	22153	0.125	Screened Out
	11400 W 47TH ST	MINNETONKA	MN	55343	0.3015	Screened Out
	100 DAN RD	CANTON	MA	02021	0.433	Screened Out
	9901 SAND CREEK HWY	WESTON	MI	49289	0.25	Screened Out
	12130 LYNN AVE S	SAVAGE	MN	55378	0.575	Screened Out
	2200 WILBUR AVE	ANTIOCH	CA	94509	2.067	Screened Out
	8673 LYONS-MARENGO RD	LYONS	NY	14489	4.034	Screened Out
	N90 W14600 COMMERCE DR	MENOMONEE FALLS	WI	53051	4.2	Screened Out
	1400 PLOVER RD	PLOVER	WI	54467	4.47	Screened Out
	1701 WILLIAMSBURG PIKE	RICHMOND	IN	47375	0.202	Screened Out

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tp

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
	350 JAYCEE DR VALMONT INDUSTRIAL PARK	HAZLETON	PA	18201	1.8125	Screened Out
	201 BOSTON TURNPIKE	BOLTON	CT	06043	0.0195	Screened Out
	100 E LINCOLN AVE	SINCLAIR	WY	82334	0.001	Screened Out
	2600 US HWY 18 E	ALGONA	IA	50511	0.1205	Screened Out
	6502 S US HWY 31	EDINBURGH	IN	46124	0.2045	Screened Out
	1854 CENTRAL FLORIDA PKWY	ORLANDO	FL	32837	0.658	Screened Out
	2755 HARBOR AVE	MEMPHIS	TN	38113	1.7065	Screened Out
	1200 SE 32ND ST	FT LAUDERDALE	FL	33316	0.078	Screened Out
	1335 S 13TH ST	LOUISVILLE	KY	40210	0.1275	Screened Out
	539 S DREW ST	MESA	AZ	85210	0.006	Screened Out
	1110 SPARTAN DR	MAUMEE	OH	43537	0.0675	Screened Out
	13 MCCONNELL ST SW	GRAND RAPIDS	MI	49503	0.385	Screened Out
	535 BEV RD	YOUNGSTOWN	OH	44512	0.75	Screened Out
	1200 CENTRAL FLORIDA PKWY	ORLANDO	FL	32837	0.941	Screened Out
	716 S COLUMBUS AVE	MOUNT VERNON	NY	10550	0.4335	Screened Out
	3465 S LA CIENAGA BLVD	LOS ANGELES	CA	90016	3.358	Screened Out
	1701 E 122-ND ST	CHICAGO	IL	60633	0.6265	Screened Out
	355 LA HWY 3142 (GATE 1)	TAFT	LA	70057	1.67	Screened Out
	940 S 6TH AVE	MANSFIELD	TX	76063	0.22855	Screened Out
	5134 LOOP RD	JEFFERSONVILLE	IN	47130	1.87	Screened Out
	222 W KALAMA RIVER RD	KALAMA	WA	98625	0.735505	Screened Out
	7001 ALLISON-BONNET MEMORIAL D	FAIRFIELD	AL	35064	0.603375	Screened Out
	11200 ARROW RT	RANCHO CUCAMONG	CA	91730	0.087635	Screened Out
	300 NEW CENTURY PKWY	NEW CENTURY	KS	66031	0.1475	Screened Out
	477 LEXINGTON AVE	PAINESVILLE	OH	44077	1.0615	Screened Out
	2410 HWY 15S	SUMTER	SC	29150	0.22	Screened Out
	135 W LAKE ST	NORTHLAKE	IL	60164	0.003	Screened Out
	3301 HUNTING PARK AVE	PHILADELPHIA	PA	19132	0.2045	Screened Out
	1380 FORD RD	MAUMEE	OH	43537	0.966	Screened Out
	2445 PRODUCTION DR	SAINT CHARLES	IL	60174	1.2085	Screened Out
	400 W REGENT ST	INDIANAPOLIS	IN	46225	0.007065	Screened Out
	1500 WESTERN AVE	CONNERSVILLE	IN	47331	0.074	Screened Out
	4211 BRAMERS LN	LOUISVILLE	KY	40216	0.0035	Screened Out
	320 NORTHPOINTE DR	FAIRFIELD	OH	45014	0.004085	Screened Out
	402 N MAIN ST	MIDDLEBURY	IN	46540	0.712	Screened Out
	3905 HWY 75	SAINT GABRIEL	LA	70776	0.133	Screened Out
	2675 ANTLER DR	CARSON CITY	NV	89701	1.1335	Screened Out
	267 UNION ST	NORTHVALE	NJ	07647	0.0105	Screened Out
	4501 BRADLEY ST	LUBBOCK	TX	79415	4.36875	Screened Out
	3327 PIPELINE RD	CLEBURNE	TX	76033	0.1095	Screened Out
	18700 NE 65TH ST	REDMOND	WA	98052	4.7679	Screened Out
	2500 RON BEAN BLVD	SHREVEPORT	LA	71115	0.6705	Screened Out
	900 OLD RED TRAIL NE	MANDAN	ND	58554	1.0505	Screened Out
	1801 SURVEYOR BLVD	CARROLLTON	TX	75006	1.676	Screened Out
	13500 N CENTRAL EXPRESSWAY	DALLAS	TX	75243	0.114	Screened Out
	12201 SW FWY MS600	STAFFORD	TX	77477	0.1275	Screened Out
	6901 MCKISSOCK AVE	SAINT LOUIS	MO	63147	0.162	Screened Out
	1790 BUILDING	MIDLAND	MI	48667	2.29	Screened Out
	21255 LA HWY 1 S	PLAQUEMINE	LA	70764	0.396	Screened Out
	2025 EXCHANGE PL	BESSEMER	AL	35023	3.59	Screened Out
	3555 W 123RD ST	ALSIP	IL	60803	0.284	Screened Out
	2300 EDGEWATER AVE	BALTIMORE	MD	21222	0.125	Screened Out
	123 W 23RD AVE	NORTH KANSAS CITY	MO	64116	0.125	Screened Out
	2703 FREEMANSBURG AVE	EASTON	PA	18045	0.375	Screened Out
	2400 N HARVEY MITCHELL PKWY	BRYAN	TX	77807	0.014	Screened Out
	4343 KENNEDY AVE	EAST CHICAGO	IN	46312	0.4655	Screened Out
	419 E DE SOTO AVE	SAINT LOUIS	MO	63147	0.125	Screened Out
	2040 HEISERMAN DR	BRIGHTON	MI	48114	0.00418	Screened Out
	715 RAILROAD AVE & HWY 74	RUTHERFORDTON	NC	28139	0.0055	Screened Out
	1902 RANKIN RD	HOUSTON	TX	77073	0.5125	Screened Out
	1800 PARK PL AVE	FORT WORTH	TX	76110	1.37545	Screened Out
	201 JANDUS RD	CARY	IL	60013	0.011	Screened Out
	4 OLD MONSON RD	STAFFORD	CT	06075	3.9505	Screened Out
	234 CASHMAN DR	CHIPPEWA FALLS	WI	54729	0.793	Screened Out
	407 MATHEW ST	SANTA CLARA	CA	95050	1.0005	Screened Out

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tp

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
[redacted]	3100 W MILL RD	MILWAUKEE	WI	53209	0.0905	Screened Out
	1 STANTON ST	MARINETTE	WI	54143	0.026065	Screened Out
	5000 N FM 1912	AMARILLO	TX	79108	0.02	Screened Out
	HWY 50 W	HOLCOMB	KS	67851	0.125	Screened Out
	437 MACCORKLE AVE SW	SOUTH CHARLESTON	WV	25303	0.144	Screened Out
	3 MALCOLM HOYT DR	NEWBURYPORT	MA	01950	0.0025	Screened Out
	320 37TH AVE	SAINT CHARLES	IL	60174	0.1275	Screened Out
	24671 TELEGRAPH RD	SOUTHFIELD	MI	48034	0.9615	Screened Out
	2600 S GARFIELD AVE	COMMERCE	CA	90040	0.006	Screened Out
	7050 W 71ST ST	BEDFORD PARK	IL	60499	0.00887	Screened Out
	4051 S AVE	TOLEDO	OH	43615	0.0505	Screened Out
	328 BUNOLA RIVER RD	BUNOLA	PA	15020	0.1275	Screened Out
	COLONIAL RD	SALEM	MA	01970	0.002	Screened Out
	30450 TRACY RD	WALBRIDGE	OH	43465	0.00189	Screened Out
	3636 DAN MORTON DR	DALLAS	TX	75236	0.25	Screened Out
	1 ALCHEMY PL	DORAVILLE	GA	30362	0.0065	Screened Out
	12 STANDEN DR	HAMILTON	OH	45015	0.25	Screened Out
	777 BRISBANE ST	HOUSTON	TX	77061	0.25	Screened Out
	11235 FM 529	HOUSTON	TX	77041	0.75	Screened Out
	155 ELLIS RD S	JACKSONVILLE	FL	32254	0.0195	Screened Out
	108 OAKDALE RD	JAMESTOWN	NC	27282	0.006	Screened Out
	200 DEAN SIEVERS PL	MORRISVILLE	PA	19067	0.03	Screened Out
	2400 S 170TH ST	NEW BERLIN	WI	53151	0.00702	Screened Out
	2145 SKYLAND CT	NORCROSS	GA	30071	0.0095	Screened Out
	13395 HURON RIVER DR	ROMULUS	MI	48174	0.0805	Screened Out
	13900 CARMENITA RD	SANTA FE SPRINGS	CA	90670	0.0035	Screened Out
	21600 DRAKE RD	STRONGSVILLE	OH	44136	0.25	Screened Out
	6049 OLD 41A HWY	TAMPA	FL	33619	0.0065	Screened Out
	1124 ELMHURST RD	ELK GROVE VILLAGE	IL	60007	0.6585	Screened Out
	INTERSECTION OF MO HWYS 7 & 78	INDEPENDENCE	MO	64051	4.095	Screened Out
	3171 N GAFFEY ST	SAN PEDRO	CA	90731	0.1275	Screened Out
	5449 W MAIN ST	VERONA	NY	13478	0.0025	Screened Out
	2385 RIVERPORT RD	MEMPHIS	TN	38109	0.03	Screened Out
	301 LEROY ST	THREE RIVERS	TX	78071	0.0395	Screened Out
	210 CROSBY ST	PICAYUNE	MS	39466	0.019	Screened Out
	100 HALE ST	NEWBURYPORT	MA	01950	0.0525	Screened Out
	720 VAIDEN DR	HERNANDO	MS	38632	0.0615	Screened Out
	1226 S MANUFACTURERS ROW	TRENTON	TN	38382	0.385315	Screened Out
	10837 ETIWANDA AVE	FONTANA	CA	92337	2.825	Screened Out
	1700 S SHAWNEE ST	MOUNT VERNON	IL	62864	2.818	Screened Out
	1409 GREENE ST	MARIETTA	OH	45750	1.965	Screened Out
	1333 N KIRK RD	BATAVIA	IL	60510	0.0105	Screened Out
	7 MOBILE AVE	SAUGET	IL	62201	0.0035	Screened Out
	125 FACTORY LN	MIDDLESEX	NJ	08846	0.0595	Screened Out
	HWY 73, 3.5 MILES W OF TAYLOR BAYOU	PORT ARTHUR	TX	77640	0.011395	Screened Out
	ANDROSCOGGIN MILL RILEY RD	JAY	ME	04239	0.0025	Screened Out
	7619 DOANE DR	MANASSAS	VA	20109	2.198	Screened Out
	4646 S GRADY AVE	TAMPA	FL	33611	1.9875	Screened Out
	10911 GRANITE ST	CHARLOTTE	NC	28273	2.0745	Screened Out
	4051 FONDORF DR	COLUMBUS	OH	43228	2.43	Screened Out
	4021 N 56TH ST	LINCOLN	NE	68504	0.0000014	Screened Out
	400 N GOODYEAR RD	MOUNT PLEASANT	IA	52641	0.0005	Screened Out
	2701 W OMAHA AVE	NORFOLK	NE	68701	0.146845	Screened Out
	1521 POPLAR LN	FOREST GROVE	OR	97116	3.6475	Screened Out
	1855 ESTES AVE	ELK GROVE VILLAGE	IL	60007	0.269	Screened Out
	2020 E ORANGETHORPE AVE	FULLERTON	CA	92831	0.6185	Screened Out
	1020 ALBANY PL SE	ORANGE CITY	IA	51041	0.0105	Screened Out
	197 MEISTER AVE	BRANCHBURG	NJ	08876	0.0015	Screened Out
	150 MOONEY DR	BOURBONNAIS	IL	60914	1.299	Screened Out
	2340 US 301 N	DUNN	NC	28335	0.1375	Screened Out
	22800 MOUND RD	WARREN	MI	48091	0.46	Screened Out
	1200 S 8TH ST	WEST MEMPHIS	AR	72301	1.224	Screened Out
	575, 577, 579 CHIPETA WAY	SALT LAKE CITY	UT	84108	0.09024	Screened Out
	2895 GRAND AVE	PITTSBURGH	PA	15225	0.775	Screened Out
	616 HITE RD	HARWICK	PA	15049	0.2505	Screened Out
	2708 JARMAN	MUSKEGON HEIGHTS	MI	49444	0.2605	Screened Out
	2305 MARKET ST EXT.	WARREN	PA	16365	0.4305	Screened Out
	1735 SANDY LAKE RD	CARROLLTON	TX	75006	0.602	Screened Out
	8875 INDUSTRIAL AVE	RANCHO CUCAMONG	CA	91730	0.875	Screened Out
	47 PARK AVE	ELVERSON	PA	19520	0.065575	Screened Out
	215 BROWNSVILLE AVE	LIBERTY	IN	47353	1.2345	Screened Out

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome
[redacted]	838 S 16TH ST	MANITOWOC	WI	54220	0.03505	Screened Out
	930 ARMOUR RD	OCONOMOWOC	WI	53066	0.599	Screened Out
	11440 W ADDISON AVE	FRANKLIN PARK	IL	60131	1.7385	Screened Out
	125 MCFANN RD	VALENCIA	PA	16059	1.1145	Screened Out
	2170 BUOY ST	MEMPHIS	TN	38113	0.1275	Screened Out
	3420 KOSSUTH ST	LAFAYETTE	IN	47905	0.6745	Screened Out
	300 INDUSTRIAL DR	HAMPSHIRE	IL	60140	0.2525	Screened Out
	4220 S SARIVAL RD	GOODYEAR	AZ	85338	0.1515	Screened Out
	906 S POWELL	WYNNEWOOD	OK	73098	0.0025	Screened Out
	1920 LEONARD AVE	COLUMBUS	OH	43219	0.25	Screened Out
	26500 CAPITOL AVE	REDFORD	MI	48239	0.0125	Screened Out
	350 JOE FRANK HARRIS PKWY	EMERSON	GA	30137	0.019	Screened Out
	1310 SEABOARD INDUSTRIAL BLVD	ATLANTA	GA	30318	0.242	Screened Out
	70 GA HWY 22 W	MILLEDGEVILLE	GA	31061	0.3775	Screened Out

Table C-3. Comparisons of 2011 TRI Air Emissions Data for Certain Glycol Ethers to the Step A Screening Value of 4.9 tpy

Facility Name	Address	City	State	Zip Code	2011 Air Emissions (tpy)	Outcome

tpy: tons per year

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

					2009			2010			2011		
Facility	City	State	Completed Survey	Zip Code	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)
[redacted]	AGUADILLA	PR	N	00605	0.1	9.4	9.5	0.1	2.2	2.4	0.0	3.2	3.2
	CAROLINA	PR	N	00985	7.5	22.6	30.1	6.9	20.7	27.6	6.0	18.1	24.2
	MANATI	PR	N	00674	NR	NR	NR	0.0	0.1	0.1	NR	NR	NR
	CHRISTIANSTED	V Isl	N	00820	0.4	0.0	0.4	0.7	0.0	0.7	NR	NR	NR
	EAST LONGMEADOW	MA	N	01028	NR	NR	NR	2.3	0.1	2.4	NR	NR	NR
	DUDLEY	MA	N	01571	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	LAWRENCE	MA	N	01841	NR	NR	NR	0.9	0.0	0.9	1.0	0.0	1.0
	LAWRENCE	MA	N	01843	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	LAWRENCE	MA	Y	01843	18.0	54.1	72.2	15.7	47.0	62.7	17.5	52.6	70.2
	NEWBURYPORT	MA	N	01950	NR	NR	NR	NR	NR	NR	0.1	0.0	0.1
	WARWICK	RI	N	02886	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	CRANSTON	RI	N	02920	NR	NR	NR	0.1	5.7	5.7	0.1	5.7	5.7
	MEREDITH	NH	N	03253	0.0	0.1	0.1	NR	NR	NR	NR	NR	NR
	SEABROOK	NH	N	03874	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	WESTBROOK	ME	N	04098	0.0	15.0	15.0	0.0	23.5	23.5	0.0	35.2	35.2
	BUCKSPORT	ME	N	4416	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR
	HARTLAND	ME	N	04943	0.1	5.3	5.4	0.1	4.5	4.6	NR	NR	NR
	NEW BRITAIN	CT	N	06052	0.9	8.5	9.5	1.0	9.0	10.0	1.1	9.5	10.6
	LINDEN	NJ	N	07036	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	LINDEN	NJ	N	07036	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	WOODBRIDGE	NJ	N	07095	0.0	2.9	2.9	0.1	6.8	6.8	0.1	8.8	8.9
	NEWARK	NJ	N	07105	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	NEWARK	NJ	N	07105	0.4	0.4	0.8	NR	NR	NR	0.1	0.1	0.3
	WAYNE	NJ	N	07470	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	BELVIDERE	NJ	N	07823	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	DEEPWATER	NJ	N	08023	0.1	0.0	0.1	NR	NR	NR	0.1	0.1	0.2
	PALMYRA	NJ	N	08065	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	EDISON	NJ	N	08817	6.0	1.4	7.4	4.5	1.1	5.6	4.0	1.0	5.0
	PERTH AMBOY	NJ	N	08861	NR	NR	NR	0.1	0.2	0.3	0.2	0.3	0.4
	SOMERVILLE	NJ	N	08876	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	MIDDLETOWN	NY	Y	10940	6.0	7.0	13.0	6.5	7.5	14.0	8.0	9.5	17.5
	EAST SETAUKET	NY	N	11733	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	HAUPPAUGE	NY	N	11788	0.7	2.2	3.0	NR	NR	NR	NR	NR	NR
	ALBANY	NY	N	12204	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

					2009			2010			2011		
Facility	City	State	Completed Survey	Zip Code	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)
[redacted]	NEW WINDSOR	NY	Y	12553	12.1	34.4	46.5	11.5	30.8	42.3	11.0	29.4	40.4
	SARATOGA SPRINGS	NY	Y	12866	3.3	15.0	18.3	3.4	17.0	20.4	3.3	16.0	19.3
	SARATOGA SPRINGS	NY	N	12866	5.6	0.3	5.9	NR	NR	NR	3.7	0.2	3.9
	LOWVILLE	NY	N	13367	0.1	5.8	5.9	0.1	5.3	5.4	0.1	4.4	4.4
	VERONA	NY	N	13478	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	AKRON	NY	N	14001	0.0	7.4	7.4	0.0	8.4	8.4	0.0	11.7	11.7
	TONAWANDA	NY	N	14150	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR
	MARION	NY	N	14505	0.0	6.1	6.1	0.0	6.7	6.7	0.0	5.4	5.4
	WEST HENRIETTA	NY	N	14586	0.0	15.1	15.1	0.0	6.8	6.8	0.0	8.3	8.3
	CHEMUNG	NY	N	14825	4.5	5.8	10.3	5.1	7.1	12.2	4.0	6.5	10.5
	BUNOLA	PA	N	15020	NR	NR	NR	0.0	0.0	0.0	0.1	0.0	0.1
	CLAIRTON	PA	N	15025	5.5	0.0	5.5	14.5	0.0	14.5	41.0	0.0	41.0
	LEETSDALE	PA	N	15056	0.0	0.0	0.0	NR	NR	NR	0.0	0.0	0.0
	MC KEESPORT	PA	N	15132	0.2	0.1	0.3	NR	NR	NR	NR	NR	NR
	SPRINGDALE	PA	N	15144	5.5	0.0	5.5	5.2	0.1	5.3	5.8	0.1	5.8
	WILMERDING	PA	N	15148	0.0	0.1	0.1	0.0	0.1	0.1	NR	NR	NR
	MANNS CHOICE	PA	N	15550	1.3	11.3	12.6	1.4	12.7	14.1	1.4	12.8	14.2
	ELLWOOD CITY	PA	N	16117	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	JAMESTOWN	PA	N	16134	0.2	0.0	0.2	NR	NR	NR	0.2	0.0	0.2
	HERMITAGE	PA	N	16148	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	CLARENDON	PA	N	16313	0.1	8.3	8.4	0.1	6.7	6.7	0.1	4.3	4.4
	FRANKLIN	PA	N	16323	10.7	0.0	10.7	11.6	0.0	11.6	8.5	0.0	8.5
	ERIE	PA	N	16502	4.7	0.0	4.7	NR	NR	NR	NR	NR	NR
	HARRISBURG	PA	N	17104	NR	NR	NR	1.1	20.6	21.6	1.4	26.2	27.6
	HANOVER	PA	N	17331	2.9	8.6	11.4	3.4	10.1	13.5	1.3	3.9	5.2
	HANOVER	PA	N	17331	0.0	26.0	26.0	0.0	24.2	24.2	0.0	28.0	28.0
	YORK	PA	N	17404	2.1	0.2	2.3	NR	NR	NR	NR	NR	NR
	YORK	PA	N	17402	NR	NR	NR	1.2	0.0	1.2	1.0	0.0	1.0
	LANCASTER	PA	N	17601	6.7	0.4	7.1	4.6	0.3	4.9	8.5	0.6	9.1
	LANCASTER	PA	N	17601	5.3	0.4	5.7	6.2	0.4	6.6	7.4	0.5	7.9

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

					2009			2010			2011		
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[redacted]	LANCASTER	PA	N	17603	0.9	0.4	1.3	NR	NR	NR	NR	NR	NR
[redacted]	ALLENTOWN	PA	N	18106	0.0	0.0	0.1	0.0	0.0	0.0	NR	NR	NR
[redacted]	SAYRE	PA	N	18840	NR	NR	NR	0.0	0.3	0.3	NR	NR	NR
[redacted]	TOWANDA	PA	N	18848	NR	NR	NR	NR	NR	NR	0.3	2.0	2.3
[redacted]	QUAKERTOWN	PA	N	18951	NR	NR	NR	0.0	2.0	2.0	0.0	4.0	4.1
[redacted]	SOUTHAMPTON	PA	N	18966	NR	NR	NR	NR	NR	NR	0.0	7.5	7.6
[redacted]	WARMINSTER	PA	N	18974	0.4	0.7	1.1	2.1	1.5	3.6	3.1	3.0	6.0
[redacted]	CROYDON	PA	N	19021	0.1	0.0	0.1	NR	NR	NR	NR	NR	NR
[redacted]	MORRISVILLE	PA	N	19067	0.0	0.0	0.0	NR	NR	NR	0.0	0.0	0.0
[redacted]	PHILADELPHIA	PA	N	19120	2.0	8.1	10.1	1.4	5.6	6.9	0.8	3.8	4.7
[redacted]	PHILADELPHIA	PA	N	19132	NR	NR	NR	0.0	0.2	0.2	0.0	0.2	0.2
[redacted]	BLANDON	PA	N	19510	3.2	9.6	12.8	2.7	7.2	9.9	1.7	4.9	6.6
[redacted]	DOVER	DE	N	19904	0.0	6.5	6.5	0.0	4.0	4.0	0.0	2.6	2.6
[redacted]	BELCAMP	MD	N	21017	NR	NR	NR	NR	NR	NR	0.0	1.5	1.5
[redacted]	BALTIMORE	MD	N	21221	8.5	25.5	34.0	8.5	25.5	34.1	8.6	25.9	34.5
[redacted]	BALTIMORE	MD	N	21222	NR	NR	NR	0.0	0.1	0.1	0.0	0.1	0.1
[redacted]	WILLIAMSPORT	MD	N	21795	NR	NR	NR	0.0	0.0	0.0	0.1	0.2	0.3
[redacted]	HAGERSTOWN	MD	N	21742	NR	NR	NR	11.0	0.0	11.0	8.5	0.0	8.5
[redacted]	MANASSAS	VA	N	20109	NR	NR	NR	2.0	0.1	2.1	2.1	0.1	2.2
[redacted]	MONTROSS	VA	N	22520	NR	NR	NR	0.0	4.2	4.2	0.0	3.9	3.9
[redacted]	WINCHESTER	VA	N	22603	3.2	0.1	3.4	5.5	0.3	5.7	3.9	0.2	4.1
[redacted]	FRONT ROYAL	VA	N	22630	0.0	0.2	0.2	NR	NR	NR	0.0	0.0	0.0
[redacted]	MIDDLETOWN	VA	N	22645	0.0	0.0	0.0	NR	NR	NR	0.0	0.0	0.0
[redacted]	HARRISONBURG	VA	Y	22802	36.1	4.3	40.4	38.8	3.6	42.4	45.2	3.1	48.3
[redacted]	ELKTON	VI	N	22827	0.7	0.8	1.5	0.2	0.2	0.4	NR	NR	NR
[redacted]	ARVONIA	VI	N	23004	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
[redacted]	WILLIAMSBURG	VA	Y	23185	27.0	140.0	167.0	28.5	150.0	178.5	28.0	145.0	173.0
[redacted]	RICHMOND	VI	N	23228	NR	NR	NR	2.2	0.1	2.3	NR	NR	NR
[redacted]	PETERSBURG	VA	N	23805	0.0	0.1	0.1	NR	NR	NR	0.0	0.0	0.0
[redacted]	DUBLIN	VI	N	24084	NR	NR	NR	2.2	2.4	4.6	NR	NR	NR

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[redacted]	SALEM	VI	N	24153	5.3	0.0	5.3	NR	NR	NR	NR	NR	NR
[redacted]	GALAX	VA	N	24333	NR	NR	NR	NR	NR	NR	0.7	4.2	5.0
[redacted]	MARION	VA	N	24354	0.4	9.2	9.6	0.7	13.1	13.8	0.4	8.5	8.9
[redacted]	GROTTOES	VI	N	24441	0.0	0.0	0.1	NR	NR	NR	NR	NR	NR
[redacted]	LYNCHBURG	VA	N	24506	NR	NR	NR	0.1	0.0	0.1	0.2	0.0	0.2
[redacted]	WEIRTON	WV	N	26062	25.5	11.5	37.0	14.5	8.0	22.5	10.0	3.3	13.3
[redacted]	WEIRTON	WV	Y	26062	37.9	63.3	101.1	36.0	60.1	96.1	34.5	57.7	92.2
[redacted]	WEIRTON	WV	N	26062	0.0	5.7	5.7	0.0	7.2	7.2	0.0	2.6	2.6
[redacted]	CRAIGSVILLE	WV	N	26205	NR	NR	NR	0.1	2.9	3.0	NR	NR	NR
[redacted]	WINSTON-SALEM	NC	Y	27107	28.3	143.9	172.2	31.2	157.6	188.8	25.7	110.5	136.2
[redacted]	BURLINGTON	NC	N	27215	0.1	0.0	0.1	0.2	0.0	0.2	NR	NR	NR
[redacted]	HIGH POINT	NC	N	27261	0.1	0.3	0.3	NR	NR	NR	NR	NR	NR
[redacted]	HIGH POINT	NC	N	27263	NR	NR	NR	0.0	17.9	17.9	0.0	16.0	16.0
[redacted]	JAMESTOWN	NC	N	27282	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
[redacted]	MEBANE	NC	N	27302	11.3	0.0	11.3	NR	NR	NR	2.9	0.0	2.9
[redacted]	REIDSVILLE	NC	Y	27320	12.0	65.0	77.0	14.5	80.0	94.5	17.0	85.0	102.0
[redacted]	DURHAM	NC	N	27703	1.3	4.2	5.5	0.0	6.6	6.6	0.0	0.1	0.1
[redacted]	TARBORO	NC	N	27886	0.2	14.8	14.9	0.2	16.6	16.8	0.2	16.4	16.5
[redacted]	WILSON	NC	N	27893	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
[redacted]	GASTONIA	NC	N	28052	0.0	7.1	7.1	0.0	7.2	7.2	0.0	6.0	6.0
[redacted]	HARRISBURG	NC	N	28075	0.0	6.7	6.7	0.0	31.5	31.5	0.0	5.4	5.4
[redacted]	MOUNT HOLLY	NC	N	28120	0.0	0.1	0.1	0.0	0.1	0.1	NR	NR	NR
[redacted]	CHARLOTTE	NC	N	28273	0.1	0.1	0.3	NR	NR	NR	0.1	0.1	0.3
[redacted]	CHARLOTTE	NC	N	28273	NR	NR	NR	NR	NR	NR	0.3	0.3	0.6
[redacted]	FAYETTEVILLE	NC	N	28306	NR	NR	NR	0.2	0.0	0.2	NR	NR	NR
[redacted]	MAXTON	NC	N	28364	3.0	6.2	9.1	3.2	7.0	10.2	3.1	6.7	9.8
[redacted]	LENOIR	NC	N	28645	3.7	1.6	5.3	5.7	1.3	7.0	4.7	1.1	5.7

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[redacted]	STATESVILLE	NC	N	28625	0.1	0.1	0.2	NR	NR	NR	NR	NR	NR
[redacted]	BISHOPVILLE	SC	Y	29010	14.5	82.0	96.5	14.5	82.2	96.8	13.4	75.9	89.3
[redacted]	HOLLY HILL	SC	N	29059	NR	NR	NR	NR	NR	NR	0.0	0.1	0.1
[redacted]	LEXINGTON	SC	N	29073	0.0	2.2	2.2	0.0	9.7	9.7	0.0	0.1	0.1
[redacted]	ORANGEBURG	SC	N	29116	0.1	5.5	5.6	0.1	6.4	6.6	0.1	6.5	6.6
[redacted]	ENOREE	SC	N	29335	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
[redacted]	FLORENCE	SC	N	29501	8.5	0.9	9.4	8.9	0.8	9.8	11.0	1.3	12.2
[redacted]	CHERAW	SC	N	29520	19.6	2.5	22.1	21.4	2.7	24.1	21.2	2.7	23.9
[redacted]	CONWAY	SC	N	29526	0.9	1.1	2.0	NR	NR	NR	NR	NR	NR
[redacted]	MYRTLE BEACH	SC	Y	29577	7.2	2.1	9.4	3.4	2.5	5.9	1.7	1.0	2.7
[redacted]	GREENVILLE	SC	N	29605	NR	NR	NR	0.0	0.3	0.3	0.1	0.3	0.4
[redacted]	STARR	SC	N	29684	0.5	4.8	5.4	0.7	5.9	6.6	0.5	4.3	4.8
[redacted]	GREENWOOD	SC	N	29649	NR	NR	NR	NR	NR	NR	0.0	1.6	1.6
[redacted]	GREER	SC	Y	29651	3.5	67.1	70.6	1.8	89.4	91.2	2.5	150.0	152.5
[redacted]	MAULDIN	SC	N	29662	0.0	0.0	0.1	0.0	0.0	0.0	NR	NR	NR
[redacted]	SENECA	SC	N	29678	NR	NR	NR	NR	NR	NR	0.0	2.4	2.4
[redacted]	CHESTER	SC	N	29706	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
[redacted]	AIKEN	SC	N	29801	3.0	0.9	3.9	10.0	3.1	13.1	12.2	2.3	14.5
[redacted]	CARROLLTON	GA	N	30117	0.1	1.3	1.4	NR	NR	NR	0.1	1.3	1.4
[redacted]	ROME	GA	Y	30161	34.5	15.0	49.5	33.5	22.0	55.5	31.0	13.5	44.5
[redacted]	COVINGTON	GA	N	30014	0.4	0.3	0.7	0.6	0.3	0.9	NR	NR	NR
[redacted]	MC DONOUGH	GA	N	30253	NR	NR	NR	NR	NR	NR	0.3	0.0	0.3
[redacted]	MC DONOUGH	GA	N	30253	0.0	0.0	0.1	0.0	0.0	0.1	NR	NR	NR
[redacted]	MC DONOUGH	GA	N	30253	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
[redacted]	MC DONOUGH	GA	N	30253	NR	NR	NR	0.0	6.7	6.7	0.0	9.0	9.0
[redacted]	MC DONOUGH	GA	N	30253	0.0	8.7	8.7	0.0	13.7	13.7	0.0	11.2	11.2
[redacted]	THE ROCK	GA	N	30285	NR	NR	NR	NR	NR	NR	2.3	0.1	2.4
[redacted]	ATLANTA	GA	N	30339	0.1	0.1	0.2	0.1	0.1	0.2	NR	NR	NR
[redacted]	DORAVILLE	GA	N	30362	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
[redacted]	LAVONIA	GA	N	30553	NR	NR	NR	0.0	11.2	11.2	0.0	17.3	17.3
[redacted]	ATHENS	GA	N	30607	0.0	10.8	10.8	0.0	2.4	2.4	0.0	5.2	5.2

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[redacted]	DALTON	GA	N	30721	0.0	1.1	1.1	0.0	1.1	1.1	NR	NR	NR
	DALTON	GA	N	30720	0.1	0.0	0.1	NR	NR	NR	NR	NR	NR
	DUBLIN	GA	N	31021	9.5	0.4	9.9	9.3	0.3	9.6	9.0	0.4	9.4
	MILLEDGEVILLE	GA	N	31061	NR	NR	NR	0.0	0.4	0.4	0.0	0.4	0.4
	ROBINS AFB	GA	N	31098	1.6	0.9	2.5	2.4	0.4	2.8	NR	NR	NR
	HOMERVILLE	GA	N	31634	19.2	0.4	19.6	37.1	8.9	46.0	6.0	1.8	7.8
	WEST POINT	GA	N	31833	NR	NR	NR	0.1	2.7	2.7	0.1	4.9	5.0
	EDGEWATER	FL	N	32132	1.6	0.0	1.6	NR	NR	NR	NR	NR	NR
	JACKSONVILLE	FL	N	32254	6.9	54.6	61.4	7.0	28.0	35.0	6.5	19.2	25.6
	JACKSONVILLE	FL	N	32208	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	JACKSONVILLE	FL	N	32212	NR	NR	NR	0.1	0.0	0.1	NR	NR	NR
	JACKSONVILLE	FL	N	32254	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	WINTER GARDEN	FL	N	34787	1.3	4.4	5.8	NR	NR	NR	NR	NR	NR
	ORLANDO	FL	N	32837	NR	NR	NR	0.0	1.2	1.2	0.0	0.9	0.9
	FT LAUDERDALE	FL	N	33316	NR	NR	NR	NR	NR	NR	0.1	0.0	0.1
	BUSHNELL	FL	N	33513	0.1	15.7	15.8	0.1	14.8	14.9	0.1	10.6	10.7
	TAMPA	FL	N	33617	11.5	15.5	27.0	9.0	15.0	24.0	8.0	9.0	17.0
	TAMPA	FL	N	33619	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	TAMPA	FL	N	33611	NR	NR	NR	1.8	0.2	1.9	1.8	0.2	2.0
	CLEARWATER	FL	N	33760	0.4	0.0	0.4	NR	NR	NR	NR	NR	NR
	LAKELAND	FL	N	33801	9.3	0.0	9.3	8.4	0.0	8.4	8.4	0.0	8.4
	LAKELAND	FL	N	33810	0.5	9.4	9.8	0.6	11.8	12.4	0.5	8.5	9.0
	AUBURNDALE	FL	N	33823	NR	NR	NR	NR	NR	NR	0.4	0.0	0.4
	CLEARWATER	FL	N	33760	NR	NR	NR	0.0	0.1	0.1	NR	NR	NR
	CLEARWATER	FL	N	33760	0.0	0.1	0.1	0.0	0.2	0.2	NR	NR	NR
	LEEDS	AL	N	35094	2.4	9.6	12.0	2.7	10.9	13.7	2.7	10.8	13.5
	LINCOLN	AL	N	35096	0.2	16.6	16.8	0.5	23.5	24.0	0.5	24.8	25.3
	BIRMINGHAM	AL	N	35234	11.1	0.2	11.3	9.8	0.1	9.9	12.2	0.2	12.4
	BIRMINGHAM	AL	N	35234	0.3	0.0	0.3	0.4	0.0	0.4	NR	NR	NR

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[redacted]	TUSCALOOSA	AL	N	35401	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
[redacted]	TUSCALOOSA	AL	N	35401	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
[redacted]	VANCE	AL	N	35490	2.3	9.9	12.2	0.4	25.6	25.9	0.5	27.8	28.3
[redacted]	GUIN	AL	N	35563	0.0	9.5	9.5	0.0	12.8	12.8	NR	NR	NR
[redacted]	GUIN	AL	N	35563	NR	NR	NR	NR	NR	NR	0.0	12.5	12.5
[redacted]	DECATUR	AL	N	35603	NR	NR	NR	NR	NR	NR	1.0	18.3	19.3
[redacted]	HUNTSVILLE	AL	N	35811	0.9	13.4	14.3	0.8	12.8	13.6	0.6	7.9	8.5
[redacted]	ALBERTVILLE	AL	N	35950	6.9	6.9	13.8	NR	NR	NR	NR	NR	NR
[redacted]	FORT PAYNE	AL	N	35967	5.1	1.8	6.9	6.1	3.6	9.7	3.7	2.7	6.3
[redacted]	ANNISTON	AL	N	36207	0.3	0.3	0.5	0.2	0.2	0.4	NR	NR	NR
[redacted]	DOTHAN	AL	N	36303	NR	NR	NR	NR	NR	NR	0.0	5.3	5.3
[redacted]	GENEVA	AL	N	36340	0.0	4.5	4.5	0.0	5.1	5.1	0.1	12.7	12.8
[redacted]	PINE HILL	AL	N	36769	NR	NR	NR	NR	NR	NR	0.1	0.0	0.1
[redacted]	ASHLAND CITY	TN	N	37015	NR	NR	NR	0.1	10.3	10.4	0.1	9.3	9.4
[redacted]	CLARKSVILLE	TN	N	37040	2.4	0.1	2.5	3.8	0.6	4.4	NR	NR	NR
[redacted]	SHELBYVILLE	TN	N	37160	0.1	2.2	2.4	NR	NR	NR	NR	NR	NR
[redacted]	SMYRNA	TN	N	37167	1.4	31.9	33.3	1.3	34.3	35.6	0.0	30.7	30.7
[redacted]	SPRING HILL	TN	N	37174	0.2	18.0	18.2	0.0	3.3	3.3	NR	NR	NR
[redacted]	NASHVILLE	TN	N	37207	NR	NR	NR	0.2	0.0	0.2	6.4	0.7	7.1
[redacted]	NASHVILLE	TN	N	37209	0.2	0.0	0.3	NR	NR	NR	NR	NR	NR
[redacted]	NASHVILLE	TN	N	37218	0.7	6.5	7.2	1.7	15.0	16.7	16.5	1.9	18.4
[redacted]	CLEVELAND	TN	N	37311	0.0	8.6	8.6	0.0	6.3	6.3	0.0	6.3	6.3
[redacted]	DAYTON	TN	N	37321	0.0	7.8	7.8	0.0	8.6	8.6	0.0	6.6	6.6
[redacted]	MANCHESTER	TN	N	37355	1.1	20.7	21.8	1.0	19.3	20.3	1.7	32.5	34.2
[redacted]	MANCHESTER	TN	N	37355	NR	NR	NR	0.1	0.1	0.3	0.0	0.4	0.4
[redacted]	CHATTANOOGA	TN	N	37402	13.8	0.0	13.8	16.7	0.0	16.7	23.9	0.0	23.9
[redacted]	CHATTANOOGA	TN	N	37416	NR	NR	NR	NR	NR	NR	0.0	11.0	11.0
[redacted]	ELIZABETHTON	TN	N	37643	0.0	1.0	1.0	NR	NR	NR	NR	NR	NR

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

					2009			2010			2011		
Facility	City	State	Completed Survey	Zip Code	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)
[redacted]	ONEIDA	TN	N	37841	0.0	6.6	6.6	0.0	5.2	5.2	0.0	4.7	4.7
	SWEETWATER	TN	N	37874	10.7	0.0	10.7	12.2	0.0	12.2	13.1	0.0	13.1
	KNOXVILLE	TN	N	37921	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	BROWNSVILLE	TN	N	38012	NR	NR	NR	NR	NR	NR	0.0	6.7	6.7
	DYERSBURG	TN	N	38024	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	DYERSBURG	TN	N	38024	6.3	0.1	6.4	1.4	0.1	1.5	NR	NR	NR
	MEMPHIS	TN	N	38109	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR
	MEMPHIS	TN	N	38109	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	MEMPHIS	TN	N	38113	0.1	0.0	0.1	0.1	0.0	0.1	NR	NR	NR
	MEMPHIS	TN	N	38113	0.0	6.8	6.8	0.0	3.1	3.1	0.0	1.7	1.7
	MEMPHIS	TN	N	38113	0.0	0.1	0.1	NR	NR	NR	NR	NR	NR
	MEMPHIS	TN	N	38118	0.0	0.0	0.0	0.0	0.1	0.1	NR	NR	NR
	MEMPHIS	TN	N	38118	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	MEMPHIS	TN	N	38113	NR	NR	NR	0.0	0.1	0.1	0.0	0.1	0.1
	UNION CITY	TN	N	38261	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	UNION CITY	TN	N	38261	NR	NR	NR	NR	NR	NR	0.5	4.8	5.3
	MILAN	TN	N	38358	5.3	5.3	10.6	10.1	10.1	20.2	8.4	8.4	16.8
	TRENTON	TN	N	38382	NR	NR	NR	NR	NR	NR	0.0	0.4	0.4
	BATESVILLE	MS	N	38606	22.5	2.7	25.3	19.6	2.9	22.5	19.3	2.9	22.2
	HERNANDO	MS	N	38632	0.2	2.0	2.2	NR	NR	NR	NR	NR	NR
	HERNANDO	MS	N	38632	NR	NR	NR	NR	NR	NR	0.0	0.0	0.1
	OLIVE BRANCH	MS	Y	38654	19.6	68.4	88.1	20.6	56.3	76.8	18.8	63.5	82.3
	OLIVE BRANCH	MS	N	38654	0.4	3.7	4.1	NR	NR	NR	NR	NR	NR
	OLIVE BRANCH	MS	N	38654	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	SHANNON	MS	N	38868	0.3	5.5	5.8	0.3	5.9	6.2	0.3	5.9	6.2
	CANTON	MS	N	39046	2.0	24.6	26.6	2.5	3.8	6.4	7.6	2.0	9.6
	VICKSBURG	MS	N	39181	NR	NR	NR	10.4	0.0	10.4	14.1	0.0	14.1
	JACKSON	MS	N	39272	0.0	5.1	5.1	0.0	4.0	4.0	0.0	4.5	4.5
	JACKSON	MS	N	39272	12.3	1.3	13.6	10.1	0.9	11.0	9.9	1.0	10.9
	NEWTON	MS	N	39345	6.3	0.0	6.3	8.6	0.0	8.6	9.6	0.0	9.6
	PASCAGOULA	MS	N	39581	NR	NR	NR	0.1	0.0	0.1	NR	NR	NR

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					2009			2010			2011		
Facility	City	State	Completed Survey	Zip Code	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)
[redacted]	BARDSTOWN	KY	N	40004	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	LOUISVILLE	KY	N	40210	NR	NR	NR	NR	NR	NR	0.4	0.0	0.4
	LOUISVILLE	KY	N	40211	0.1	0.0	0.1	NR	NR	NR	NR	NR	NR
	LOUISVILLE	KY	N	40213	0.1	12.0	12.1	0.2	1.6	1.8	NR	NR	NR
	LOUISVILLE	KY	N	40210	NR	NR	NR	NR	NR	NR	1.3	0.0	1.3
	LOUISVILLE	KY	Y	40241	0.9	32.5	33.4	2.4	33.0	35.4	3.3	41.0	44.3
	GEORGETOWN	KY	N	40324	0.1	5.4	5.5	0.4	12.3	12.7	0.2	9.2	9.4
	HARRODSBURG	KY	N	40330	1.2	10.8	12.0	NR	NR	NR	NR	NR	NR
	MOREHEAD	KY	N	40351	0.0	0.2	0.2	NR	NR	NR	NR	NR	NR
	PARIS	KY	N	40361	0.0	0.1	0.1	0.0	0.1	0.1	NR	NR	NR
	BEREA	KY	N	40403	0.2	11.1	11.3	0.3	16.1	16.5	0.1	14.7	14.8
	LEXINGTON	KY	N	40511	0.0	9.0	9.0	0.0	9.5	9.5	0.1	9.0	9.1
	FLORENCE	KY	N	41042	1.4	26.2	27.5	1.7	33.2	34.9	3.5	31.3	34.7
	INDEPENDENCE	KY	N	41051	NR	NR	NR	0.1	0.1	0.3	NR	NR	NR
	CALVERT CITY	KY	N	42029	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR
	HOPKINSVILLE	KY	N	42240	0.0	5.1	5.1	0.0	0.5	0.5	NR	NR	NR
	RUSSELLVILLE	KY	N	42276	0.0	5.5	5.5	0.0	5.4	5.4	0.0	4.9	4.9
	HAWESVILLE	KY	N	42348	0.0	1.0	1.0	0.0	0.6	0.6	0.0	5.2	5.2
	HEBRON	OH	N	43025	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	MARYSVILLE	OH	N	43040	10.1	34.8	44.9	3.8	38.5	42.3	2.7	37.5	40.2
	URBANA	OH	N	43078	0.0	14.1	14.1	0.0	14.2	14.2	NR	NR	NR
	COLUMBUS	OH	Y	43213	20.0	50.0	70.0	11.5	65.0	76.5	12.0	70.0	82.0
	MARION	OH	Y	43302	0.1	55.8	55.8	0.1	57.2	57.2	0.1	51.4	51.5
	EAST LIBERTY	OH	N	43319	2.0	27.5	29.5	2.2	45.0	47.2	2.3	36.0	38.3
	CLYDE	OH	N	43410	1.1	34.3	35.4	0.7	22.6	23.4	NR	NR	NR
	FREMONT	OH	Y	43420	17.9	102.2	120.1	15.9	90.4	106.3	19.0	107.9	127.0
	ROSSFORD	OH	N	43460	0.0	6.0	6.0	0.0	7.4	7.4	0.0	7.8	7.8
	NAPOLEON	OH	N	43545	2.4	6.6	9.0	2.3	6.0	8.3	5.4	7.4	12.7
	WHITEHOUSE	OH	Y	43571	16.5	31.6	48.1	23.2	44.6	67.8	24.9	51.5	76.3

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					2009			2010			2011		
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[redacted]	TOLEDO	OH	N	43607	7.6	0.0	7.6	13.3	0.0	13.3	13.1	0.0	13.1
	TOLEDO	OH	N	43608	3.0	21.0	24.0	4.7	33.0	37.7	NR	NR	NR
	TOLEDO	OH	N	43612	0.4	0.9	1.3	0.5	1.1	1.6	2.1	14.5	16.6
	TOLEDO	OH	N	43612	2.8	8.4	11.2	3.5	10.4	13.8	3.2	9.5	12.7
	ZANESVILLE	OH	N	43701	0.0	2.5	2.5	0.0	4.7	4.7	0.0	6.0	6.0
	BEREA	OH	N	44017	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	BURTON	OH	N	44021	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	CHAGRIN FALLS	OH	N	44023	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	MIDDLEFIELD	OH	N	44062	NR	NR	NR	0.1	0.0	0.1	NR	NR	NR
	CLEVELAND	OH	N	44105	0.0	16.1	16.1	0.0	21.2	21.2	0.0	17.3	17.3
	CLEVELAND	OH	N	44102	NR	NR	NR	NR	NR	NR	0.0	0.1	0.1
	STRONGSVILLE	OH	N	44136	NR	NR	NR	0.0	0.0	0.0	0.1	0.1	0.3
	WALTON HILLS	OH	N	44146	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	CUYAHOGA FALLS	OH	N	44223	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	BRIMFIELD	OH	N	44240	9.0	0.0	9.0	NR	NR	NR	5.0	0.0	5.0
	MEDINA	OH	N	44258	NR	NR	NR	0.0	0.0	0.0	0.1	0.0	0.1
	MEDINA	OH	N	44256	NR	NR	NR	NR	NR	NR	0.0	0.1	0.2
	AKRON	OH	N	44305	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	CANFIELD	OH	N	44406	0.0	1.1	1.1	NR	NR	NR	0.0	2.0	2.0
	LORDSTOWN	OH	N	44481	12.0	0.2	12.2	3.2	0.8	3.9	4.0	1.1	5.0
	WARREN	OH	N	44483	2.1	3.7	5.8	1.6	5.7	7.3	1.6	5.8	7.4
	WARREN	OH	N	44483	4.7	11.3	15.9	3.5	8.6	12.1	4.6	10.4	15.0
	YOUNGSTOWN	OH	N	44502	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	BOARDMAN	OH	N	44512	0.8	8.4	9.2	NR	NR	NR	NR	NR	NR
	YOUNGSTOWN	OH	N	44512	0.4	18.1	18.4	0.3	16.2	16.5	0.4	0.4	0.8
	NEW PHILADELPHIA	OH	N	44663	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	WOOSTER	OH	N	44691	0.3	10.5	10.8	0.4	13.4	13.8	0.4	13.0	13.4
	NORWALK	OH	N	44857	0.0	10.0	10.0	NR	NR	NR	NR	NR	NR
	SANDUSKY	OH	N	44870	NR	NR	NR	0.1	0.0	0.1	NR	NR	NR

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[redacted]	WILLARD	OH	N	44890	6.1	2.4	8.4	7.5	2.4	9.9	6.9	1.9	8.7
	MANSFIELD	OH	N	44903	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR
	LEBANON	OH	N	45036	NR	NR	NR	0.6	0.0	0.6	0.6	0.0	0.6
	LEBANON	OH	N	45036	2.9	0.4	3.4	3.1	0.1	3.2	NR	NR	NR
	MASON	OH	N	45040	0.4	7.5	7.9	0.1	11.7	11.8	0.1	12.6	12.7
	CINCINNATI	OH	N	45217	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	BLUE ASH	OH	N	45242	0.5	0.0	0.5	NR	NR	NR	NR	NR	NR
	CINCINNATI	OH	N	45242	2.5	7.9	10.5	5.7	19.9	25.6	7.5	25.0	32.5
	CINCINNATI	OH	N	45246	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	SIDNEY	OH	N	45365	0.7	4.0	4.6	0.8	4.2	5.0	0.7	11.5	12.2
	SIDNEY	OH	N	45365	0.0	11.2	11.2	0.0	12.7	12.7	0.0	11.9	11.9
	SPRINGFIELD	OH	N	45502	0.6	5.0	5.6	0.6	5.5	6.1	0.4	3.4	3.8
	WAVERLY	OH	N	45690	0.0	0.4	0.4	0.0	1.2	1.2	NR	NR	NR
	FINDLAY	OH	Y	45840	24.5	130.0	154.5	25.0	130.0	155.0	25.5	135.0	160.5
	FINDLAY	OH	N	45840	2.3	20.6	22.8	2.2	20.1	22.4	2.2	19.4	21.5
	FORT RECOVERY	OH	N	45846	0.0	1.7	1.7	NR	NR	NR	NR	NR	NR
	PAULDING	OH	N	45879	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR
	SAINT MARYS	OH	N	45885	0.0	4.7	4.7	0.0	6.7	6.7	0.0	7.5	7.5
	FRANKFORT	IN	N	46041	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	GREENCASTLE	IN	N	46135	0.0	3.1	3.1	NR	NR	NR	1.4	5.4	6.8
	GREENFIELD	IN	N	46140	0.0	18.3	18.4	0.0	24.3	24.3	0.0	7.8	7.8
	INDIANAPOLIS	IN	N	46203	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	INDIANAPOLIS	IN	N	46218	0.3	1.2	1.5	0.2	0.9	1.1	NR	NR	NR
	INDIANAPOLIS	IN	N	46219	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	INDIANAPOLIS	IN	N	46222	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	INDIANAPOLIS	IN	N	46225	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	INDIANAPOLIS	IN	N	46226	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	INDIANAPOLIS	IN	N	46268	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	EAST CHICAGO	IN	N	46312	NR	NR	NR	NR	NR	NR	0.5	0.0	0.5

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[redacted]	HAMMOND	IN	N	46320	0.0	6.0	6.0	0.0	6.3	6.3	0.0	5.9	5.9
[redacted]	LA PORTE	IN	N	46350	0.0	5.0	5.0	0.0	7.7	7.7	0.0	6.9	6.9
[redacted]	LA PORTE	IN	Y	46350	12.5	54.5	67.0	12.9	55.5	68.4	12.2	53.2	65.4
[redacted]	SCHERERVILLE	IN	N	46375	0.1	0.0	0.1	0.0	0.0	0.0	NR	NR	NR
[redacted]	WHITING	IN	N	46394	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
[redacted]	BREMEN	IN	N	46506	0.0	0.3	0.3	0.0	0.3	0.3	NR	NR	NR
[redacted]	GOSHEN	IN	N	46526	NR	NR	NR	NR	NR	NR	0.0	4.2	4.2
[redacted]	MIDDLEBURY	IN	N	46540	NR	NR	NR	0.0	3.2	3.2	0.0	5.4	5.4
[redacted]	MISHAWAKA	IN	N	46545	NR	NR	NR	0.0	8.2	8.2	NR	NR	NR
[redacted]	WARSAW	IN	N	46580	0.0	0.0	0.1	0.0	0.0	0.1	NR	NR	NR
[redacted]	ASHLEY	IN	N	46705	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR
[redacted]	BUTLER	IN	N	46721	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
[redacted]	BUTLER	IN	N	46721	0.0	31.0	31.0	0.0	29.8	29.8	0.0	24.4	24.4
[redacted]	ROANOKE	IN	N	46783	0.5	7.0	7.5	0.7	11.5	12.2	0.7	14.5	15.2
[redacted]	SAINT JOE	IN	N	46785	4.2	1.7	5.9	3.6	2.8	6.4	2.9	5.4	8.2
[redacted]	AURORA	IN	N	47001	0.0	107.6	107.6	0.0	68.2	68.2	NR	NR	NR
[redacted]	BATESVILLE	IN	N	47006	0.2	3.3	3.5	0.3	5.0	5.3	0.3	5.1	5.4
[redacted]	COLUMBUS	IN	N	47201	0.0	5.3	5.3	0.0	7.0	7.0	0.0	6.0	6.0
[redacted]	PORTLAND	IN	N	47371	NR	NR	NR	0.4	0.0	0.4	0.4	0.0	0.4
[redacted]	BLOOMINGTON	IN	N	47404	0.0	11.0	11.0	0.0	11.0	11.0	0.0	6.5	6.5
[redacted]	ASHLEY	IN	N	46705	0.5	4.4	4.8	1.1	9.1	10.1	0.6	5.4	6.0
[redacted]	MOUNT VERNON	IN	N	47620	2.7	1.7	4.4	1.3	0.8	2.1	3.2	2.1	5.3
[redacted]	NEWBURGH	IN	N	47629	0.0	14.5	14.5	0.0	7.0	7.0	0.0	8.5	8.5
[redacted]	PRINCETON	IN	N	47670	9.8	6.3	16.1	10.3	13.8	24.2	12.6	5.4	18.0
[redacted]	EVANSVILLE	IN	N	47710	1.9	6.8	8.7	11.2	2.8	13.9	11.7	3.7	15.4
[redacted]	BRAZIL	IN	N	47834	NR	NR	NR	0.1	0.3	0.4	0.6	2.3	2.9
[redacted]	LAFAYETTE	IN	N	47905	0.2	21.9	22.1	0.4	35.3	35.7	0.3	29.3	29.6
[redacted]	CRAWFORDSVILLE	IN	N	47933	10.0	3.7	13.8	13.8	5.2	19.0	15.7	5.9	21.6

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[redacted]	CRAWFORDSVILLE	IN	N	47933	5.1	4.8	9.9	6.8	0.3	7.1	6.3	0.3	6.6
	KENTLAND	IN	N	47951	0.3	3.1	3.4	NR	NR	NR	NR	NR	NR
	MONTICELLO	IN	N	47960	26.0	10.0	36.0	12.5	16.0	28.5	14.5	18.5	33.0
	VEEDERSBURG	IN	N	47987	0.0	2.3	2.4	NR	NR	NR	NR	NR	NR
	LAKE ORION	MI	N	48359	6.5	0.8	7.3	NR	NR	NR	0.9	0.9	1.8
	LAKE ORION	MI	N	48359	NR	NR	NR	NR	NR	NR	0.0	2.2	2.2
	PONTIAC	MI	N	48341	0.3	3.1	3.4	NR	NR	NR	NR	NR	NR
	MADISON HEIGHTS	MI	N	48071	0.0	7.4	7.4	0.0	11.8	11.8	0.0	12.4	12.4
	STERLING HEIGHTS	MI	N	48313	2.0	0.8	2.9	3.2	1.3	4.5	4.4	1.8	6.2
	STERLING HEIGHTS	MI	N	48314	0.0	0.8	0.8	NR	NR	NR	NR	NR	NR
	WARREN	MI	N	48091	6.0	0.7	6.7	5.5	0.4	5.9	8.5	0.2	8.7
	BELLEVILLE	MI	N	48111	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR
	DEARBORN	MI	Y	48121	3.8	85.0	88.8	1.5	65.0	66.5	1.2	65.0	66.2
	FLAT ROCK	MI	N	48134	0.0	12.6	12.6	0.5	4.8	5.3	0.2	4.7	4.9
	ROMULUS	MI	N	48174	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.1
	SALINE	MI	N	48176	NR	NR	NR	NR	NR	NR	0.1	3.5	3.6
	WAYNE	MI	N	48184	0.1	8.5	8.6	0.1	11.0	11.1	NR	NR	NR
	WAYNE	MI	N	48184	0.0	0.0	0.0	0.0	0.3	0.3	0.1	6.0	6.1
	WAYNE	MI	N	48184	NR	NR	NR	0.1	0.0	0.1	0.1	0.0	0.1
	DETROIT	MI	N	48207	NR	NR	NR	0.0	5.4	5.4	0.0	7.4	7.4
	DETROIT	MI	N	48215	6.5	20.0	26.5	4.1	31.5	35.6	6.0	50.0	56.0
	DETROIT	MI	N	48228	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	REDFORD	MI	N	48239	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	DETROIT	MI	N	48234	0.1	0.0	0.1	NR	NR	NR	NR	NR	NR
	FLINT	MI	N	48552	0.3	35.5	35.8	0.5	24.5	25.0	0.7	25.5	26.2

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

					2009			2010			2011		
Facility	City	State	Completed Survey	Zip Code	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)
[redacted]	LANSING	MI	N	48917	0.2	8.5	8.7	0.5	23.0	23.5	0.6	24.0	24.6
	LANSING	MI	N	48921	3.6	3.1	6.7	3.5	4.1	7.6	2.6	3.2	5.8
	KALAMAZOO	MI	N	49007	NR	NR	NR	NR	NR	NR	0.0	8.6	8.6
	WHITE PIGEON	MI	N	49099	0.0	18.3	18.3	0.0	26.3	26.3	0.0	16.1	16.1
	JACKSON	MI	N	49203	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	ADRIAN	MI	N	49221	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	CALEDONIA	MI	N	49316	0.2	0.1	0.3	NR	NR	NR	NR	NR	NR
	MIDDLEVILLE	MI	N	49333	0.0	5.8	5.8	0.0	6.3	6.3	0.0	7.1	7.1
	NEWAYGO	MI	N	49337	NR	NR	NR	1.1	2.7	3.8	1.5	1.2	2.7
	MUSKEGON HEIGHTS	MI	N	49444	NR	NR	NR	0.1	0.0	0.1	0.3	0.0	0.3
	GRAND RAPIDS	MI	N	49503	NR	NR	NR	NR	NR	NR	0.0	0.4	0.4
	CADILLAC	MI	N	49601	NR	NR	NR	NR	NR	NR	0.1	0.0	0.1
	ANKENY	IA	N	50023	NR	NR	NR	0.0	7.0	7.0	0.0	21.2	21.2
	KNOXVILLE	IA	N	50138	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	PELLA	IA	N	50219	0.1	14.4	14.6	0.1	20.3	20.4	0.1	19.4	19.5
	FORT DODGE	IA	N	50501	NR	NR	NR	0.0	6.5	6.5	0.0	13.7	13.7
	CEDAR FALLS	IA	N	50613	0.0	6.0	6.0	0.0	5.7	5.7	NR	NR	NR
	ORANGE CITY	IA	N	51041	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	CARROLL	IA	N	51401	NR	NR	NR	0.0	5.1	5.1	0.0	5.6	5.6
	MISSOURI VALLEY	IA	N	51555	0.0	6.0	6.0	0.0	7.8	7.8	0.0	5.5	5.5
	CEDAR RAPIDS	IA	N	52404	NR	NR	NR	0.6	0.0	0.6	NR	NR	NR
	BURLINGTON	IA	N	52601	0.2	5.5	5.7	0.2	8.0	8.2	0.2	11.0	11.2
	MUSCATINE	IA	N	52761	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	CHILTON	WI	N	53014	NR	NR	NR	NR	NR	NR	6.3	0.0	6.3
	CHILTON	WI	N	53014	0.9	4.3	5.3	0.9	4.9	5.8	0.2	5.0	5.3
	HARTFORD	WI	N	53027	0.1	10.6	10.8	0.1	7.6	7.7	0.1	8.7	8.8
	HARTFORD	WI	N	53027	12.0	0.4	12.4	13.5	0.4	13.9	11.5	0.4	11.9
	HORICON	WI	N	53032	NR	NR	NR	NR	NR	NR	0.0	5.5	5.5
	LOMIRA	WI	N	53048	NR	NR	NR	2.6	0.3	2.8	4.8	0.5	5.4

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					2009			2010			2011		
Facility	City	State	Completed Survey	Zip Code	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)
[redacted]	MENOMONEE FALLS	WI	N	53051	NR	NR	NR	0.3	0.0	0.3	0.4	0.0	0.4
	OCONOMOWOC	WI	N	53066	1.8	7.1	8.8	1.7	8.3	10.0	1.3	5.2	6.5
	OCONOMOWOC	WI	N	53066	NR	NR	NR	NR	NR	NR	0.0	0.6	0.6
	SHEBOYGAN FALLS	WI	N	53085	0.0	13.1	13.1	0.0	13.9	13.9	0.0	12.7	12.7
	SUSSEX	WI	N	53089	8.3	0.9	9.2	8.6	1.0	9.6	11.6	1.3	12.9
	WATERTOWN	WI	N	53094	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	NEW BERLIN	WI	N	53151	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	OAK CREEK	WI	N	53154	NR	NR	NR	0.0	20.3	20.3	0.0	18.6	18.6
	OAK CREEK	WI	N	53154	15.5	0.4	15.9	25.2	0.4	25.6	35.2	0.4	35.6
	TWIN LAKES	WI	N	53181	NR	NR	NR	0.0	0.8	0.8	0.0	1.4	1.4
	WAUKESHA	WI	N	53186	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	SAINT FRANCIS	WI	N	53235	0.0	6.6	6.6	0.0	7.1	7.1	0.0	9.8	9.8
	MILWAUKEE	WI	N	53207	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	MILWAUKEE	WI	N	53209	NR	NR	NR	0.1	0.0	0.1	0.1	0.0	0.1
	MILWAUKEE	WI	N	53212	0.0	14.9	14.9	0.0	15.5	15.5	NR	NR	NR
	WEST ALLIS	WI	N	53214	NR	NR	NR	3.2	0.1	3.3	3.4	0.1	3.5
	MILWAUKEE	WI	N	53223	0.4	0.0	0.4	0.3	0.0	0.3	NR	NR	NR
	MILWAUKEE	WI	N	53224	9.1	0.0	9.1	9.3	0.0	9.3	9.4	0.0	9.4
	MILWAUKEE	WI	N	53224	35.5	7.0	42.5	29.0	9.0	38.0	27.5	7.5	35.0
	MILWAUKEE	WI	N	53226	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	STURTEVANT	WI	N	53177	NR	NR	NR	NR	NR	NR	0.3	0.0	0.3
	FORT ATKINSON	WI	N	53538	3.6	11.0	14.6	3.9	17.0	20.9	3.5	8.5	12.0
	BARABOO	WI	N	53913	NR	NR	NR	NR	NR	NR	4.2	0.2	4.4
	BARABOO	WI	N	53913	0.0	29.8	29.8	0.0	30.6	30.6	0.0	25.7	25.7
	MARINETTE	WI	N	54143	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	MANITOWOC	WI	N	54220	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	PLOVER	WI	Y	54467	10.8	40.0	50.8	7.6	27.8	35.4	1.3	3.2	4.5
	LA CROSSE	WI	Y	54603	22.8	1.7	24.5	22.1	1.7	23.8	24.0	1.8	25.8
	TOMAH	WI	N	54660	0.0	2.0	2.0	0.0	3.3	3.3	NR	NR	NR
	TOMAH	WI	N	54660	NR	NR	NR	NR	NR	NR	0.0	5.4	5.4
	MENOMONIE	WI	N	54751	1.5	5.8	7.3	1.6	6.3	7.9	1.6	6.2	7.8
	OSHKOSH	WI	N	54903	0.6	0.0	0.6	NR	NR	NR	NR	NR	NR

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[redacted]	WAUPACA	WI	N	54981	0.4	4.0	4.5	0.9	7.7	8.6	1.0	9.4	10.4
	LAKEVILLE	MN	N	55044	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	OWATONNA	MN	Y	55060	29.3	87.7	117.1	30.7	91.9	122.6	31.9	95.7	127.6
	RED WING	MN	N	55066	0.0	22.8	22.8	0.0	27.6	27.6	0.0	24.4	24.4
	SAINT PAUL	MN	Y	55107	14.0	79.5	93.5	13.4	76.1	89.5	11.8	67.0	78.8
	SAINT PAUL	MN	N	55116	0.4	3.0	3.4	0.4	4.2	4.6	0.1	7.0	7.1
	ROSEMOUNT	MN	N	55068	0.8	0.0	0.8	0.6	0.0	0.6	NR	NR	NR
	HOPKINS	MN	N	55343	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	MAPLE GROVE	MN	N	55369	NR	NR	NR	NR	NR	NR	3.9	0.1	4.0
	WACONIA	MN	N	55387	0.0	5.1	5.1	NR	NR	NR	NR	NR	NR
	MINNEAPOLIS	MN	N	55416	NR	NR	NR	NR	NR	NR	0.0	6.3	6.3
	WASECA	MN	N	56093	4.3	0.1	4.3	4.4	0.1	4.5	6.7	0.1	6.8
	COTTONWOOD	MN	N	56229	0.5	4.8	5.3	NR	NR	NR	NR	NR	NR
	SAINT CLOUD	MN	N	56303	4.6	0.1	4.7	7.1	0.3	7.3	5.7	0.2	5.9
	YANKTON	SD	N	57078	0.0	24.4	24.4	0.0	6.3	6.3	0.0	2.4	2.4
	GWINNER	ND	N	58040	NR	NR	NR	0.0	6.0	6.0	NR	NR	NR
	ELK GROVE VILLAGE	IL	N	60007	1.4	5.4	6.8	2.1	8.4	10.4	1.8	7.0	8.8
	ELK GROVE VILLAGE	IL	N	60007	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	ELK GROVE VILLAGE	IL	N	60007	0.0	0.5	0.5	0.0	0.3	0.3	NR	NR	NR
	DES PLAINES	IL	N	60016	NR	NR	NR	0.0	0.4	0.4	NR	NR	NR
	LAKE BLUFF	IL	N	60044	0.1	5.0	5.1	NR	NR	NR	NR	NR	NR
	WOODSTOCK	IL	N	60098	4.0	0.1	4.1	3.9	0.1	4.0	6.1	0.1	6.3
	ADDISON	IL	N	60101	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	ELGIN	IL	N	60120	1.7	8.5	10.2	0.9	7.5	8.4	0.4	1.4	1.8
	ELGIN	IL	N	60123	NR	NR	NR	0.0	0.2	0.2	NR	NR	NR
	FRANKLIN PARK	IL	N	60131	NR	NR	NR	NR	NR	NR	0.0	1.7	1.7
	HAMPSHIRE	IL	N	60140	NR	NR	NR	NR	NR	NR	0.3	0.0	0.3
	BROADVIEW	IL	N	60153	2.0	0.1	2.1	NR	NR	NR	NR	NR	NR
	NORTHLAKE	IL	N	60164	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	SYCAMORE	IL	N	60178	NR	NR	NR	0.0	10.1	10.1	0.0	6.7	6.7

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[redacted]	SYCAMORE	IL	N	60178	NR	NR	NR	0.4	0.1	0.4	0.6	0.1	0.6
	CAROL STREAM	IL	N	60188	0.5	2.0	2.5	1.1	4.4	5.5	1.8	7.0	8.8
	ALSIP	IL	N	60803	NR	NR	NR	NR	NR	NR	0.2	0.1	0.3
	CHANNAHON	IL	N	60410	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	CHICAGO HEIGHTS	IL	N	60411	6.3	25.1	31.4	7.5	30.0	37.5	7.2	28.7	35.9
	HARVEY	IL	N	60426	10.0	5.9	15.9	16.1	9.5	25.5	4.3	2.5	6.9
	HOMEWOOD	IL	N	60430	0.0	0.1	0.1	0.0	0.0	0.0	NR	NR	NR
	MIDLOTHIAN	IL	N	60445	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	BRIDGEVIEW	IL	N	60455	0.9	7.6	8.4	1.0	8.6	9.5	0.9	7.5	8.4
	BEDFORD PARK	IL	N	60499	0.0	0.0	0.1	NR	NR	NR	0.0	0.0	0.0
	BEDFORD PARK	IL	N	60501	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	AURORA	IL	N	60504	7.9	1.0	8.9	7.0	0.8	7.8	5.1	0.7	5.8
	WOODRIDGE	IL	N	60517	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	CHICAGO	IL	N	60608	1.0	8.8	9.8	1.1	13.2	14.3	2.7	0.6	3.3
	CHICAGO	IL	N	60609	0.0	25.7	25.7	0.0	43.1	43.1	0.0	33.9	33.9
	CHICAGO	IL	Y	60609	13.6	51.7	65.4	14.2	53.8	68.0	6.5	26.6	33.2
	CHICAGO	IL	N	60623	1.3	5.9	7.2	1.5	9.7	11.2	0.9	9.9	10.8
	CHICAGO	IL	N	60623	4.4	2.9	7.3	6.8	18.7	25.5	7.2	15.7	23.0
	CHICAGO	IL	N	60623	1.1	9.1	10.2	1.2	10.1	11.3	1.4	10.9	12.3
	CHICAGO	IL	N	60624	1.4	5.3	6.7	0.8	3.8	4.7	1.1	4.4	5.4
	CHICAGO	IL	N	60632	NR	NR	NR	0.7	5.8	6.5	0.9	7.9	8.8
	ALSIP	IL	N	60803	1.6	3.9	5.5	2.0	21.3	23.3	4.1	14.6	18.7
	BRADLEY	IL	Y	60915	17.1	51.4	68.6	16.0	48.1	64.1	16.2	48.6	64.8
	BELVIDERE	IL	N	61008	0.1	1.1	1.2	0.8	6.5	7.3	1.2	10.0	11.2
	GALENA	IL	N	61036	NR	NR	NR	NR	NR	NR	12.2	0.0	12.2
	ROCHELLE	IL	N	61068	1.8	1.3	3.1	4.4	1.4	5.8	7.3	3.8	11.0
	ROCKFORD	IL	N	61104	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	CORDOVA	IL	N	61242	0.3	0.0	0.3	0.7	0.1	0.8	NR	NR	NR
	CORDOVA	IL	N	61242	NR	NR	NR	NR	NR	NR	0.4	0.2	0.6
	EAST MOLINE	IL	N	61244	0.3	6.0	6.3	NR	NR	NR	NR	NR	NR
	HILLSDALE	IL	N	61257	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	GALESBURG	IL	N	61401	NR	NR	NR	9.2	0.0	9.2	7.4	0.0	7.4
	PEORIA	IL	N	61615	NR	NR	NR	0.8	0.0	0.8	NR	NR	NR
	GOODFIELD	IL	N	61742	NR	NR	NR	0.1	8.3	8.4	NR	NR	NR

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[redacted]	GOODFIELD	IL	N	61742	NR	NR	NR	NR	NR	NR	1.7	15.1	16.7
	ARTHUR	IL	N	61911	0.0	8.3	8.3	NR	NR	NR	NR	NR	NR
	MATTOON	IL	N	61938	NR	NR	NR	3.2	0.2	3.5	2.0	0.1	2.1
	GRANITE CITY	IL	N	62040	NR	NR	NR	0.3	0.1	0.4	0.4	0.1	0.5
	GRANITE CITY	IL	N	62040	4.5	1.1	5.6	4.5	1.1	5.6	4.2	1.0	5.3
	SAUGET	IL	N	62201	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	SAUGET	IL	N	62201	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	QUINCY	IL	N	62305	0.1	13.0	13.1	0.2	13.4	13.6	0.1	15.9	16.1
	EFFINGHAM	IL	N	62401	6.2	0.0	6.2	3.4	0.4	3.8	2.2	0.3	2.4
	ARNOLD	MO	Y	63010	17.1	27.1	44.2	17.9	28.4	46.3	16.4	25.7	42.0
	FENTON	MO	N	63026	NR	NR	NR	1.6	8.2	9.8	1.4	8.3	9.6
	FENTON	MO	N	63026	5.5	32.0	37.5	NR	NR	NR	NR	NR	NR
	MARYLAND HEIGHTS	MO	N	63043	0.1	0.1	0.3	NR	NR	NR	NR	NR	NR
	MARYLAND HEIGHTS	MO	N	63043	0.1	1.8	1.9	NR	NR	NR	0.1	1.6	1.7
	PACIFIC	MO	N	63069	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	SAINT LOUIS	MO	N	63104	4.8	0.0	4.8	5.8	0.0	5.8	6.3	0.0	6.3
	SAINT LOUIS	MO	N	63111	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	BERKELEY	MO	N	63134	0.1	0.1	0.3	0.0	0.0	0.0	NR	NR	NR
	SAINT LOUIS	MO	N	63147	0.0	0.1	0.1	0.0	0.1	0.1	NR	NR	NR
	SAINT LOUIS	MO	N	63147	NR	NR	NR	NR	NR	NR	0.1	0.1	0.2
	WARRENTON	MO	N	63383	NR	NR	NR	NR	NR	NR	18.5	2.9	21.5
	WENTZVILLE	MO	N	63385	0.9	3.7	4.5	1.3	6.0	7.3	1.1	8.0	9.1
	POPLAR BLUFF	MO	N	63901	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	INDEPENDENCE	MO	N	64051	1.4	3.3	4.7	1.3	3.9	5.2	1.6	2.5	4.1
	CLAYCOMO	MO	Y	64119	2.3	39.5	41.8	1.5	50.0	51.5	1.6	55.0	56.6
	KANSAS CITY	MO	N	64120	4.2	0.1	4.2	NR	NR	NR	NR	NR	NR
	SAINT JOSEPH	MO	N	64504	6.3	2.9	9.2	5.4	3.6	9.0	5.2	3.7	9.0
	OWENSVILLE	MO	N	65066	4.1	1.6	5.8	6.6	1.1	7.7	3.7	1.4	5.1
	MANSFIELD	MO	N	65704	NR	NR	NR	0.0	7.5	7.5	NR	NR	NR

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

					2009			2010			2011		
Facility	City	State	Completed Survey	Zip Code	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)
[redacted]	MONETT	MO	Y	65708	1.2	28.1	29.2	1.0	5.2	6.2	1.1	0.6	1.7
	MONETT	MO	N	65708	NR	NR	NR	0.3	4.8	5.0	NR	NR	NR
	MOUNT VERNON	MO	N	65712	2.6	10.1	12.7	2.4	9.3	11.7	NR	NR	NR
	SPRINGFIELD	MO	N	65802	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	SPRINGFIELD	MO	N	65802	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	SHAWNEE	KS	N	66227	1.6	3.8	5.4	1.7	4.0	5.7	1.1	2.6	3.7
	BAXTER SPRINGS	KS	N	66713	0.0	6.2	6.2	5.9	0.0	5.9	NR	NR	NR
	FREDONIA	KS	N	66736	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR
	IOLA	KS	N	66749	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	WINFIELD	KS	N	67156	0.3	2.3	2.6	0.8	6.8	7.5	2.1	7.0	9.1
	WICHITA	KS	N	67219	NR	NR	NR	0.0	6.1	6.1	0.0	5.9	5.9
	WICHITA	KS	N	67219	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	SALINA	KS	N	67401	0.0	3.5	3.5	NR	NR	NR	NR	NR	NR
	VALLEY	NE	N	68064	NR	NR	NR	NR	NR	NR	5.0	0.0	5.0
	LINCOLN	NE	N	68504	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	LINCOLN	NE	N	68524	0.3	2.9	3.2	0.3	2.7	3.0	NR	NR	NR
	NORFOLK	NE	N	68701	0.8	10.5	11.3	0.3	10.0	10.3	0.3	10.0	10.3
	DAKOTA CITY	NE	N	68731	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR
	RESERVE	LA	N	70084	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	NEW ORLEANS	LA	N	70123	2.7	4.2	6.9	3.4	5.3	8.7	1.4	8.1	9.6
	BROUSSARD	LA	N	70518	NR	NR	NR	0.1	0.0	0.1	NR	NR	NR
	NEW IBERIA	LA	N	70560	NR	NR	NR	1.4	0.0	1.4	1.5	0.0	1.5
	SCOTT	LA	N	70583	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	SAINT GABRIEL	LA	N	70776	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	ZACHARY	LA	N	70791	4.7	0.4	5.1	5.1	0.5	5.5	4.8	0.6	5.4
	BATON ROUGE	LA	N	70815	0.2	0.0	0.2	0.2	0.0	0.2	NR	NR	NR
	SHREVEPORT	LA	N	71129	0.1	6.0	6.1	0.1	3.7	3.7	0.1	2.5	2.6
	ALEXANDRIA	LA	N	71303	0.0	0.1	0.1	NR	NR	NR	NR	NR	NR

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[redacted]	WHITE HALL	AR	N	71602	0.0	9.9	9.9	0.0	10.1	10.1	0.0	8.5	8.5
[redacted]	PINE BLUFF	AR	N	71602	NR	NR	NR	6.5	0.0	6.5	6.0	0.0	6.0
[redacted]	EL DORADO	AR	N	71730	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
[redacted]	MAGNOLIA	AR	N	71753	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
[redacted]	BENTON	AR	N	72015	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
[redacted]	SEARCY	AR	N	72143	NR	NR	NR	0.1	0.1	0.3	NR	NR	NR
[redacted]	BLYTHEVILLE	AR	N	72315	NR	NR	NR	NR	NR	NR	11.2	0.0	11.2
[redacted]	HELENA	AR	N	72342	NR	NR	NR	0.0	0.3	0.3	0.0	0.2	0.2
[redacted]	JONESBORO	AR	N	72401	NR	NR	NR	NR	NR	NR	3.6	2.3	5.9
[redacted]	PIGGOTT	AR	N	72454	0.2	14.2	14.4	0.2	13.2	13.3	0.1	5.4	5.5
[redacted]	FAYETTEVILLE	AR	N	72701	NR	NR	NR	0.0	7.3	7.3	0.0	11.0	11.0
[redacted]	ROGERS	AR	N	72756	NR	NR	NR	0.0	6.7	6.7	0.0	12.9	12.9
[redacted]	SPRINGDALE	AR	N	72764	4.8	5.3	10.1	3.4	4.8	8.2	4.1	5.9	10.0
[redacted]	FORT SMITH	AR	N	72916	NR	NR	NR	NR	NR	NR	0.0	13.2	13.2
[redacted]	EL RENO	OK	N	73036	NR	NR	NR	0.0	7.4	7.4	0.0	7.5	7.5
[redacted]	EL RENO	OK	N	73036	NR	NR	NR	0.4	0.0	0.4	0.2	0.0	0.2
[redacted]	TINKER A F B	OK	N	73145	1.6	4.2	5.8	1.3	6.0	7.3	1.9	3.2	5.1
[redacted]	OKLAHOMA CITY	OK	Y	73179	5.0	28.5	33.5	NR	NR	NR	NR	NR	NR
[redacted]	WAYNOKA	OK	N	73860	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
[redacted]	SAND SPRINGS	OK	N	74063	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
[redacted]	TULSA	OK	N	74131	0.0	0.0	0.0	NR	NR	NR	0.0	0.0	0.0
[redacted]	TULSA	OK	N	74147	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
[redacted]	PONCA CITY	OK	N	74601	0.2	23.6	23.9	0.2	20.4	20.6	0.2	19.7	19.9
[redacted]	SHAWNEE	OK	N	74804	0.4	23.0	23.4	0.4	21.5	21.9	0.4	18.7	19.1
[redacted]	CARROLLTON	TX	N	75006	NR	NR	NR	0.0	0.1	0.1	NR	NR	NR
[redacted]	CARROLLTON	TX	N	75006	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
[redacted]	GARLAND	TX	N	75041	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
[redacted]	MESQUITE	TX	N	75149	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
[redacted]	TERRELL	TX	N	75160	2.8	14.9	17.7	3.2	13.4	16.6	0.0	15.3	15.3
[redacted]	WAXAHACHIE	TX	N	75165	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
[redacted]	WAXAHACHIE	TX	N	75165	0.4	0.0	0.4	NR	NR	NR	NR	NR	NR

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[redacted]	WAXAHACHIE	TX	N	75165	0.0	0.2	0.2	NR	NR	NR	NR	NR	NR
	DALLAS	TX	N	75244	0.0	0.9	0.9	NR	NR	NR	NR	NR	NR
	PARIS	TX	N	75460	4.9	3.2	8.2	4.0	2.9	7.0	3.4	3.2	6.7
	TEXARKANA	TX	N	75501	0.0	0.6	0.6	NR	NR	NR	NR	NR	NR
	LONGVIEW	TX	N	75604	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	LONGVIEW	TX	Y	75604	17.7	49.3	67.0	14.4	43.0	57.5	4.8	47.7	52.5
	LONGVIEW	TX	N	75602	12.0	1.8	13.8	12.1	2.5	14.6	12.3	3.1	15.3
	GILMER	TX	N	75644	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	KILGORE	TX	N	75662	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	KILGORE	TX	N	75662	0.2	0.0	0.2	NR	NR	NR	NR	NR	NR
	LONGVIEW	TX	N	75662	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	KILGORE	TX	N	75662	NR	NR	NR	0.0	0.1	0.1	0.0	0.1	0.1
	GRAPELAND	TX	N	75844	0.2	16.3	16.4	0.2	13.3	13.5	4.3	7.9	12.2
	LUFKIN	TX	N	75904	7.1	0.0	7.1	8.3	0.0	8.3	NR	NR	NR
	CRESSON	TX	N	76035	0.1	0.0	0.1	NR	NR	NR	NR	NR	NR
	MANSFIELD	TX	N	76063	NR	NR	NR	NR	NR	NR	0.2	0.1	0.3
	FORT WORTH	TX	N	76140	5.5	7.5	13.0	5.5	8.0	13.5	5.5	7.0	12.5
	MEXIA	TX	N	76667	NR	NR	NR	0.0	10.7	10.7	NR	NR	NR
	HOUSTON	TX	N	77007	0.0	0.7	0.7	0.0	0.7	0.7	NR	NR	NR
	HOUSTON	TX	N	77015	4.8	0.3	5.1	4.6	0.3	4.8	4.4	0.2	4.7
	HOUSTON	TX	N	77041	0.1	1.4	1.5	NR	NR	NR	NR	NR	NR
	HOUSTON	TX	N	77041	NR	NR	NR	0.4	0.5	0.9	0.4	0.4	0.8
	HOUSTON	TX	N	77043	NR	NR	NR	4.6	0.0	4.6	4.6	0.1	4.7
	HOUSTON	TX	N	77047	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	HOUSTON	TX	N	77054	2.3	0.0	2.3	1.2	0.0	1.2	NR	NR	NR
	HOUSTON	TX	N	77060	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	HOUSTON	TX	N	77092	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0

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[redacted]	CONROE	TX	N	77301	NR	NR	NR	0.4	10.1	10.6	1.0	6.0	6.9
	CONROE	TX	N	77303	14.0	4.6	18.6	14.0	4.6	18.6	13.0	4.2	17.2
	CONROE	TX	N	77303	29.3	4.8	34.1	30.8	5.0	35.9	27.6	4.5	32.1
	TOMBALL	TX	N	77375	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	SUGAR LAND	TX	N	77478	28.0	4.2	32.2	28.1	4.2	32.3	27.4	4.1	31.5
	SUGAR LAND	TX	N	77478	NR	NR	NR	NR	NR	NR	0.1	0.0	0.1
	PASADENA	TX	N	77503	12.7	8.0	20.7	12.8	8.8	21.6	15.0	8.8	23.8
	PASADENA	TX	N	77507	6.8	0.0	6.8	6.7	0.7	7.4	5.1	0.2	5.2
	BAYTOWN	TX	N	77520	0.1	0.0	0.1	0.1	0.0	0.1	NR	NR	NR
	CROSBY	TX	N	77532	NR	NR	NR	NR	NR	NR	0.1	0.1	0.3
	DEER PARK	TX	N	77536	0.0	0.0	0.0	0.1	0.0	0.1	NR	NR	NR
	LA PORTE	TX	N	77571	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR
	FRESNO	TX	N	77545	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	LA PORTE	TX	N	77571	4.1	0.1	4.2	1.7	0.5	2.1	4.5	0.5	5.0
	LA PORTE	TX	N	77571	0.6	0.0	0.6	NR	NR	NR	NR	NR	NR
	TEXAS CITY	TX	N	77590	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR
	ORANGE	TX	N	77630	NR	NR	NR	0.1	0.0	0.1	0.0	0.1	0.1
	PORT NECHES	TX	N	77651	NR	NR	NR	0.0	0.1	0.1	0.0	0.1	0.1
	BRYAN	TX	N	77807	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	NAVASOTA	TX	N	77868	0.8	0.3	1.1	4.9	0.5	5.4	0.1	0.1	0.2
	SEADRIFT	TX	N	77983	13.9	3.1	17.0	13.9	3.5	17.5	14.2	3.5	17.7
	ELMENDORF	TX	N	78112	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	SAN ANTONIO	TX	N	78264	5.2	3.4	8.6	2.4	0.4	2.8	6.8	3.1	9.9
	ROBSTOWN	TX	N	78380	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	CORPUS CHRISTI	TX	N	78405	0.1	0.0	0.1	0.1	0.0	0.1	NR	NR	NR
	AMARILLO	TX	N	79108	0.1	0.0	0.1	NR	NR	NR	0.0	0.0	0.0
	GARDENDALE	TX	N	79758	NR	NR	NR	NR	NR	NR	1.4	0.0	1.4
	ODESSA	TX	N	79762	NR	NR	NR	0.2	0.0	0.2	0.3	0.0	0.3
	HOUSTON	TX	N	77061	0.0	0.0	0.0	NR	NR	NR	0.1	0.1	0.3
	ODESSA	TX	N	79765	0.0	0.1	0.1	NR	NR	NR	NR	NR	NR
	DENVER	CO	N	80216	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	DENVER	CO	N	80216	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	GOLDEN	CO	N	80401	30.5	6.0	36.5	29.5	6.0	35.5	26.5	7.0	33.5

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[redacted]	GOLDEN	CO	N	80403	21.0	10.5	31.5	19.5	9.5	29.0	20.0	11.5	31.5
	LONGMONT	CO	N	80501	3.1	1.9	5.0	3.0	1.9	4.9	3.3	1.7	5.0
	WINDSOR	CO	Y	80550	15.1	42.4	57.5	14.9	40.1	55.0	14.5	39.7	54.3
	COLORADO SPRINGS	CO	N	80916	NR	NR	NR	0.3	0.1	0.5	0.5	0.2	0.6
	GRAND JUNCTION	CO	N	81505	NR	NR	NR	NR	NR	NR	0.0	4.8	4.8
	SINCLAIR	WY	N	82334	0.0	0.0	0.0	NR	NR	NR	0.0	0.0	0.0
	WORLAND	WY	N	82401	11.1	33.4	44.5	12.8	38.3	51.1	13.3	40.0	53.3
	CLEARFIELD	UT	N	84016	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	HILL AFB	UT	N	84056	0.9	0.7	1.6	NR	NR	NR	NR	NR	NR
	LOGAN	UT	N	84321	0.1	1.1	1.2	0.4	3.9	4.3	0.6	5.3	5.9
	PHOENIX	AZ	Y	85043	5.2	34.4	39.6	5.2	33.0	38.2	5.7	36.2	41.9
	PHOENIX	AZ	N	85043	0.0	0.1	0.1	NR	NR	NR	NR	NR	NR
	MESA	AZ	N	85210	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	CHANDLER	AZ	N	85226	0.1	0.0	0.2	NR	NR	NR	NR	NR	NR
	GOODYEAR	AZ	N	85338	NR	NR	NR	NR	NR	NR	0.2	0.0	0.2
	YUMA	AZ	N	85369	0.1	0.0	0.1	NR	NR	NR	NR	NR	NR
	FERNLEY	NV	N	89408	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	WINNEMUCCA	NV	N	89445	NR	NR	NR	0.0	7.5	7.5	0.0	5.0	5.0
	RENO	NV	N	89512	1.5	0.2	1.7	1.8	0.0	1.8	NR	NR	NR
	CITY OF COMMERCE	CA	N	90040	0.0	0.0	0.0	NR	NR	NR	0.0	0.0	0.0
	VERNON	CA	N	90058	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	LYNWOOD	CA	N	90262	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	TORRANCE	CA	N	90503	31.0	2.7	33.7	29.0	3.0	32.0	16.0	0.7	16.7
	TORRANCE	CA	N	90509	NR	NR	NR	0.1	0.0	0.1	0.0	0.0	0.0
	LA MIRADA	CA	N	90638	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	LOS ALAMITOS	CA	N	90720	1.8	0.1	1.9	NR	NR	NR	NR	NR	NR
	TERMINAL ISLAND	CA	N	90731	6.2	0.6	6.7	4.1	0.4	4.5	3.8	0.4	4.2

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[redacted]	SAN PEDRO	CA	N	90731	NR	NR	NR	NR	NR	NR	0.1	0.0	0.1
	CARSON	CA	N	90745	0.0	8.5	8.5	0.0	7.2	7.2	NR	NR	NR
	LONG BEACH	CA	N	90810	NR	NR	NR	0.0	0.1	0.1	NR	NR	NR
	CHATSWORTH	CA	Y	91311	14.3	40.3	54.6	8.9	35.5	44.4	6.4	22.6	29.0
	AZUSA	CA	N	91702	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	RANCHO CUCAMONGA	CA	N	91730	NR	NR	NR	0.6	0.4	0.9	0.5	0.4	0.9
	SOUTH EL MONTE	CA	N	91733	0.0	0.0	0.1	0.0	0.0	0.1	NR	NR	NR
	MIRA LOMA	CA	N	91752	29.0	3.8	32.8	28.5	3.7	32.3	27.5	3.7	31.2
	ONTARIO	CA	N	91761	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	SAN MARCOS	CA	N	92078	0.0	2.1	2.1	NR	NR	NR	0.0	0.3	0.3
	IRVINE	CA	N	92618	NR	NR	NR	NR	NR	NR	0.0	0.0	0.0
	SANTA ANA	CA	N	92704	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	SANTA ANA	CA	N	92704	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	SANTA ANA	CA	N	92704	NR	NR	NR	NR	NR	NR	0.1	0.1	0.2
	BAKERSFIELD	CA	N	93308	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	BAKERSFIELD	CA	N	93308	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR
	SAN CARLOS	CA	N	94070	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	FAIRFIELD	CA	N	94533	12.5	19.0	31.5	7.5	12.0	19.5	9.0	12.5	21.5
	FAIRFIELD	CA	Y	94533	5.5	8.5	14.0	5.4	3.9	9.4	5.3	3.9	9.2
	FREMONT	CA	N	94538	29.7	7.4	37.1	14.6	0.0	14.6	NR	NR	NR
	SAN JOSE	CA	N	95131	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	SAN JOSE	CA	N	95133	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	MERCED	CA	N	95348	6.5	1.1	7.6	4.6	1.3	5.9	0.2	0.7	0.8
	OAKDALE	CA	N	95361	0.8	4.7	5.4	0.1	3.9	4.0	0.2	3.4	3.6
	RIVERBANK	CA	N	95367	0.2	3.9	4.1	0.3	4.4	4.7	0.6	7.2	7.8
	DIXON	CA	N	95620	4.7	0.0	4.7	5.6	0.0	5.6	4.4	0.0	4.4
	ROSEVILLE	CA	N	95678	0.0	0.3	0.3	NR	NR	NR	NR	NR	NR
	SACRAMENTO	CA	N	95824	NR	NR	NR	NR	NR	NR	0.1	0.0	0.1

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

					2009			2010			2011		
Facility	City	State	Completed Survey	Zip Code	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)	Fugitive Air Emissions (tpy)	Point Source Air Emissions (tpy)	Total Air Emissions (tpy)
[redacted]	SACRAMENTO	CA	N	95824	4.9	0.4	5.3	5.2	0.9	6.1	4.4	0.6	5.0
	SACRAMENTO	CA	N	95826	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR
	KAPOLEI	HI	N	96707	2.2	10.5	12.7	2.3	10.5	12.8	2.0	9.0	11.0
	PORTLAND	OR	N	97210	NR	NR	NR	0.0	0.1	0.1	0.0	0.1	0.1
	PORTLAND	OR	N	97210	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR
	PORTLAND	OR	N	97227	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR
	AUBURN	WA	N	98002	NR	NR	NR	0.1	0.0	0.1	0.1	0.0	0.1
	KENT	WA	Y	98032	13.2	74.8	88.0	12.5	70.6	83.1	12.4	70.5	82.9
	EVERETT	WA	N	98204	1.6	14.0	15.6	2.0	9.0	11.0	3.5	17.0	20.5
	TACOMA	WA	N	98421	NR	NR	NR	0.0	0.0	0.0	0.0	0.0	0.0
	OLYMPIA	WA	Y	98501	17.1	51.3	68.4	19.4	58.3	77.7	16.0	48.0	64.0
	ELMENDORF AFB	AK	N	99506	NR	NR	NR	0.0	0.0	0.0	NR	NR	NR

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	AGUADILLA	PR	N	00605	Default	Default	Default	0.20	0.05	0.07	Out	Out	Out
	CAROLINA	PR	N	00985	Default	Default	Default	0.75	0.69	0.60	Out	Out	Out
	MANATI	PR	N	00674	Default	Default	Default	NR	0.002	NR	Out	Out	Out
	CHRISTIANSTED	V Isl	N	00820	Default	Default	Default	0.01	0.03	NR	Out	Out	Out
	EAST LONGMEADOW	MA	N	01028	Default	Default	Default	NR	0.08	NR	Out	Out	Out
	DUDLEY	MA	N	01571	Default	Default	Default	0.00	0.0001	NR	Out	Out	Out
	LAWRENCE	MA	N	01841	Default	Default	Default	NR	0.03	0.04	Out	Out	Out
	LAWRENCE	MA	N	01843	Default	Default	Default	0.00	0.0003	NR	Out	Out	Out
	LAWRENCE	MA	Y	01843	8.7	34	0.905	4.31	3.75	4.19	Retain	Retain	Retain
	NEWBURYPORT	MA	N	01950	Default	Default	Default	NR	NR	0.0019	Out	Out	Out
	WARWICK	RI	N	02886	Default	Default	Default	NR	0.00004	0.0000	Out	Out	Out
	CRANSTON	RI	N	02920	Default	Default	Default	NR	0.12	0.12	Out	Out	Out
	MEREDITH	NH	N	03253	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	SEABROOK	NH	N	03874	Default	Default	Default	NR	NR	0.0011	Out	Out	Out
	WESTBROOK	ME	N	04098	Default	Default	Default	0.32	0.50	0.74	Out	Out	Out
	BUCKSPORT	ME	N	4416	Default	Default	Default	NR	0.00001	NR	Out	Out	Out
	HARTLAND	ME	N	04943	Default	Default	Default	0.12	0.10	NR	Out	Out	Out
	NEW BRITAIN	CT	N	06052	Default	Default	Default	0.21	0.23	0.24	Out	Out	Out
	LINDEN	NJ	N	07036	Default	Default	Default	0.0001	0.0001	NR	Out	Out	Out
	LINDEN	NJ	N	07036	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	WOODBRIDGE	NJ	N	07095	Default	Default	Default	0.06	0.15	0.19	Out	Out	Out
	NEWARK	NJ	N	07105	Default	Default	Default	NR	0.00004	0.00005	Out	Out	Out
	NEWARK	NJ	N	07105	Default	Default	Default	0.02	NR	0.01	Out	Out	Out
	WAYNE	NJ	N	07470	Default	Default	Default	0.0001	0.0001	NR	Out	Out	Out
	BELVIDERE	NJ	N	07823	Default	Default	Default	0.0004	0.0004	NR	Out	Out	Out
	DEEPWATER	NJ	N	08023	Default	Default	Default	0.005	NR	0.0048	Out	Out	Out
	PALMYRA	NJ	N	08065	Default	Default	Default	0.0001	NR	NR	Out	Out	Out
	EDISON	NJ	N	08817	Default	Default	Default	0.25	0.18	0.17	Out	Out	Out
	PERTH AMBOY	NJ	N	08861	Default	Default	Default	NR	0.01	0.01	Out	Out	Out
	SOMERVILLE	NJ	N	08876	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	MIDDLETOWN	NY	Y	10940	15	122	0.98	0.24	0.26	0.32	Out	Out	Out
	EAST SETAUKET	NY	N	11733	Default	Default	Default	NR	0.0003	0.0003	Out	Out	Out
	HAUPPAUGE	NY	N	11788	Default	Default	Default	0.07	NR	NR	Out	Out	Out
	ALBANY	NY	N	12204	Default	Default	Default	NR	0.00002	NR	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	NEW WINDSOR	NY	Y	12553	12.192	73.152	0.87	1.01	0.93	0.89	Out	Out	Out
	SARATOGA SPRINGS	NY	Y	12866	20	66	1	0.19	0.20	0.19	Out	Out	Out
	SARATOGA SPRINGS	NY	N	12866	Default	Default	Default	0.21	NR	0.14	Out	Out	Out
	LOWVILLE	NY	N	13367	Default	Default	Default	0.12	0.11	0.10	Out	Out	Out
	VERONA	NY	N	13478	Default	Default	Default	NR	NR	0.0001	Out	Out	Out
	AKRON	NY	N	14001	Default	Default	Default	0.16	0.18	0.25	Out	Out	Out
	TONAWANDA	NY	N	14150	Default	Default	Default	NR	0.0001	NR	Out	Out	Out
	MARION	NY	N	14505	Default	Default	Default	0.13	0.14	0.11	Out	Out	Out
	WEST HENRIETTA	NY	N	14586	Default	Default	Default	0.32	0.14	0.17	Out	Out	Out
	CHEMUNG	NY	N	14825	Default	Default	Default	0.29	0.33	0.28	Out	Out	Out
	BUNOLA	PA	N	15020	Default	Default	Default	NR	0.0002	0.0046	Out	Out	Out
	CLAIRTON	PA	N	15025	Default	Default	Default	0.20	0.52	1.48	Out	Out	Out
	LEETSDALE	PA	N	15056	Default	Default	Default	0.00	NR	0.0002	Out	Out	Out
	MC KEESPORT	PA	N	15132	Default	Default	Default	0.01	NR	NR	Out	Out	Out
	SPRINGDALE	PA	N	15144	Default	Default	Default	0.20	0.19	0.21	Out	Out	Out
	WILMERDING	PA	N	15148	Default	Default	Default	0.003	0.0023	NR	Out	Out	Out
	MANNS CHOICE	PA	N	15550	Default	Default	Default	0.28	0.32	0.32	Out	Out	Out
	ELLWOOD CITY	PA	N	16117	Default	Default	Default	NR	0.0000	0.0000	Out	Out	Out
	JAMESTOWN	PA	N	16134	Default	Default	Default	0.01	NR	0.01	Out	Out	Out
	HERMITAGE	PA	N	16148	Default	Default	Default	NR	0.0003	0.0003	Out	Out	Out
	CLARENDON	PA	N	16313	Default	Default	Default	0.18	0.14	0.10	Out	Out	Out
	FRANKLIN	PA	N	16323	Default	Default	Default	0.39	0.42	0.31	Out	Out	Out
	ERIE	PA	N	16502	Default	Default	Default	0.17	NR	NR	Out	Out	Out
	HARRISBURG	PA	N	17104	Default	Default	Default	NR	0.47	0.60	Out	Out	Out
	HANOVER	PA	N	17331	Default	Default	Default	0.28	0.34	0.13	Out	Out	Out
	HANOVER	PA	N	17331	Default	Default	Default	0.55	0.51	0.59	Out	Out	Out
	YORK	PA	N	17404	Default	Default	Default	0.08	NR	NR	Out	Out	Out
	YORK	PA	N	17402	Default	Default	Default	NR	0.04	0.04	Out	Out	Out
	LANCASTER	PA	N	17601	Default	Default	Default	0.25	0.17	0.32	Out	Out	Out
	LANCASTER	PA	N	17601	Default	Default	Default	0.20	0.23	0.28	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	LANCASTER	PA	N	17603	Default	Default	Default	0.04	NR	NR	Out	Out	Out
	ALLENTOWN	PA	N	18106	Default	Default	Default	0.002	0.0005	NR	Out	Out	Out
	SAYRE	PA	N	18840	Default	Default	Default	NR	0.0055	NR	Out	Out	Out
	TOWANDA	PA	N	18848	Default	Default	Default	NR	NR	0.05	Out	Out	Out
	QUAKERTOWN	PA	N	18951	Default	Default	Default	NR	0.04	0.09	Out	Out	Out
	SOUTHAMPTON	PA	N	18966	Default	Default	Default	NR	NR	0.16	Out	Out	Out
	WARMINSTER	PA	N	18974	Default	Default	Default	0.03	0.11	0.17	Out	Out	Out
	CROYDON	PA	N	19021	Default	Default	Default	0.0046	NR	NR	Out	Out	Out
	MORRISVILLE	PA	N	19067	Default	Default	Default	0.0001	NR	0.0008	Out	Out	Out
	PHILADELPHIA	PA	N	19120	Default	Default	Default	0.24	0.17	0.11	Out	Out	Out
	PHILADELPHIA	PA	N	19132	Default	Default	Default	NR	0.0055	0.0048	Out	Out	Out
	BLANDON	PA	N	19510	Default	Default	Default	0.32	0.25	0.16	Out	Out	Out
	DOVER	DE	N	19904	Default	Default	Default	0.14	0.08	0.06	Out	Out	Out
	BELCAMP	MD	N	21017	Default	Default	Default	NR	NR	0.03	Out	Out	Out
	BALTIMORE	MD	N	21221	Default	Default	Default	0.84	0.85	0.86	Out	Out	Out
	BALTIMORE	MD	N	21222	Default	Default	Default	NR	0.0019	0.0026	Out	Out	Out
	WILLIAMSPORT	MD	N	21795	Default	Default	Default	NR	0.0005	0.01	Out	Out	Out
	HAGERSTOWN	MD	N	21742	Default	Default	Default	NR	0.40	0.31	Out	Out	Out
	MANASSAS	VA	N	20109	Default	Default	Default	NR	0.07	0.08	Out	Out	Out
	MONTROSS	VA	N	22520	Default	Default	Default	NR	0.09	0.08	Out	Out	Out
	WINCHESTER	VA	N	22603	Default	Default	Default	0.12	0.20	0.14	Out	Out	Out
	FRONT ROYAL	VA	N	22630	Default	Default	Default	0.0036	NR	0.00	Out	Out	Out
	MIDDLETOWN	VA	N	22645	Default	Default	Default	0.0004	NR	0.00005	Out	Out	Out
	HARRISONBURG	VA	Y	22802	11.2	45	Default	1.56	1.65	1.90	Out	Retain	Retain
	ELKTON	VI	N	22827	Default	Default	Default	0.04	0.01	NR	Out	Out	Out
	ARVONIA	VI	N	23004	Default	Default	Default	0.00001	NR	NR	Out	Out	Out
	WILLIAMSBURG	VA	Y	23185	13.1318	96	0.9656	3.79	4.05	3.93	Retain	Retain	Retain
	RICHMOND	VI	N	23228	Default	Default	Default	NR	0.08	NR	Out	Out	Out
	PETERSBURG	VA	N	23805	Default	Default	Default	0.002	NR	0.0001	Out	Out	Out
	DUBLIN	VI	N	24084	Default	Default	Default	NR	0.13	NR	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	SALEM	VI	N	24153	Default	Default	Default	0.19	NR	NR	Out	Out	Out
	GALAX	VA	N	24333	Default	Default	Default	NR	NR	0.12	Out	Out	Out
	MARION	VA	N	24354	Default	Default	Default	0.21	0.30	0.20	Out	Out	Out
	GROTTOES	VI	N	24441	Default	Default	Default	0.0016	NR	NR	Out	Out	Out
	LYNCHBURG	VA	N	24506	Default	Default	Default	NR	0.0051	0.01	Out	Out	Out
	WEIRTON	WV	N	26062	Default	Default	Default	1.16	0.69	0.43	Out	Out	Out
	WEIRTON	WV	Y	26062	11	12	1	6.59	6.26	6.01	Retain	Retain	Retain
	WEIRTON	WV	N	26062	Default	Default	Default	0.12	0.15	0.06	Out	Out	Out
	CRAIGSVILLE	WV	N	26205	Default	Default	Default	NR	0.07	NR	Out	Out	Out
	WINSTON-SALEM	NC	Y	27107	14	75	0.95	3.86	4.23	3.10	Retain	Retain	Retain
	BURLINGTON	NC	N	27215	Default	Default	Default	0.0051	0.01	NR	Out	Out	Out
	HIGH POINT	NC	N	27261	Default	Default	Default	0.01	NR	NR	Out	Out	Out
	HIGH POINT	NC	N	27263	Default	Default	Default	NR	0.38	0.34	Out	Out	Out
	JAMESTOWN	NC	N	27282	Default	Default	Default	NR	NR	0.0002	Out	Out	Out
	MEBANE	NC	N	27302	Default	Default	Default	0.41	NR	0.11	Out	Out	Out
	REIDSVILLE	NC	Y	27320	16	137	1	1.18	1.45	1.58	Out	Out	Out
	DURHAM	NC	N	27703	Default	Default	Default	0.14	0.14	0.0026	Out	Out	Out
	TARBORO	NC	N	27886	Default	Default	Default	0.32	0.36	0.35	Out	Out	Out
	WILSON	NC	N	27893	Default	Default	Default	NR	0.0000	0.00	Out	Out	Out
	GASTONIA	NC	N	28052	Default	Default	Default	0.15	0.15	0.13	Out	Out	Out
	HARRISBURG	NC	N	28075	Default	Default	Default	0.14	0.66	0.11	Out	Out	Out
	MOUNT HOLLY	NC	N	28120	Default	Default	Default	0.0011	0.0012	NR	Out	Out	Out
	CHARLOTTE	NC	N	28273	Default	Default	Default	0.01	NR	0.01	Out	Out	Out
	CHARLOTTE	NC	N	28273	Default	Default	Default	NR	NR	0.02	Out	Out	Out
	FAYETTEVILLE	NC	N	28306	Default	Default	Default	NR	0.01	NR	Out	Out	Out
	MAXTON	NC	N	28364	Default	Default	Default	0.24	0.26	0.25	Out	Out	Out
	LENOIR	NC	N	28645	Default	Default	Default	0.17	0.23	0.19	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	STATESVILLE	NC	N	28625	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	BISHOPVILLE	SC	Y	29010	11.5824	11	0.9987	4.11	4.13	3.81	Retain	Retain	Retain
	HOLLY HILL	SC	N	29059	Default	Default	Default	NR	NR	0.00	Out	Out	Out
	LEXINGTON	SC	N	29073	Default	Default	Default	0.05	0.21	0.00	Out	Out	Out
	ORANGEBURG	SC	N	29116	Default	Default	Default	0.12	0.14	0.14	Out	Out	Out
	ENOREE	SC	N	29335	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	FLORENCE	SC	N	29501	Default	Default	Default	0.33	0.34	0.42	Out	Out	Out
	CHERAW	SC	N	29520	Default	Default	Default	0.76	0.83	0.82	Out	Out	Out
	CONWAY	SC	N	29526	Default	Default	Default	0.05	NR	NR	Out	Out	Out
	MYRTLE BEACH	SC	Y	29577	5.5	38.099998	0.75	0.34	0.24	0.11	Out	Out	Out
	GREENVILLE	SC	N	29605	Default	Default	Default	NR	0.0072	0.01	Out	Out	Out
	STARR	SC	N	29684	Default	Default	Default	0.12	0.15	0.11	Out	Out	Out
	GREENWOOD	SC	N	29649	Default	Default	Default	NR	NR	0.03	Out	Out	Out
	GREER	SC	Y	29651	18.3	270	0.88	0.47	0.59	0.98	Out	Out	Out
	MAULDIN	SC	N	29662	Default	Default	Default	0.0019	0.0004	NR	Out	Out	Out
	SENECA	SC	N	29678	Default	Default	Default	NR	NR	0.05	Out	Out	Out
	CHESTER	SC	N	29706	Default	Default	Default	NR	0.00003	0.00004	Out	Out	Out
	AIKEN	SC	N	29801	Default	Default	Default	0.13	0.43	0.49	Out	Out	Out
	CARROLLTON	GA	N	30117	Default	Default	Default	0.03	NR	0.03	Out	Out	Out
	ROME	GA	Y	30161	12.192	54.864	0.86	1.34	1.44	1.21	Out	Out	Out
	COVINGTON	GA	N	30014	Default	Default	Default	0.02	0.03	NR	Out	Out	Out
	MC DONOUGH	GA	N	30253	Default	Default	Default	NR	NR	0.01	Out	Out	Out
	MC DONOUGH	GA	N	30253	Default	Default	Default	0.0015	0.0013	NR	Out	Out	Out
	MC DONOUGH	GA	N	30253	Default	Default	Default	NR	NR	0.0010	Out	Out	Out
	MC DONOUGH	GA	N	30253	Default	Default	Default	NR	0.14	0.19	Out	Out	Out
	MC DONOUGH	GA	N	30253	Default	Default	Default	0.18	0.29	0.24	Out	Out	Out
	THE ROCK	GA	N	30285	Default	Default	Default	NR	NR	0.08	Out	Out	Out
	ATLANTA	GA	N	30339	Default	Default	Default	0.01	0.0060	NR	Out	Out	Out
	DORAVILLE	GA	N	30362	Default	Default	Default	NR	NR	0.0002	Out	Out	Out
	LAVONIA	GA	N	30553	Default	Default	Default	NR	0.24	0.37	Out	Out	Out
	ATHENS	GA	N	30607	Default	Default	Default	0.23	0.05	0.11	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	DALTON	GA	N	30721	Default	Default	Default	0.02	0.02	NR	Out	Out	Out
	DALTON	GA	N	30720	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	DUBLIN	GA	N	31021	Default	Default	Default	0.35	0.34	0.33	Out	Out	Out
	MILLEDGEVILLE	GA	N	31061	Default	Default	Default	NR	0.01	0.01	Out	Out	Out
	ROBINS AFB	GA	N	31098	Default	Default	Default	0.08	0.10	NR	Out	Out	Out
	HOMERVILLE	GA	N	31634	Default	Default	Default	0.70	1.53	0.25	Out	Out	Out
	WEST POINT	GA	N	31833	Default	Default	Default	NR	0.06	0.11	Out	Out	Out
	EDGEWATER	FL	N	32132	Default	Default	Default	0.06	NR	NR	Out	Out	Out
	JACKSONVILLE	FL	N	32254	Default	Default	Default	1.40	0.84	0.64	Out	Out	Out
	JACKSONVILLE	FL	N	32208	Default	Default	Default	NR	NR	0.00	Out	Out	Out
	JACKSONVILLE	FL	N	32212	Default	Default	Default	NR	0.00	NR	Out	Out	Out
	JACKSONVILLE	FL	N	32254	Default	Default	Default	NR	0.00	0.00	Out	Out	Out
	WINTER GARDEN	FL	N	34787	Default	Default	Default	0.14	NR	NR	Out	Out	Out
	ORLANDO	FL	N	32837	Default	Default	Default	NR	0.03	0.02	Out	Out	Out
	FT LAUDERDALE	FL	N	33316	Default	Default	Default	NR	NR	0.00	Out	Out	Out
	BUSHNELL	FL	N	33513	Default	Default	Default	0.33	0.31	0.23	Out	Out	Out
	TAMPA	FL	N	33617	Default	Default	Default	0.74	0.64	0.48	Out	Out	Out
	TAMPA	FL	N	33619	Default	Default	Default	NR	0.00	0.00	Out	Out	Out
	TAMPA	FL	N	33611	Default	Default	Default	NR	0.07	0.07	Out	Out	Out
	CLEARWATER	FL	N	33760	Default	Default	Default	0.01	NR	NR	Out	Out	Out
	LAKELAND	FL	N	33801	Default	Default	Default	0.34	0.30	0.30	Out	Out	Out
	LAKELAND	FL	N	33810	Default	Default	Default	0.22	0.27	0.20	Out	Out	Out
	AUBURNDALE	FL	N	33823	Default	Default	Default	NR	NR	0.01	Out	Out	Out
	CLEARWATER	FL	N	33760	Default	Default	Default	NR	0.0027	NR	Out	Out	Out
	CLEARWATER	FL	N	33760	Default	Default	Default	0.003	0.0050	NR	Out	Out	Out
	LEEDS	AL	N	35094	Default	Default	Default	0.29	0.33	0.32	Out	Out	Out
	LINCOLN	AL	N	35096	Default	Default	Default	0.36	0.51	0.54	Out	Out	Out
	BIRMINGHAM	AL	N	35234	Default	Default	Default	0.41	0.36	0.44	Out	Out	Out
	BIRMINGHAM	AL	N	35234	Default	Default	Default	0.01	0.01	NR	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	TUSCALOOSA	AL	N	35401	Default	Default	Default	0.00	0.00	NR	Out	Out	Out
	TUSCALOOSA	AL	N	35401	Default	Default	Default	0.00	0.00	NR	Out	Out	Out
	VANCE	AL	N	35490	Default	Default	Default	0.29	0.55	0.60	Out	Out	Out
	GUIN	AL	N	35563	Default	Default	Default	0.20	0.27	NR	Out	Out	Out
	GUIN	AL	N	35563	Default	Default	Default	NR	NR	0.26	Out	Out	Out
	DECATUR	AL	N	35603	Default	Default	Default	NR	NR	0.42	Out	Out	Out
	HUNTSVILLE	AL	N	35811	Default	Default	Default	0.31	0.30	0.19	Out	Out	Out
	ALBERTVILLE	AL	N	35950	Default	Default	Default	0.39	NR	NR	Out	Out	Out
	FORT PAYNE	AL	N	35967	Default	Default	Default	0.22	0.30	0.19	Out	Out	Out
	ANNISTON	AL	N	36207	Default	Default	Default	0.02	0.01	NR	Out	Out	Out
	DOTHAN	AL	N	36303	Default	Default	Default	NR	NR	0.11	Out	Out	Out
	GENEVA	AL	N	36340	Default	Default	Default	0.10	0.11	0.27	Out	Out	Out
	PINE HILL	AL	N	36769	Default	Default	Default	NR	NR	0.00	Out	Out	Out
	ASHLAND CITY	TN	N	37015	Default	Default	Default	NR	0.22	0.20	Out	Out	Out
	CLARKSVILLE	TN	N	37040	Default	Default	Default	0.09	0.15	NR	Out	Out	Out
	SHELBYVILLE	TN	N	37160	Default	Default	Default	0.05	NR	NR	Out	Out	Out
	SMYRNA	TN	N	37167	Default	Default	Default	0.72	0.77	0.65	Out	Out	Out
	SPRING HILL	TN	N	37174	Default	Default	Default	0.39	0.07	NR	Out	Out	Out
	NASHVILLE	TN	N	37207	Default	Default	Default	NR	0.01	0.25	Out	Out	Out
	NASHVILLE	TN	N	37209	Default	Default	Default	0.01	NR	NR	Out	Out	Out
	NASHVILLE	TN	N	37218	Default	Default	Default	0.16	0.38	0.63	Out	Out	Out
	CLEVELAND	TN	N	37311	Default	Default	Default	0.18	0.13	0.13	Out	Out	Out
	DAYTON	TN	N	37321	Default	Default	Default	0.17	0.18	0.14	Out	Out	Out
	MANCHESTER	TN	N	37355	Default	Default	Default	0.48	0.44	0.75	Out	Out	Out
	MANCHESTER	TN	N	37355	Default	Default	Default	NR	0.01	0.01	Out	Out	Out
	CHATTANOOGA	TN	N	37402	Default	Default	Default	0.50	0.60	0.86	Out	Out	Out
	CHATTANOOGA	TN	N	37416	Default	Default	Default	NR	NR	0.23	Out	Out	Out
	ELIZABETHTON	TN	N	37643	Default	Default	Default	0.02	NR	NR	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	ONEIDA	TN	N	37841	Default	Default	Default	0.14	0.11	0.10	Out	Out	Out
	SWEETWATER	TN	N	37874	Default	Default	Default	0.39	0.44	0.47	Out	Out	Out
	KNOXVILLE	TN	N	37921	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	BROWNSVILLE	TN	N	38012	Default	Default	Default	NR	NR	0.14	Out	Out	Out
	DYERSBURG	TN	N	38024	Default	Default	Default	0.0005	0.0003	NR	Out	Out	Out
	DYERSBURG	TN	N	38024	Default	Default	Default	0.23	0.05	NR	Out	Out	Out
	MEMPHIS	TN	N	38109	Default	Default	Default	NR	0.00	NR	Out	Out	Out
	MEMPHIS	TN	N	38109	Default	Default	Default	NR	0.002	0.00	Out	Out	Out
	MEMPHIS	TN	N	38113	Default	Default	Default	0.005	0.005	NR	Out	Out	Out
	MEMPHIS	TN	N	38113	Default	Default	Default	0.14	0.07	0.04	Out	Out	Out
	MEMPHIS	TN	N	38113	Default	Default	Default	0.0026	NR	NR	Out	Out	Out
	MEMPHIS	TN	N	38118	Default	Default	Default	0.00005	0.00	NR	Out	Out	Out
	MEMPHIS	TN	N	38118	Default	Default	Default	0.0001	NR	NR	Out	Out	Out
	MEMPHIS	TN	N	38113	Default	Default	Default	NR	0.0026	0.0027	Out	Out	Out
	UNION CITY	TN	N	38261	Default	Default	Default	0.00001	NR	NR	Out	Out	Out
	UNION CITY	TN	N	38261	Default	Default	Default	NR	NR	0.12	Out	Out	Out
	MILAN	TN	N	38358	Default	Default	Default	0.30	0.58	0.48	Out	Out	Out
	TRENTON	TN	N	38382	Default	Default	Default	NR	NR	0.01	Out	Out	Out
	BATESVILLE	MS	N	38606	Default	Default	Default	0.87	0.77	0.76	Out	Out	Out
	HERNANDO	MS	N	38632	Default	Default	Default	0.05	NR	NR	Out	Out	Out
	HERNANDO	MS	N	38632	Default	Default	Default	NR	NR	0.00	Out	Out	Out
	OLIVE BRANCH	MS	Y	38654	12	100	0.95	1.35	1.22	1.27	Out	Out	Out
	OLIVE BRANCH	MS	N	38654	Default	Default	Default	0.09	NR	NR	Out	Out	Out
	OLIVE BRANCH	MS	N	38654	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	SHANNON	MS	N	38868	Default	Default	Default	0.13	0.13	0.13	Out	Out	Out
	CANTON	MS	N	39046	Default	Default	Default	0.59	0.17	0.32	Out	Out	Out
	VICKSBURG	MS	N	39181	Default	Default	Default	NR	0.38	0.51	Out	Out	Out
	JACKSON	MS	N	39272	Default	Default	Default	0.11	0.08	0.09	Out	Out	Out
	JACKSON	MS	N	39272	Default	Default	Default	0.47	0.38	0.38	Out	Out	Out
	NEWTON	MS	N	39345	Default	Default	Default	0.23	0.31	0.35	Out	Out	Out
	PASCAGOULA	MS	N	39581	Default	Default	Default	NR	0.00	NR	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	BARDSTOWN	KY	N	40004	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	LOUISVILLE	KY	N	40210	Default	Default	Default	NR	NR	0.02	Out	Out	Out
	LOUISVILLE	KY	N	40211	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	LOUISVILLE	KY	N	40213	Default	Default	Default	0.26	0.04	NR	Out	Out	Out
	LOUISVILLE	KY	N	40210	Default	Default	Default	NR	NR	0.05	Out	Out	Out
	LOUISVILLE	KY	Y	40241	Default	Default	0.79	0.57	0.62	0.78	Out	Out	Out
	GEORGETOWN	KY	N	40324	Default	Default	Default	0.12	0.27	0.20	Out	Out	Out
	HARRODSBURG	KY	N	40330	Default	Default	Default	0.27	NR	NR	Out	Out	Out
	MOREHEAD	KY	N	40351	Default	Default	Default	0.004	NR	NR	Out	Out	Out
	PARIS	KY	N	40361	Default	Default	Default	0.00	0.003	NR	Out	Out	Out
	BEREA	KY	N	40403	Default	Default	Default	0.24	0.35	0.31	Out	Out	Out
	LEXINGTON	KY	N	40511	Default	Default	Default	0.19	0.20	0.19	Out	Out	Out
	FLORENCE	KY	N	41042	Default	Default	Default	0.60	0.76	0.78	Out	Out	Out
	INDEPENDENCE	KY	N	41051	Default	Default	Default	NR	0.01	NR	Out	Out	Out
	CALVERT CITY	KY	N	42029	Default	Default	Default	NR	0.001	NR	Out	Out	Out
	HOPKINSVILLE	KY	N	42240	Default	Default	Default	0.11	0.01	NR	Out	Out	Out
	RUSSELLVILLE	KY	N	42276	Default	Default	Default	0.12	0.11	0.10	Out	Out	Out
	HAWESVILLE	KY	N	42348	Default	Default	Default	0.02	0.01	0.11	Out	Out	Out
	HEBRON	OH	N	43025	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	MARYSVILLE	OH	N	43040	Default	Default	Default	1.10	0.95	0.89	Out	Out	Out
	URBANA	OH	N	43078	Default	Default	Default	0.30	0.30	NR	Out	Out	Out
	COLUMBUS	OH	Y	43213	13.52	37	0.995	2.02	2.04	2.18	Retain	Retain	Retain
	MARION	OH	Y	43302	12.2	95	1	1.18	1.21	1.09	Out	Out	Out
	EAST LIBERTY	OH	N	43319	Default	Default	Default	0.65	1.03	0.84	Out	Out	Out
	CLYDE	OH	N	43410	Default	Default	Default	0.76	0.50	NR	Out	Out	Out
	FREMONT	OH	Y	43420	20	55	0.97	1.07	0.95	1.14	Out	Out	Out
	ROSSFORD	OH	N	43460	Default	Default	Default	0.13	0.16	0.16	Out	Out	Out
	NAPOLEON	OH	N	43545	Default	Default	Default	0.23	0.21	0.35	Out	Out	Out
	WHITEHOUSE	OH	Y	43571	15	200	0.99	0.45	0.63	0.70	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	TOLEDO	OH	N	43607	Default	Default	Default	0.27	0.48	0.47	Out	Out	Out
	TOLEDO	OH	N	43608	Default	Default	Default	0.55	0.86	NR	Out	Out	Out
	TOLEDO	OH	N	43612	Default	Default	Default	0.03	0.04	0.38	Out	Out	Out
	TOLEDO	OH	N	43612	Default	Default	Default	0.28	0.34	0.32	Out	Out	Out
	ZANESVILLE	OH	N	43701	Default	Default	Default	0.05	0.10	0.13	Out	Out	Out
	BEREA	OH	N	44017	Default	Default	Default	NR	0.0001	0.0001	Out	Out	Out
	BURTON	OH	N	44021	Default	Default	Default	NR	0.0004	0.0004	Out	Out	Out
	CHAGRIN FALLS	OH	N	44023	Default	Default	Default	0.0001	NR	NR	Out	Out	Out
	MIDDLEFIELD	OH	N	44062	Default	Default	Default	NR	0.0045	NR	Out	Out	Out
	CLEVELAND	OH	N	44105	Default	Default	Default	0.34	0.45	0.37	Out	Out	Out
	CLEVELAND	OH	N	44102	Default	Default	Default	NR	NR	0.00	Out	Out	Out
	STRONGSVILLE	OH	N	44136	Default	Default	Default	NR	0.0005	0.01	Out	Out	Out
	WALTON HILLS	OH	N	44146	Default	Default	Default	NR	0.0001	0.0001	Out	Out	Out
	CUYAHOGA FALLS	OH	N	44223	Default	Default	Default	NR	0.0001	0.0001	Out	Out	Out
	BRIMFIELD	OH	N	44240	Default	Default	Default	0.33	NR	0.18	Out	Out	Out
	MEDINA	OH	N	44258	Default	Default	Default	NR	0.0003	0.003	Out	Out	Out
	MEDINA	OH	N	44256	Default	Default	Default	NR	NR	0.004	Out	Out	Out
	AKRON	OH	N	44305	Default	Default	Default	NR	0.00002	0.0001	Out	Out	Out
	CANFIELD	OH	N	44406	Default	Default	Default	0.02	NR	0.04	Out	Out	Out
	LORDSTOWN	OH	N	44481	Default	Default	Default	0.44	0.13	0.16	Out	Out	Out
	WARREN	OH	N	44483	Default	Default	Default	0.15	0.18	0.18	Out	Out	Out
	WARREN	OH	N	44483	Default	Default	Default	0.41	0.31	0.38	Out	Out	Out
	YOUNGSTOWN	OH	N	44502	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	BOARDMAN	OH	N	44512	Default	Default	Default	0.21	NR	NR	Out	Out	Out
	YOUNGSTOWN	OH	N	44512	Default	Default	Default	0.39	0.35	0.02	Out	Out	Out
	NEW PHILADELPHIA	OH	N	44663	Default	Default	Default	NR	0.0001	0.0001	Out	Out	Out
	WOOSTER	OH	N	44691	Default	Default	Default	0.23	0.30	0.29	Out	Out	Out
	NORWALK	OH	N	44857	Default	Default	Default	0.21	NR	NR	Out	Out	Out
	SANDUSKY	OH	N	44870	Default	Default	Default	NR	0.0045	NR	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	WILLARD	OH	N	44890	Default	Default	Default	0.27	0.32	0.29	Out	Out	Out
	MANSFIELD	OH	N	44903	Default	Default	Default	NR	0.00005	NR	Out	Out	Out
	LEBANON	OH	N	45036	Default	Default	Default	NR	0.02	0.02	Out	Out	Out
	LEBANON	OH	N	45036	Default	Default	Default	0.12	0.11	NR	Out	Out	Out
	MASON	OH	N	45040	Default	Default	Default	0.17	0.25	0.27	Out	Out	Out
	CINCINNATI	OH	N	45217	Default	Default	Default	NR	NR	0.0002	Out	Out	Out
	BLUE ASH	OH	N	45242	Default	Default	Default	0.02	NR	NR	Out	Out	Out
	CINCINNATI	OH	N	45242	Default	Default	Default	0.26	0.63	0.80	Out	Out	Out
	CINCINNATI	OH	N	45246	Default	Default	Default	0.00006	0.0001	NR	Out	Out	Out
	SIDNEY	OH	N	45365	Default	Default	Default	0.11	0.12	0.27	Out	Out	Out
	SIDNEY	OH	N	45365	Default	Default	Default	0.24	0.27	0.25	Out	Out	Out
	SPRINGFIELD	OH	N	45502	Default	Default	Default	0.13	0.14	0.09	Out	Out	Out
	WAVERLY	OH	N	45690	Default	Default	Default	0.01	0.02	NR	Out	Out	Out
	FINDLAY	OH	Y	45840	14.1732	89	1	3.63	3.65	3.77	Retain	Retain	Retain
	FINDLAY	OH	N	45840	Default	Default	Default	0.52	0.51	0.49	Out	Out	Out
	FORT RECOVERY	OH	N	45846	Default	Default	Default	0.04	NR	NR	Out	Out	Out
	PAULDING	OH	N	45879	Default	Default	Default	NR	0.00002	NR	Out	Out	Out
	SAINT MARYS	OH	N	45885	Default	Default	Default	0.10	0.14	0.16	Out	Out	Out
	FRANKFORT	IN	N	46041	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	GREENCASTLE	IN	N	46135	Default	Default	Default	0.07	NR	0.16	Out	Out	Out
	GREENFIELD	IN	N	46140	Default	Default	Default	0.39	0.51	0.17	Out	Out	Out
	INDIANAPOLIS	IN	N	46203	Default	Default	Default	0.0001	NR	NR	Out	Out	Out
	INDIANAPOLIS	IN	N	46218	Default	Default	Default	0.04	0.03	NR	Out	Out	Out
	INDIANAPOLIS	IN	N	46219	Default	Default	Default	0.0008	0.0004	NR	Out	Out	Out
	INDIANAPOLIS	IN	N	46222	Default	Default	Default	NR	0.0003	0.0001	Out	Out	Out
	INDIANAPOLIS	IN	N	46225	Default	Default	Default	0.0001	0.0010	NR	Out	Out	Out
	INDIANAPOLIS	IN	N	46226	Default	Default	Default	0.0002	0.00	NR	Out	Out	Out
	INDIANAPOLIS	IN	N	46268	Default	Default	Default	0.0003	NR	NR	Out	Out	Out
	EAST CHICAGO	IN	N	46312	Default	Default	Default	NR	NR	0.02	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	HAMMOND	IN	N	46320	Default	Default	Default	0.13	0.13	0.12	Out	Out	Out
	LA PORTE	IN	N	46350	Default	Default	Default	0.11	0.16	0.15	Out	Out	Out
	LA PORTE	IN	Y	46350	12.19	32.22	1	1.83	1.87	1.79	Retain	Retain	Retain
	SCHERERVILLE	IN	N	46375	Default	Default	Default	0.002	0.0006	NR	Out	Out	Out
	WHITING	IN	N	46394	Default	Default	Default	NR	0.0002	0.00002	Out	Out	Out
	BREMEN	IN	N	46506	Default	Default	Default	0.006	0.006	NR	Out	Out	Out
	GOSHEN	IN	N	46526	Default	Default	Default	NR	NR	0.09	Out	Out	Out
	MIDDLEBURY	IN	N	46540	Default	Default	Default	NR	0.07	0.11	Out	Out	Out
	MISHAWAKA	IN	N	46545	Default	Default	Default	NR	0.17	NR	Out	Out	Out
	WARSAW	IN	N	46580	Default	Default	Default	0.002	0.002	NR	Out	Out	Out
	ASHLEY	IN	N	46705	Default	Default	Default	NR	0.0001	NR	Out	Out	Out
	BUTLER	IN	N	46721	Default	Default	Default	0.0004	0.0004	NR	Out	Out	Out
	BUTLER	IN	N	46721	Default	Default	Default	0.65	0.63	0.51	Out	Out	Out
	ROANOKE	IN	N	46783	Default	Default	Default	0.16	0.27	0.33	Out	Out	Out
	SAINT JOE	IN	N	46785	Default	Default	Default	0.19	0.19	0.22	Out	Out	Out
	AURORA	IN	N	47001	Default	Default	Default	2.27	1.44	NR	Retain	Out	Out
	BATESVILLE	IN	N	47006	Default	Default	Default	0.08	0.12	0.12	Out	Out	Out
	COLUMBUS	IN	N	47201	Default	Default	Default	0.11	0.15	0.13	Out	Out	Out
	PORTLAND	IN	N	47371	Default	Default	Default	NR	0.01	0.01	Out	Out	Out
	BLOOMINGTON	IN	N	47404	Default	Default	Default	0.23	0.23	0.14	Out	Out	Out
	ASHLEY	IN	N	46705	Default	Default	Default	0.11	0.23	0.14	Out	Out	Out
	MOUNT VERNON	IN	N	47620	Default	Default	Default	0.13	0.06	0.16	Out	Out	Out
	NEWBURGH	IN	N	47629	Default	Default	Default	0.31	0.15	0.18	Out	Out	Out
	PRINCETON	IN	N	47670	Default	Default	Default	0.49	0.67	0.57	Out	Out	Out
	EVANSVILLE	IN	N	47710	Default	Default	Default	0.21	0.46	0.50	Out	Out	Out
	BRAZIL	IN	N	47834	Default	Default	Default	NR	0.01	0.07	Out	Out	Out
	LAFAYETTE	IN	N	47905	Default	Default	Default	0.47	0.76	0.63	Out	Out	Out
	CRAWFORDSVILLE	IN	N	47933	Default	Default	Default	0.44	0.61	0.69	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	CRAWFORDSVILLE	IN	N	47933	Default	Default	Default	0.29	0.25	0.23	Out	Out	Out
	KENTLAND	IN	N	47951	Default	Default	Default	0.08	NR	NR	Out	Out	Out
	MONTICELLO	IN	N	47960	Default	Default	Default	1.15	0.79	0.91	Out	Out	Out
	VEEDERSBURG	IN	N	47987	Default	Default	Default	0.05	NR	NR	Out	Out	Out
	LAKE ORION	MI	N	48359	Default	Default	Default	0.25	NR	0.05	Out	Out	Out
	LAKE ORION	MI	N	48359	Default	Default	Default	NR	NR	0.05	Out	Out	Out
	PONTIAC	MI	N	48341	Default	Default	Default	0.08	NR	NR	Out	Out	Out
	MADISON HEIGHTS	MI	N	48071	Default	Default	Default	0.16	0.25	0.26	Out	Out	Out
	STERLING HEIGHTS	MI	N	48313	Default	Default	Default	0.09	0.14	0.20	Out	Out	Out
	STERLING HEIGHTS	MI	N	48314	Default	Default	Default	0.02	NR	NR	Out	Out	Out
	WARREN	MI	N	48091	Default	Default	Default	0.23	0.21	0.31	Out	Out	Out
	BELLEVILLE	MI	N	48111	Default	Default	Default	NR	0.0001	NR	Out	Out	Out
	DEARBORN	MI	Y	48121	21.32926829	Default	0.97	0.51	0.34	0.33	Out	Out	Out
	FLAT ROCK	MI	N	48134	Default	Default	Default	0.27	0.12	0.11	Out	Out	Out
	ROMULUS	MI	N	48174	Default	Default	Default	NR	0.0010	0.0022	Out	Out	Out
	SALINE	MI	N	48176	Default	Default	Default	NR	NR	0.08	Out	Out	Out
	WAYNE	MI	N	48184	Default	Default	Default	0.18	0.24	NR	Out	Out	Out
	WAYNE	MI	N	48184	Default	Default	Default	0.00	0.0064	0.13	Out	Out	Out
	WAYNE	MI	N	48184	Default	Default	Default	NR	0.005	0.005	Out	Out	Out
	DETROIT	MI	N	48207	Default	Default	Default	NR	0.11	0.16	Out	Out	Out
	DETROIT	MI	N	48215	Default	Default	Default	0.66	0.81	1.27	Out	Out	Out
	DETROIT	MI	N	48228	Default	Default	Default	NR	0.0001	0.0001	Out	Out	Out
	REDFORD	MI	N	48239	Default	Default	Default	NR	NR	0.0003	Out	Out	Out
	DETROIT	MI	N	48234	Default	Default	Default	0.01	NR	NR	Out	Out	Out
	FLINT	MI	N	48552	Default	Default	Default	0.76	0.53	0.56	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	LANSING	MI	N	48917	Default	Default	Default	0.19	0.50	0.53	Out	Out	Out
	LANSING	MI	N	48921	Default	Default	Default	0.19	0.21	0.16	Out	Out	Out
	KALAMAZOO	MI	N	49007	Default	Default	Default	NR	NR	0.18	Out	Out	Out
	WHITE PIGEON	MI	N	49099	Default	Default	Default	0.39	0.56	0.34	Out	Out	Out
	JACKSON	MI	N	49203	Default	Default	Default	NR	0.000004	0.000004	Out	Out	Out
	ADRIAN	MI	N	49221	Default	Default	Default	NR	NR	0.00014	Out	Out	Out
	CALEDONIA	MI	N	49316	Default	Default	Default	0.01	NR	NR	Out	Out	Out
	MIDDLEVILLE	MI	N	49333	Default	Default	Default	0.12	0.13	0.15	Out	Out	Out
	NEWAYGO	MI	N	49337	Default	Default	Default	NR	0.10	0.08	Out	Out	Out
	MUSKEGON HEIGHTS	MI	N	49444	Default	Default	Default	NR	0.0029	0.01	Out	Out	Out
	GRAND RAPIDS	MI	N	49503	Default	Default	Default	NR	NR	0.01	Out	Out	Out
	CADILLAC	MI	N	49601	Default	Default	Default	NR	NR	0.0045	Out	Out	Out
	ANKENY	IA	N	50023	Default	Default	Default	NR	0.15	0.45	Out	Out	Out
	KNOXVILLE	IA	N	50138	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	PELLA	IA	N	50219	Default	Default	Default	0.31	0.43	0.41	Out	Out	Out
	FORT DODGE	IA	N	50501	Default	Default	Default	NR	0.14	0.29	Out	Out	Out
	CEDAR FALLS	IA	N	50613	Default	Default	Default	0.13	0.12	NR	Out	Out	Out
	ORANGE CITY	IA	N	51041	Default	Default	Default	NR	0.00	0.00	Out	Out	Out
	CARROLL	IA	N	51401	Default	Default	Default	NR	0.11	0.12	Out	Out	Out
	MISSOURI VALLEY	IA	N	51555	Default	Default	Default	0.13	0.17	0.12	Out	Out	Out
	CEDAR RAPIDS	IA	N	52404	Default	Default	Default	NR	0.02	NR	Out	Out	Out
	BURLINGTON	IA	N	52601	Default	Default	Default	0.12	0.18	0.24	Out	Out	Out
	MUSCATINE	IA	N	52761	Default	Default	Default	0.00	0.00002	NR	Out	Out	Out
	CHILTON	WI	N	53014	Default	Default	Default	NR	NR	0.23	Out	Out	Out
	CHILTON	WI	N	53014	Default	Default	Default	0.13	0.14	0.11	Out	Out	Out
	HARTFORD	WI	N	53027	Default	Default	Default	0.23	0.16	0.19	Out	Out	Out
	HARTFORD	WI	N	53027	Default	Default	Default	0.44	0.50	0.42	Out	Out	Out
	HORICON	WI	N	53032	Default	Default	Default	NR	NR	0.12	Out	Out	Out
	LOMIRA	WI	N	53048	Default	Default	Default	NR	0.10	0.19	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	MENOMONEE FALLS	WI	N	53051	Default	Default	Default	NR	0.01	0.01	Out	Out	Out
	OCONOMOWOC	WI	N	53066	Default	Default	Default	0.21	0.23	0.16	Out	Out	Out
	OCONOMOWOC	WI	N	53066	Default	Default	Default	NR	NR	0.01	Out	Out	Out
	SHEBOYGAN FALLS	WI	N	53085	Default	Default	Default	0.28	0.29	0.27	Out	Out	Out
	SUSSEX	WI	N	53089	Default	Default	Default	0.32	0.33	0.44	Out	Out	Out
	WATERTOWN	WI	N	53094	Default	Default	Default	NR	0.000005	0.000004	Out	Out	Out
	NEW BERLIN	WI	N	53151	Default	Default	Default	NR	NR	0.00022	Out	Out	Out
	OAK CREEK	WI	N	53154	Default	Default	Default	NR	0.43	0.39	Out	Out	Out
	OAK CREEK	WI	N	53154	Default	Default	Default	0.57	0.92	1.28	Out	Out	Out
	TWIN LAKES	WI	N	53181	Default	Default	Default	NR	0.02	0.03	Out	Out	Out
	WAUKESHA	WI	N	53186	Default	Default	Default	NR	NR	0.00031	Out	Out	Out
	SAINT FRANCIS	WI	N	53235	Default	Default	Default	0.14	0.15	0.21	Out	Out	Out
	MILWAUKEE	WI	N	53207	Default	Default	Default	0.00	0.00005	NR	Out	Out	Out
	MILWAUKEE	WI	N	53209	Default	Default	Default	NR	0.0036	0.0032	Out	Out	Out
	MILWAUKEE	WI	N	53212	Default	Default	Default	0.31	0.33	NR	Out	Out	Out
	WEST ALLIS	WI	N	53214	Default	Default	Default	NR	0.12	0.13	Out	Out	Out
	MILWAUKEE	WI	N	53223	Default	Default	Default	0.01	0.01	NR	Out	Out	Out
	MILWAUKEE	WI	N	53224	Default	Default	Default	0.33	0.34	0.34	Out	Out	Out
	MILWAUKEE	WI	N	53224	Default	Default	Default	1.43	1.24	1.15	Out	Out	Out
	MILWAUKEE	WI	N	53226	Default	Default	Default	0.00004	0.00004	NR	Out	Out	Out
	STURTEVANT	WI	N	53177	Default	Default	Default	NR	NR	0.01	Out	Out	Out
	FORT ATKINSON	WI	N	53538	Default	Default	Default	0.36	0.50	0.30	Out	Out	Out
	BARABOO	WI	N	53913	Default	Default	Default	NR	NR	0.16	Out	Out	Out
	BARABOO	WI	N	53913	Default	Default	Default	0.63	0.65	0.54	Out	Out	Out
	MARINETTE	WI	N	54143	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	MANITOWOC	WI	N	54220	Default	Default	Default	NR	NR	0.00074	Out	Out	Out
	PLOVER	WI	Y	54467	11.28	36.88	0.99	1.40	0.97	0.13	Out	Out	Out
	LA CROSSE	WI	Y	54603	13.716	12	1	2.96	2.87	3.11	Retain	Retain	Retain
	TOMAH	WI	N	54660	Default	Default	Default	0.04	0.07	NR	Out	Out	Out
	TOMAH	WI	N	54660	Default	Default	Default	NR	NR	0.11	Out	Out	Out
	MENOMONIE	WI	N	54751	Default	Default	Default	0.17	0.19	0.19	Out	Out	Out
	OSHKOSH	WI	N	54903	Default	Default	Default	0.02	NR	NR	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	WAUPACA	WI	N	54981	Default	Default	Default	0.10	0.19	0.24	Out	Out	Out
	LAKEVILLE	MN	N	55044	Default	Default	Default	0.0001	0.0001	NR	Out	Out	Out
	OWATONNA	MN	Y	55060	17.98	70.7	0.99	2.88	3.02	3.14	Retain	Retain	Retain
	RED WING	MN	N	55066	Default	Default	Default	0.48	0.58	0.51	Out	Out	Out
	SAINT PAUL	MN	Y	55107	15	120	0.95	1.36	1.30	1.15	Out	Out	Out
	SAINT PAUL	MN	N	55116	Default	Default	Default	0.08	0.10	0.15	Out	Out	Out
	ROSEMOUNT	MN	N	55068	Default	Default	Default	0.03	0.02	NR	Out	Out	Out
	HOPKINS	MN	N	55343	Default	Default	Default	NR	0.0001	0.00009	Out	Out	Out
	MAPLE GROVE	MN	N	55369	Default	Default	Default	NR	NR	0.14	Out	Out	Out
	WACONIA	MN	N	55387	Default	Default	Default	0.11	NR	NR	Out	Out	Out
	MINNEAPOLIS	MN	N	55416	Default	Default	Default	NR	NR	0.13	Out	Out	Out
	WASECA	MN	N	56093	Default	Default	Default	0.16	0.16	0.24	Out	Out	Out
	COTTONWOOD	MN	N	56229	Default	Default	Default	0.12	NR	NR	Out	Out	Out
	SAINT CLOUD	MN	N	56303	Default	Default	Default	0.17	0.26	0.21	Out	Out	Out
	YANKTON	SD	N	57078	Default	Default	Default	0.52	0.13	0.05	Out	Out	Out
	GWINNER	ND	N	58040	Default	Default	Default	NR	0.13	NR	Out	Out	Out
	ELK GROVE VILLAGE	IL	N	60007	Default	Default	Default	0.16	0.25	0.21	Out	Out	Out
	ELK GROVE VILLAGE	IL	N	60007	Default	Default	Default	NR	NR	0.00003	Out	Out	Out
	ELK GROVE VILLAGE	IL	N	60007	Default	Default	Default	0.01	0.01	NR	Out	Out	Out
	DES PLAINES	IL	N	60016	Default	Default	Default	NR	0.01	NR	Out	Out	Out
	LAKE BLUFF	IL	N	60044	Default	Default	Default	0.11	NR	NR	Out	Out	Out
	WOODSTOCK	IL	N	60098	Default	Default	Default	0.15	0.14	0.22	Out	Out	Out
	ADDISON	IL	N	60101	Default	Default	Default	NR	0.0001	0.0001	Out	Out	Out
	ELGIN	IL	N	60120	Default	Default	Default	0.24	0.19	0.05	Out	Out	Out
	ELGIN	IL	N	60123	Default	Default	Default	NR	0.00	NR	Out	Out	Out
	FRANKLIN PARK	IL	N	60131	Default	Default	Default	NR	NR	0.04	Out	Out	Out
	HAMPSHIRE	IL	N	60140	Default	Default	Default	NR	NR	0.01	Out	Out	Out
	BROADVIEW	IL	N	60153	Default	Default	Default	0.07	NR	NR	Out	Out	Out
	NORTHLAKE	IL	N	60164	Default	Default	Default	NR	0.0006	0.0001	Out	Out	Out
	SYCAMORE	IL	N	60178	Default	Default	Default	NR	0.21	0.14	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	SYCAMORE	IL	N	60178	Default	Default	Default	NR	0.01	0.02	Out	Out	Out
	CAROL STREAM	IL	N	60188	Default	Default	Default	0.06	0.13	0.21	Out	Out	Out
	ALSIP	IL	N	60803	Default	Default	Default	NR	NR	0.01	Out	Out	Out
	CHANNAHON	IL	N	60410	Default	Default	Default	0.0001	NR	NR	Out	Out	Out
	CHICAGO HEIGHTS	IL	N	60411	Default	Default	Default	0.76	0.90	0.86	Out	Out	Out
	HARVEY	IL	N	60426	Default	Default	Default	0.49	0.78	0.21	Out	Out	Out
	HOMEWOOD	IL	N	60430	Default	Default	Default	0.003	0.0002	NR	Out	Out	Out
	MIDLOTHIAN	IL	N	60445	Default	Default	Default	0.0001	0.0001	NR	Out	Out	Out
	BRIDGEVIEW	IL	N	60455	Default	Default	Default	0.19	0.21	0.19	Out	Out	Out
	BEDFORD PARK	IL	N	60499	Default	Default	Default	0.002	NR	0.0003	Out	Out	Out
	BEDFORD PARK	IL	N	60501	Default	Default	Default	0.0006	NR	NR	Out	Out	Out
	AURORA	IL	N	60504	Default	Default	Default	0.31	0.27	0.20	Out	Out	Out
	WOODRIDGE	IL	N	60517	Default	Default	Default	0.0001	NR	NR	Out	Out	Out
	CHICAGO	IL	N	60608	Default	Default	Default	0.22	0.32	0.11	Out	Out	Out
	CHICAGO	IL	N	60609	Default	Default	Default	0.54	0.91	0.72	Out	Out	Out
	CHICAGO	IL	Y	60609	12.192	19	0.9368	2.97	3.10	1.47	Retain	Retain	Out
	CHICAGO	IL	N	60623	Default	Default	Default	0.17	0.26	0.24	Out	Out	Out
	CHICAGO	IL	N	60623	Default	Default	Default	0.22	0.64	0.59	Out	Out	Out
	CHICAGO	IL	N	60623	Default	Default	Default	0.23	0.26	0.28	Out	Out	Out
	CHICAGO	IL	N	60624	Default	Default	Default	0.16	0.11	0.13	Out	Out	Out
	CHICAGO	IL	N	60632	Default	Default	Default	NR	0.15	0.20	Out	Out	Out
	ALSIP	IL	N	60803	Default	Default	Default	0.14	0.52	0.46	Out	Out	Out
	BRADLEY	IL	Y	60915	15.24	18.71	0.88	3.18	2.97	3.01	Retain	Retain	Retain
	BELVIDERE	IL	N	61008	Default	Default	Default	0.03	0.17	0.25	Out	Out	Out
	GALENA	IL	N	61036	Default	Default	Default	NR	NR	0.44	Out	Out	Out
	ROCHELLE	IL	N	61068	Default	Default	Default	0.09	0.19	0.34	Out	Out	Out
	ROCKFORD	IL	N	61104	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	CORDOVA	IL	N	61242	Default	Default	Default	0.01	0.03	NR	Out	Out	Out
	CORDOVA	IL	N	61242	Default	Default	Default	NR	NR	0.02	Out	Out	Out
	EAST MOLINE	IL	N	61244	Default	Default	Default	0.14	NR	NR	Out	Out	Out
	HILLSDALE	IL	N	61257	Default	Default	Default	0.0005	0.0006	NR	Out	Out	Out
	GALESBURG	IL	N	61401	Default	Default	Default	NR	0.33	0.27	Out	Out	Out
	PEORIA	IL	N	61615	Default	Default	Default	NR	0.03	NR	Out	Out	Out
	GOODFIELD	IL	N	61742	Default	Default	Default	NR	0.18	NR	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	GOODFIELD	IL	N	61742	Default	Default	Default	NR	NR	0.38	Out	Out	Out
	ARTHUR	IL	N	61911	Default	Default	Default	0.17	NR	NR	Out	Out	Out
	MATTOON	IL	N	61938	Default	Default	Default	NR	0.12	0.07	Out	Out	Out
	GRANITE CITY	IL	N	62040	Default	Default	Default	NR	0.01	0.02	Out	Out	Out
	GRANITE CITY	IL	N	62040	Default	Default	Default	0.18	0.19	0.17	Out	Out	Out
	SAUGET	IL	N	62201	Default	Default	Default	NR	0.0005	0.0005	Out	Out	Out
	SAUGET	IL	N	62201	Default	Default	Default	NR	0.0001	0.0001	Out	Out	Out
	QUINCY	IL	N	62305	Default	Default	Default	0.28	0.29	0.34	Out	Out	Out
	EFFINGHAM	IL	N	62401	Default	Default	Default	0.22	0.13	0.08	Out	Out	Out
	ARNOLD	MO	Y	63010	12.192	68.58	0.8	0.95	1.00	0.91	Out	Out	Out
	FENTON	MO	N	63026	Default	Default	Default	NR	0.23	0.22	Out	Out	Out
	FENTON	MO	N	63026	Default	Default	Default	0.87	NR	NR	Out	Out	Out
	MARYLAND HEIGHTS	MO	N	63043	Default	Default	Default	0.01	NR	NR	Out	Out	Out
	MARYLAND HEIGHTS	MO	N	63043	Default	Default	Default	0.04	NR	0.04	Out	Out	Out
	PACIFIC	MO	N	63069	Default	Default	Default	NR	NR	0.0009	Out	Out	Out
	SAINT LOUIS	MO	N	63104	Default	Default	Default	0.18	0.21	0.23	Out	Out	Out
	SAINT LOUIS	MO	N	63111	Default	Default	Default	0.0004	0.0002	NR	Out	Out	Out
	BERKELEY	MO	N	63134	Default	Default	Default	0.01	0.0011	NR	Out	Out	Out
	SAINT LOUIS	MO	N	63147	Default	Default	Default	0.00	0.0027	NR	Out	Out	Out
	SAINT LOUIS	MO	N	63147	Default	Default	Default	NR	NR	0.0046	Out	Out	Out
	WARRENTON	MO	N	63383	Default	Default	Default	NR	NR	0.73	Out	Out	Out
	WENTZVILLE	MO	N	63385	Default	Default	Default	0.11	0.17	0.21	Out	Out	Out
	POPLAR BLUFF	MO	N	63901	Default	Default	Default	NR	0.00001	0.00002	Out	Out	Out
	INDEPENDENCE	MO	N	64051	Default	Default	Default	0.12	0.13	0.11	Out	Out	Out
	CLAYCOMO	MO	Y	64119	Default	Default	0.57	0.52	0.63	0.69	Out	Out	Out
	KANSAS CITY	MO	N	64120	Default	Default	Default	0.15	NR	NR	Out	Out	Out
	SAINT JOSEPH	MO	N	64504	Default	Default	Default	0.29	0.27	0.27	Out	Out	Out
	OWENSVILLE	MO	N	65066	Default	Default	Default	0.18	0.26	0.16	Out	Out	Out
	MANSFIELD	MO	N	65704	Default	Default	Default	NR	0.16	NR	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	MONETT	MO	Y	65708	6.096	3.048	0.11	0.31	0.07	0.02	Out	Out	Out
	MONETT	MO	N	65708	Default	Default	Default	NR	0.11	NR	Out	Out	Out
	MOUNT VERNON	MO	N	65712	Default	Default	Default	0.31	0.28	NR	Out	Out	Out
	SPRINGFIELD	MO	N	65802	Default	Default	Default	0.0004	0.0004	NR	Out	Out	Out
	SPRINGFIELD	MO	N	65802	Default	Default	Default	NR	NR	0.0004	Out	Out	Out
	SHAWNEE	KS	N	66227	Default	Default	Default	0.14	0.15	0.09	Out	Out	Out
	BAXTER SPRINGS	KS	N	66713	Default	Default	Default	0.13	0.21	NR	Out	Out	Out
	FREDONIA	KS	N	66736	Default	Default	Default	NR	0.0002	NR	Out	Out	Out
	IOLA	KS	N	66749	Default	Default	Default	NR	0.00005	0.00006	Out	Out	Out
	WINFIELD	KS	N	67156	Default	Default	Default	0.06	0.17	0.22	Out	Out	Out
	WICHITA	KS	N	67219	Default	Default	Default	NR	0.13	0.12	Out	Out	Out
	WICHITA	KS	N	67219	Default	Default	Default	NR	0.00012	0.00014	Out	Out	Out
	SALINA	KS	N	67401	Default	Default	Default	0.07	NR	NR	Out	Out	Out
	VALLEY	NE	N	68064	Default	Default	Default	NR	NR	0.18	Out	Out	Out
	LINCOLN	NE	N	68504	Default	Default	Default	NR	0.0000000003	0.00000005	Out	Out	Out
	LINCOLN	NE	N	68524	Default	Default	Default	0.07	0.07	NR	Out	Out	Out
	NORFOLK	NE	N	68701	Default	Default	Default	0.25	0.22	0.22	Out	Out	Out
	DAKOTA CITY	NE	N	68731	Default	Default	Default	NR	0.00	NR	Out	Out	Out
	RESERVE	LA	N	70084	Default	Default	Default	NR	0.00000004	0.00000005	Out	Out	Out
	NEW ORLEANS	LA	N	70123	Default	Default	Default	0.18	0.23	0.22	Out	Out	Out
	BROUSSARD	LA	N	70518	Default	Default	Default	NR	0.003	NR	Out	Out	Out
	NEW IBERIA	LA	N	70560	Default	Default	Default	NR	0.05	0.05	Out	Out	Out
	SCOTT	LA	N	70583	Default	Default	Default	NR	0.000007	0.000023	Out	Out	Out
	SAINT GABRIEL	LA	N	70776	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	ZACHARY	LA	N	70791	Default	Default	Default	0.18	0.19	0.18	Out	Out	Out
	BATON ROUGE	LA	N	70815	Default	Default	Default	0.01	0.01	NR	Out	Out	Out
	SHREVEPORT	LA	N	71129	Default	Default	Default	0.13	0.08	0.06	Out	Out	Out
	ALEXANDRIA	LA	N	71303	Default	Default	Default	0.00	NR	NR	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	WHITE HALL	AR	N	71602	Default	Default	Default	0.21	0.21	0.18	Out	Out	Out
	PINE BLUFF	AR	N	71602	Default	Default	Default	NR	0.23	0.22	Out	Out	Out
	EL DORADO	AR	N	71730	Default	Default	Default	0.00	0.00021	NR	Out	Out	Out
	MAGNOLIA	AR	N	71753	Default	Default	Default	NR	NR	0.00152	Out	Out	Out
	BENTON	AR	N	72015	Default	Default	Default	0.00	0.0018	NR	Out	Out	Out
	SEARCY	AR	N	72143	Default	Default	Default	NR	0.01	NR	Out	Out	Out
	BLYTHEVILLE	AR	N	72315	Default	Default	Default	NR	NR	0.40	Out	Out	Out
	HELENA	AR	N	72342	Default	Default	Default	NR	0.0065	0.0032	Out	Out	Out
	JONESBORO	AR	N	72401	Default	Default	Default	NR	NR	0.18	Out	Out	Out
	PIGGOTT	AR	N	72454	Default	Default	Default	0.31	0.28	0.12	Out	Out	Out
	FAYETTEVILLE	AR	N	72701	Default	Default	Default	NR	0.15	0.23	Out	Out	Out
	ROGERS	AR	N	72756	Default	Default	Default	NR	0.14	0.27	Out	Out	Out
	SPRINGDALE	AR	N	72764	Default	Default	Default	0.28	0.22	0.27	Out	Out	Out
	FORT SMITH	AR	N	72916	Default	Default	Default	NR	NR	0.28	Out	Out	Out
	EL RENO	OK	N	73036	Default	Default	Default	NR	0.16	0.16	Out	Out	Out
	EL RENO	OK	N	73036	Default	Default	Default	NR	0.01	0.01	Out	Out	Out
	TINKER A F B	OK	N	73145	Default	Default	Default	0.15	0.17	0.14	Out	Out	Out
	OKLAHOMA CITY	OK	Y	73179	13	100	0.85	0.44	NR	NR	Out	Out	Out
	WAYNOKA	OK	N	73860	Default	Default	Default	NR	NR	0.00005	Out	Out	Out
	SAND SPRINGS	OK	N	74063	Default	Default	Default	NR	0.0011	0.0011	Out	Out	Out
	TULSA	OK	N	74131	Default	Default	Default	0.0002	NR	0.00009	Out	Out	Out
	TULSA	OK	N	74147	Default	Default	Default	NR	0.00005	0.00005	Out	Out	Out
	PONCA CITY	OK	N	74601	Default	Default	Default	0.51	0.44	0.42	Out	Out	Out
	SHAWNEE	OK	N	74804	Default	Default	Default	0.50	0.47	0.41	Out	Out	Out
	CARROLLTON	TX	N	75006	Default	Default	Default	NR	0.00273	NR	Out	Out	Out
	CARROLLTON	TX	N	75006	Default	Default	Default	NR	NR	0.000006	Out	Out	Out
	GARLAND	TX	N	75041	Default	Default	Default	NR	NR	0.00009	Out	Out	Out
	MESQUITE	TX	N	75149	Default	Default	Default	NR	NR	0.00005	Out	Out	Out
	TERRELL	TX	N	75160	Default	Default	Default	0.41	0.40	0.32	Out	Out	Out
	WAXAHACHIE	TX	N	75165	Default	Default	Default	0.00009	0.00009	NR	Out	Out	Out
	WAXAHACHIE	TX	N	75165	Default	Default	Default	0.01	NR	NR	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	WAXAHACHIE	TX	N	75165	Default	Default	Default	0.0045	NR	NR	Out	Out	Out
	DALLAS	TX	N	75244	Default	Default	Default	0.02	NR	NR	Out	Out	Out
	PARIS	TX	N	75460	Default	Default	Default	0.25	0.21	0.19	Out	Out	Out
	TEXARKANA	TX	N	75501	Default	Default	Default	0.01	NR	NR	Out	Out	Out
	LONGVIEW	TX	N	75604	Default	Default	Default	NR	NR	0.0008	Out	Out	Out
	LONGVIEW	TX	Y	75604	18	80	0.91	1.53	1.30	1.07	Out	Out	Out
	LONGVIEW	TX	N	75602	Default	Default	Default	0.47	0.49	0.51	Out	Out	Out
	GILMER	TX	N	75644	Default	Default	Default	NR	NR	0.0009	Out	Out	Out
	KILGORE	TX	N	75662	Default	Default	Default	NR	0.0000020	0.000009	Out	Out	Out
	KILGORE	TX	N	75662	Default	Default	Default	0.01	NR	NR	Out	Out	Out
	LONGVIEW	TX	N	75662	Default	Default	Default	NR	NR	0.00	Out	Out	Out
	KILGORE	TX	N	75662	Default	Default	Default	NR	0.0012	0.0012	Out	Out	Out
	GRAPELAND	TX	N	75844	Default	Default	Default	0.35	0.29	0.32	Out	Out	Out
	LUFKIN	TX	N	75904	Default	Default	Default	0.26	0.30	NR	Out	Out	Out
	CRESSON	TX	N	76035	Default	Default	Default	0.0029	NR	NR	Out	Out	Out
	MANSFIELD	TX	N	76063	Default	Default	Default	NR	NR	0.01	Out	Out	Out
	FORT WORTH	TX	N	76140	Default	Default	Default	0.36	0.37	0.35	Out	Out	Out
	MEXIA	TX	N	76667	Default	Default	Default	NR	0.23	NR	Out	Out	Out
	HOUSTON	TX	N	77007	Default	Default	Default	0.02	0.01	NR	Out	Out	Out
	HOUSTON	TX	N	77015	Default	Default	Default	0.18	0.17	0.16	Out	Out	Out
	HOUSTON	TX	N	77041	Default	Default	Default	0.03	NR	NR	Out	Out	Out
	HOUSTON	TX	N	77041	Default	Default	Default	NR	0.02	0.02	Out	Out	Out
	HOUSTON	TX	N	77043	Default	Default	Default	NR	0.17	0.17	Out	Out	Out
	HOUSTON	TX	N	77047	Default	Default	Default	0.0011	0.0007	NR	Out	Out	Out
	HOUSTON	TX	N	77054	Default	Default	Default	0.08	0.04	NR	Out	Out	Out
	HOUSTON	TX	N	77060	Default	Default	Default	NR	NR	0.00	Out	Out	Out
	HOUSTON	TX	N	77092	Default	Default	Default	NR	0.0001	0.0002	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	CONROE	TX	N	77301	Default	Default	Default	NR	0.23	0.16	Out	Out	Out
	CONROE	TX	N	77303	Default	Default	Default	0.60	0.60	0.56	Out	Out	Out
	CONROE	TX	N	77303	Default	Default	Default	1.16	1.22	1.09	Out	Out	Out
	TOMBALL	TX	N	77375	Default	Default	Default	0.0012	0.0008	NR	Out	Out	Out
	SUGAR LAND	TX	N	77478	Default	Default	Default	1.10	1.10	1.08	Out	Out	Out
	SUGAR LAND	TX	N	77478	Default	Default	Default	NR	NR	0.0020	Out	Out	Out
	PASADENA	TX	N	77503	Default	Default	Default	0.63	0.65	0.73	Out	Out	Out
	PASADENA	TX	N	77507	Default	Default	Default	0.24	0.26	0.19	Out	Out	Out
	BAYTOWN	TX	N	77520	Default	Default	Default	0.0046	0.0046	NR	Out	Out	Out
	CROSBY	TX	N	77532	Default	Default	Default	NR	NR	0.01	Out	Out	Out
	DEER PARK	TX	N	77536	Default	Default	Default	0.00005	0.0046	NR	Out	Out	Out
	LA PORTE	TX	N	77571	Default	Default	Default	NR	0.00004	NR	Out	Out	Out
	FRESNO	TX	N	77545	Default	Default	Default	NR	0.0018	0.0016	Out	Out	Out
	LA PORTE	TX	N	77571	Default	Default	Default	0.15	0.07	0.17	Out	Out	Out
	LA PORTE	TX	N	77571	Default	Default	Default	0.02	NR	NR	Out	Out	Out
	TEXAS CITY	TX	N	77590	Default	Default	Default	NR	0.0002	NR	Out	Out	Out
	ORANGE	TX	N	77630	Default	Default	Default	NR	0.0045	0.0026	Out	Out	Out
	PORT NECHES	TX	N	77651	Default	Default	Default	NR	0.0028	0.0028	Out	Out	Out
	BRYAN	TX	N	77807	Default	Default	Default	NR	NR	0.0004	Out	Out	Out
	NAVASOTA	TX	N	77868	Default	Default	Default	0.04	0.19	0.0059	Out	Out	Out
	SEADRIFT	TX	N	77983	Default	Default	Default	0.57	0.58	0.59	Out	Out	Out
	ELMENDORF	TX	N	78112	Default	Default	Default	0.00006	NR	NR	Out	Out	Out
	SAN ANTONIO	TX	N	78264	Default	Default	Default	0.26	0.10	0.31	Out	Out	Out
	ROBSTOWN	TX	N	78380	Default	Default	Default	0.0001	NR	NR	Out	Out	Out
	CORPUS CHRISTI	TX	N	78405	Default	Default	Default	0.0029	0.002	NR	Out	Out	Out
	AMARILLO	TX	N	79108	Default	Default	Default	0.0025	NR	0.0007	Out	Out	Out
	GARDENDALE	TX	N	79758	Default	Default	Default	NR	NR	0.05	Out	Out	Out
	ODESSA	TX	N	79762	Default	Default	Default	NR	0.01	0.01	Out	Out	Out
	HOUSTON	TX	N	77061	Default	Default	Default	0.0001	NR	0.01	Out	Out	Out
	ODESSA	TX	N	79765	Default	Default	Default	0.0026	NR	NR	Out	Out	Out
	DENVER	CO	N	80216	Default	Default	Default	0.0009	0.00047	NR	Out	Out	Out
	DENVER	CO	N	80216	Default	Default	Default	0.0001	0.00010	NR	Out	Out	Out
	GOLDEN	CO	N	80401	Default	Default	Default	1.23	1.19	1.10	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	GOLDEN	CO	N	80403	Default	Default	Default	0.98	0.90	0.96	Out	Out	Out
	LONGMONT	CO	N	80501	Default	Default	Default	0.15	0.15	0.16	Out	Out	Out
	WINDSOR	CO	Y	80550	14.224	61.8744	0.85	1.22	1.18	1.16	Out	Out	Out
	COLORADO SPRINGS	CO	N	80916	Default	Default	Default	NR	0.02	0.02	Out	Out	Out
	GRAND JUNCTION	CO	N	81505	Default	Default	Default	NR	NR	0.10	Out	Out	Out
	SINCLAIR	WY	N	82334	Default	Default	Default	0.00005	NR	0.00	Out	Out	Out
	WORLAND	WY	N	82401	Default	Default	Default	1.11	1.27	1.33	Out	Out	Out
	CLEARFIELD	UT	N	84016	Default	Default	Default	0.00012	0.00005	NR	Out	Out	Out
	HILL AFB	UT	N	84056	Default	Default	Default	0.05	NR	NR	Out	Out	Out
	LOGAN	UT	N	84321	Default	Default	Default	0.03	0.10	0.13	Out	Out	Out
	PHOENIX	AZ	Y	85043	14	30	1	1.05	1.01	1.11	Out	Out	Out
	PHOENIX	AZ	N	85043	Default	Default	Default	0.0026	NR	NR	Out	Out	Out
	MESA	AZ	N	85210	Default	Default	Default	NR	0.00002	0.00022	Out	Out	Out
	CHANDLER	AZ	N	85226	Default	Default	Default	0.01	NR	NR	Out	Out	Out
	GOODYEAR	AZ	N	85338	Default	Default	Default	NR	NR	0.0055	Out	Out	Out
	YUMA	AZ	N	85369	Default	Default	Default	0.0039	NR	NR	Out	Out	Out
	FERNLEY	NV	N	89408	Default	Default	Default	0.00006	0.00006	NR	Out	Out	Out
	WINNEMUCCA	NV	N	89445	Default	Default	Default	NR	0.16	0.11	Out	Out	Out
	RENO	NV	N	89512	Default	Default	Default	0.06	0.06	NR	Out	Out	Out
	CITY OF COMMERCE	CA	N	90040	Default	Default	Default	0.00012	NR	0.00003	Out	Out	Out
	VERNON	CA	N	90058	Default	Default	Default	0.0011	NR	NR	Out	Out	Out
	LYNWOOD	CA	N	90262	Default	Default	Default	0.0001	NR	NR	Out	Out	Out
	TORRANCE	CA	N	90503	Default	Default	Default	1.18	1.11	0.59	Out	Out	Out
	TORRANCE	CA	N	90509	Default	Default	Default	NR	0.0045	0.0007	Out	Out	Out
	LA MIRADA	CA	N	90638	Default	Default	Default	NR	NR	0.00014	Out	Out	Out
	LOS ALAMITOS	CA	N	90720	Default	Default	Default	0.07	NR	NR	Out	Out	Out
	TERMINAL ISLAND	CA	N	90731	Default	Default	Default	0.23	0.16	0.15	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	SAN PEDRO	CA	N	90731	Default	Default	Default	NR	NR	0.0046	Out	Out	Out
	CARSON	CA	N	90745	Default	Default	Default	0.18	0.15	NR	Out	Out	Out
	LONG BEACH	CA	N	90810	Default	Default	Default	NR	0.0027	NR	Out	Out	Out
	CHATSWORTH	CA	Y	91311	15	30	0.98	1.53	1.20	0.79	Out	Out	Out
	AZUSA	CA	N	91702	Default	Default	Default	NR	NR	0.0001	Out	Out	Out
	RANCHO CUCAMONGA	CA	N	91730	Default	Default	Default	NR	0.03	0.03	Out	Out	Out
	SOUTH EL MONTE	CA	N	91733	Default	Default	Default	0.0021	0.0021	NR	Out	Out	Out
	MIRA LOMA	CA	N	91752	Default	Default	Default	1.13	1.11	1.07	Out	Out	Out
	ONTARIO	CA	N	91761	Default	Default	Default	0.00021	NR	NR	Out	Out	Out
	SAN MARCOS	CA	N	92078	Default	Default	Default	0.04	NR	0.0055	Out	Out	Out
	IRVINE	CA	N	92618	Default	Default	Default	NR	NR	0.00003	Out	Out	Out
	SANTA ANA	CA	N	92704	Default	Default	Default	0.00	NR	NR	Out	Out	Out
	SANTA ANA	CA	N	92704	Default	Default	Default	0.00035	0.00047	NR	Out	Out	Out
	SANTA ANA	CA	N	92704	Default	Default	Default	NR	NR	0.01	Out	Out	Out
	BAKERSFIELD	CA	N	93308	Default	Default	Default	0.00010	0.00012	NR	Out	Out	Out
	BAKERSFIELD	CA	N	93308	Default	Default	Default	NR	0.00014	NR	Out	Out	Out
	SAN CARLOS	CA	N	94070	Default	Default	Default	0.00003	0.00003	NR	Out	Out	Out
	FAIRFIELD	CA	N	94533	Default	Default	Default	0.85	0.52	0.59	Out	Out	Out
	FAIRFIELD	CA	Y	94533	15	50	0.98	0.37	0.27	0.27	Out	Out	Out
	FREMONT	CA	N	94538	Default	Default	Default	1.23	0.53	NR	Out	Out	Out
	SAN JOSE	CA	N	95131	Default	Default	Default	0.0002	0.0003	NR	Out	Out	Out
	SAN JOSE	CA	N	95133	Default	Default	Default	0.0007	NR	NR	Out	Out	Out
	MERCED	CA	N	95348	Default	Default	Default	0.26	0.19	0.02	Out	Out	Out
	OAKDALE	CA	N	95361	Default	Default	Default	0.13	0.09	0.08	Out	Out	Out
	RIVERBANK	CA	N	95367	Default	Default	Default	0.09	0.10	0.17	Out	Out	Out
	DIXON	CA	N	95620	Default	Default	Default	0.17	0.20	0.16	Out	Out	Out
	ROSEVILLE	CA	N	95678	Default	Default	Default	0.0057	NR	NR	Out	Out	Out
	SACRAMENTO	CA	N	95824	Default	Default	Default	NR	NR	0.0045	Out	Out	Out

Table C-4. Comparisons of 2009, 2010 and 2011 TRI Air Emissions Data for Certain Glycol Ethers to Site Specific Screening Values (Step B)

Facility	City	State	Completed Survey	Zip Code	Minimum Release Height (m)	Minimum Receptor Distance (m)	Proportion of Certain Glycol Ethers Used that are EGBE	2009 Maximum Impact (mg/m^3)	2010 Maximum Impact (mg/m^3)	2011 Maximum Impact (mg/m^3)	2009 Outcome	2010 Outcome	2011 Outcome
[redacted]	SACRAMENTO	CA	N	95824	Default	Default	Default	0.18	0.21	0.17	Out	Out	Out
	SACRAMENTO	CA	N	95826	Default	Default	Default	0.000011	NR	NR	Out	Out	Out
	KAPOLEI	HI	N	96707	Default	Default	Default	0.30	0.30	0.26	Out	Out	Out
	PORTLAND	OR	N	97210	Default	Default	Default	NR	0.00160	0.00134	Out	Out	Out
	PORTLAND	OR	N	97210	Default	Default	Default	NR	0.00009	NR	Out	Out	Out
	PORTLAND	OR	N	97227	Default	Default	Default	0.00029	0.00007	NR	Out	Out	Out
	AUBURN	WA	N	98002	Default	Default	Default	NR	0.0045	0.0045	Out	Out	Out
	KENT	WA	Y	98032	13.19784	29	0.9987	3.75	3.54	3.54	Retain	Retain	Retain
	EVERETT	WA	N	98204	Default	Default	Default	0.35	0.26	0.48	Out	Out	Out
	TACOMA	WA	N	98421	Default	Default	Default	NR	0.0000001	0.0000002	Out	Out	Out
	OLYMPIA	WA	Y	98501	12.8	44.63	0.94	1.83	2.07	1.71	Retain	Retain	Retain
	ELMENDORF AFB	AK	N	99506	Default	Default	Default	NR	0.00023	NR	Out	Out	Out

NR: no emissions reported
Y: survey completed
N: survey not completed
tpy: tons per year
Default: Because site-specific survey not completed, assumed point source type, emissions height of 5 m, distance to fenceline of 20 m and all repor
mg/m^3: concentration of EGBE in air (milligrams per cubic meter) at fenceline
EGBE: ethylene glycol monobutyl ether
m: meter
TRI: Toxics Release Inventory

APPENDIX D

Outcome of Long-Term Tiered Modeling in Support of Uncertainty Analysis

Table D-1. Tier 1 Table of Normalized Annual Concentrations (µg/m^3)/(tpy)

Source Type	Release Height (m)	Side Length (m)	Normalized Maximum Annual Concentrations At or Beyond: Receptor Distance					
			10 m	30 m	50 m	100 m	200 m	500 m
Area (10 m)	0.00	10.00	956	302.00	164.00	64.80	23.20	5.53
Area (10 m)[a]	3.00	10.00	103	32.47	29.94	28.09	17.73	5.18
Area (20 m)	0.00	20.00	515	183.00	107.00	47.80	19.10	5.04
Area (30 m)	0.00	30.00	351	131.00	79.20	37.40	16.10	4.58
Volume	3[a]	10.00	128	40.32	36.10	25.00	13.79	4.46
Point	0	-	5410	792.00	325.00	96.70	29.10	6.08
Point	2	-	187	142.00	135.00	72.80	26.40	5.96
Point	5	-	96.20	74.60	51.80	27.20	14.80	5.18
Point	10	-	27.70	24.40	21.10	13.60	7.17	2.88
Point	20	-	6.91	4.52	4.52	3.80	2.44	1.06
Point	35	-	2.26	2.26	1.13	1.11	0.90	0.44
Point	50	-	1.11	1.10	1.11	0.47	0.42	0.25

a. Not included in EPA's Tier 1 table. Included in the EGBE HAPs Petition Table 4-2. These values are based on ratios of predicted SCREEN3 impacts for each receptor distance. The 10 m2 area source with the 0 m release height was used as the basis for the SCREEN3 predicted ratios. Ratios at the 10 m receptor distance were set equal to the ratios at the 30 m receptor distance.

m: meter

tpy: ton per year

µg/m^3: micrograms per cubic meter

Table D-2. Tier 1 Sensitivity Analysis Long-Term Modeling Parameters and Individual Source Results at Selected Facilities

Facility Name	Source ID	Release Height (m)	Volume Source Length of Side (m)	Distance to Nearest Receptor (m)	Physical Fence (Y/N)	EPA Tier 1 Table: Normalized Maximum Annual Conc. ($\mu g/m^3$)/(tpy)	Proportion EGBE of Certain Glycol Ethers	2009		2010		2011	
								TRI Emissions (tpy)	Maximum Annual Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (tpy)	Maximum Annual Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (tpy)	Maximum Annual Tier I EGBE Conc. ($\mu g/m^3$)
[redacted]	Stack 1	16.6	-	89	Y	21.10	1.00	130.0	2,743	130.0	2,743	135.0	2,848.50
	Stack 2	16.6	-	91	Y	21.10	1.00	130.0	2,743	130.0	2,743	135.0	2,848.50
	Stack 3	19.8	-	89	Y	21.10	1.00	130.0	2,743	130.0	2,743	135.0	2,848.50
	Stack 4	19.8	-	100	Y	13.60	1.00	130.0	1,768	130.0	1,768	135.0	1,836.00
	Stack 5	14.2	-	127	Y	13.60	1.00	130.0	1,768	130.0	1,768	135.0	1,836.00
	Stack 6	21.2	-	108	Y	3.80	1.00	130.0	494	130.0	494	135.0	513.00
	Stack 7	21.6	-	135	Y	3.80	1.00	130.0	494	130.0	494	135.0	513.00
	Stack 8	20.4	-	105	Y	3.80	1.00	130.0	494	130.0	494	135.0	513.00
	Stack 9	20.7	-	100	Y	3.80	1.00	130.0	494	130.0	494	135.0	513.00
	Fugitive	6.9	10	84	Y	36.10	1.00	24.5	884	25.0	903	25.5	920.58
	Stack 1	21.5	-	58	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 2	21.8	-	61	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 3	25.9	-	62	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 4	15.9	-	68	N	21.10	1.00	50.0	1,050	65.0	1,365	70.0	1,469.62
	Stack 5	13.5	-	57	N	21.10	1.00	50.0	1,050	65.0	1,365	70.0	1,469.62
	Stack 6	13.5	-	68	N	21.10	1.00	50.0	1,050	65.0	1,365	70.0	1,469.62
	Stack 7	21.5	-	65	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 8	21.8	-	70	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 9	25.9	-	69	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 10	25.9	-	60	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 11	13.5	-	68	N	21.10	1.00	50.0	1,050	65.0	1,365	70.0	1,469.62
	Stack 12	13.5	-	68	N	21.10	1.00	50.0	1,050	65.0	1,365	70.0	1,469.62
	Stack 13	25.9	-	59	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 14	21.8	-	55	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 15	25.9	-	52	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 16	25.9	-	48	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 17	13.5	-	58	N	21.10	1.00	50.0	1,050	65.0	1,365	70.0	1,469.62
	Stack 18	13.5	-	57	N	21.10	1.00	50.0	1,050	65.0	1,365	70.0	1,469.62
	Stack 19	21.5	-	37	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 20	25.9	-	49	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 21	21.8	-	45	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 22	25.9	-	43	N	4.52	1.00	50.0	225	65.0	292	70.0	314.82
	Stack 23	15.8	-	53	N	21.10	1.00	50.0	1,050	65.0	1,365	70.0	1,469.62
	Fugitive	5.8	10	50	N	36.10	1.00	20.0	718	11.5	413	12.0	431.05
	Stack 1	18.5	-	147	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 2	18.9	-	127	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 3	15.5	-	102	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 4	15.2	-	102	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 5	13.1	-	98	Y	21.10	0.97	140.0	2,852	150.0	3,056	145.0	2,954.25
	Stack 6	13.1	-	96	Y	21.10	0.97	140.0	2,852	150.0	3,056	145.0	2,954.25
	Stack 7	18.5	-	140	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 8	18.4	-	145	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 9	18.3	-	122	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 10	18.6	-	118	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 11	18.3	-	103	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16

Table D-2. Tier 1 Sensitivity Analysis Long-Term Modeling Parameters and Individual Source Results at Selected Facilities

Facility Name	Source ID	Release Height (m)	Volume Source Length of Side (m)	Distance to Nearest Receptor (m)	Physical Fence (Y/N)	EPA Tier 1 Table: Normalized Maximum Annual Conc. ($\mu g/m^3$)/(tpy)	Proportion EGBE of Certain Glycol Ethers	2009		2010		2011	
								TRI Emissions (tpy)	Maximum Annual Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (tpy)	Maximum Annual Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (tpy)	Maximum Annual Tier I EGBE Conc. ($\mu g/m^3$)
[redacted]	Stack 12	18.3	-	111	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 13	18.3	-	121	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 14	18.5	-	142	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 15	15.5	-	106	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 16	15.5	-	110	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 17	17.9	-	136	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 18	17.9	-	116	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Stack 19	17.9	-	114	Y	13.60	0.97	140.0	1,839	150.0	1,970	145.0	1,904.16
	Fugitive	6.8	10	135	Y	25.00	0.97	27.0	652	28.5	688	28.0	675.92
	Stack 1	18.3	-	18.71	N	27.70	0.88	51.4	1,253	48.1	1,171	48.6	1,185.48
	Stack 2	15.2	-	18.71	N	27.70	0.88	51.4	1,253	48.1	1,171	48.6	1,185.48
	Stack 3	15.2	-	24	N	27.70	0.88	51.4	1,253	48.1	1,171	48.6	1,185.48
	Stack 4	18.3	-	24	N	27.70	0.88	51.4	1,253	48.1	1,171	48.6	1,185.48
	Stack 5	15.2	-	37.92	N	24.40	0.88	51.4	1,104	48.1	1,032	48.6	1,044.25
	Stack 6	15.2	-	32.99	N	24.40	0.88	51.4	1,104	48.1	1,032	48.6	1,044.25
	Stack 7	18.3	-	37.92	N	24.40	0.88	51.4	1,104	48.1	1,032	48.6	1,044.25
	Fugitive	3.4	10	43.67	N	40.32	0.88	17.1	608	16.0	568	16.2	575.23
	Stack 1	8.7	-	38	N	74.60	0.91	54.1	3,655	47.0	3,176	52.6	3,553.41
	Stack 2	8.7	-	41	N	74.60	0.91	54.1	3,655	47.0	3,176	52.6	3,553.41
	Stack 3	8.7	-	39	N	74.60	0.91	54.1	3,655	47.0	3,176	52.6	3,553.41
	Stack 4	8.7	-	40	N	74.60	0.91	54.1	3,655	47.0	3,176	52.6	3,553.41
	Stack 5	8.7	-	34	N	74.60	0.91	54.1	3,655	47.0	3,176	52.6	3,553.41
	Stack 6	8.7	-	42	N	74.60	0.91	54.1	3,655	47.0	3,176	52.6	3,553.41
	Stack 7	8.7	-	60	N	51.80	0.91	54.1	2,538	47.0	2,205	52.6	2,467.38
	Stack 8	8.7	-	64	N	51.80	0.91	54.1	2,538	47.0	2,205	52.6	2,467.38
	Stack 9	8.7	-	46	N	74.60	0.91	54.1	3,655	47.0	3,176	52.6	3,553.41
	Stack 10	8.7	-	62	N	51.80	0.91	54.1	2,538	47.0	2,205	52.6	2,467.38
	Stack 11	8.7	-	63	N	51.80	0.91	54.1	2,538	47.0	2,205	52.6	2,467.38
	Stack 12	8.7	-	50	N	51.80	0.91	54.1	2,538	47.0	2,205	52.6	2,467.38
	Fugitive	2.8	10	75	N	36.10	0.91	18.0	590	15.7	512	17.5	573.20
	Stack 1	14.3	-	44.63	N	24.40	0.94	51.3	1,177	58.3	1,336	48.0	1,100.35
	Stack 2	16.8	-	55.57	N	21.10	0.94	51.3	1,018	58.3	1,156	48.0	951.54
	Stack 3	12.8	-	63.77	N	21.10	0.94	51.3	1,018	58.3	1,156	48.0	951.54
	Stack 4	12.8	-	72.24	N	21.10	0.94	51.3	1,018	58.3	1,156	48.0	951.54
	Fugitive	5.0	10	69.36	N	36.10	0.94	17.1	580	19.4	659	16.0	542.67
	Stack 1	18.0	-	70.7	N	21.10	0.99	87.7	1,833	91.9	1,920	95.7	1,998.49
	Stack 2	18.0	-	81.66	N	21.10	0.99	87.7	1,833	91.9	1,920	95.7	1,998.49
	Stack 3	18.0	-	98.33	N	21.10	0.99	87.7	1,833	91.9	1,920	95.7	1,998.49
	Stack 4	18.0	-	104.03	N	13.60	0.99	87.7	1,181	91.9	1,237	95.7	1,288.13
	Stack 5	18.0	-	78.13	N	21.10	0.99	87.7	1,833	91.9	1,920	95.7	1,998.49
	Fugitive	5.0	10	102.8	N	25.00	0.99	29.3	725	30.7	761	31.9	789.29
	Stack 1	11.0	-	12	N	27.70	1.00	63.3	1,753	60.1	1,665	57.7	1,598.80
	Stack 2	17.0	-	15	N	27.70	1.00	63.3	1,753	60.1	1,665	57.7	1,598.80
	Fugitive	4.3	10	31.36	N	40.32	1.00	37.9	1,527	36.0	1,450	34.5	1,392.18
	Stack 1	15.2	-	22	Y	27.70	1.00	82.0	2,268	82.2	2,275	75.9	2,098.98

Table D-2. Tier 1 Sensitivity Analysis Long-Term Modeling Parameters and Individual Source Results at Selected Facilities

Facility Name	Source ID	Release Height (m)	Volume Source Length of Side (m)	Distance to Nearest Receptor (m)	Physical Fence (Y/N)	EPA Tier 1 Table: Normalized Maximum Annual Conc. ($\mu g/m^3$)/(tpy)	Proportion EGBE of Certain Glycol Ethers	2009		2010		2011	
								TRI Emissions (tpy)	Maximum Annual Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (tpy)	Maximum Annual Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (tpy)	Maximum Annual Tier I EGBE Conc. ($\mu g/m^3$)
[redacted]	Stack 2	15.5	-	43	Y	24.40	1.00	82.0	1,998	82.2	2,004	75.9	1,848.92
	Stack 3	11.6	-	13	Y	27.70	1.00	82.0	2,268	82.2	2,275	75.9	2,098.98
	Stack 4	14.0	-	16	Y	27.70	1.00	82.0	2,268	82.2	2,275	75.9	2,098.98
	Stack 5	14.0	-	19	Y	27.70	1.00	82.0	2,268	82.2	2,275	75.9	2,098.98
	Stack 6	15.2	-	11	Y	27.70	1.00	82.0	2,268	82.2	2,275	75.9	2,098.98
	Stack 7	15.2	-	18	Y	27.70	1.00	82.0	2,268	82.2	2,275	75.9	2,098.98
	Stack 8	15.2	-	23	Y	27.70	1.00	82.0	2,268	82.2	2,275	75.9	2,098.98
	Fugitive	5.0	10	63	Y	36.10	1.00	14.5	522	14.5	523	13.4	482.62
	Stack 1	14.6	-	36	Y	24.40	1.00	74.8	1,822	70.6	1,721	70.5	1,718.06
	Stack 2	14.6	-	40	Y	24.40	1.00	74.8	1,822	70.6	1,721	70.5	1,718.06
	Stack 3	16.6	-	42	Y	24.40	1.00	74.8	1,822	70.6	1,721	70.5	1,718.06
	Stack 4	14.6	-	29	Y	27.70	1.00	74.8	2,068	70.6	1,954	70.5	1,950.42
	Stack 5	13.5	-	56	Y	21.10	1.00	74.8	1,576	70.6	1,488	70.5	1,485.70
	Stack 6	14.2	-	61	Y	21.10	1.00	74.8	1,576	70.6	1,488	70.5	1,485.70
	Stack 7	13.2	-	62	Y	21.10	1.00	74.8	1,576	70.6	1,488	70.5	1,485.70
	Stack 8	13.7	-	65	Y	21.10	1.00	74.8	1,576	70.6	1,488	70.5	1,485.70
	Stack 9	15.2	-	56	Y	21.10	1.00	74.8	1,576	70.6	1,488	70.5	1,485.70
	Stack 10	15.3	-	62	Y	21.10	1.00	74.8	1,576	70.6	1,488	70.5	1,485.70
	Stack 11	15.3	-	65	Y	21.10	1.00	74.8	1,576	70.6	1,488	70.5	1,485.70
	Stack 12	15.3	-	60	Y	21.10	1.00	74.8	1,576	70.6	1,488	70.5	1,485.70
	Fugitive	3.7	10	64	Y	36.10	1.00	13.2	476	12.5	449	12.4	448.59
	Stack 1	12.2	-	37.8	N	24.40	1.00	54.5	1,330	55.5	1,354	53.2	1,298.85
	Stack 2	12.2	-	32.22	N	24.40	1.00	54.5	1,330	55.5	1,354	53.2	1,298.85
	Stack 3	13.4	-	41.76	N	24.40	1.00	54.5	1,330	55.5	1,354	53.2	1,298.85
	Stack 4	13.4	-	41.76	N	24.40	1.00	54.5	1,330	55.5	1,354	53.2	1,298.85
	Stack 5	13.4	-	45.11	N	24.40	1.00	54.5	1,330	55.5	1,354	53.2	1,298.85
	Stack 7	12.2	-	41.45	N	24.40	1.00	54.5	1,330	55.5	1,354	53.2	1,298.85
	Stack 8	12.2	-	32.61	N	24.40	1.00	54.5	1,330	55.5	1,354	53.2	1,298.85
	Stack 9	12.2	-	49.07	N	24.40	1.00	54.5	1,330	55.5	1,354	53.2	1,298.85
	Stack 10	12.8	-	53.95	N	21.10	1.00	54.5	1,150	55.5	1,171	53.2	1,123.18
	Stack 11	12.2	-	56.39	N	21.10	1.00	54.5	1,150	55.5	1,171	53.2	1,123.18
	Stack 12	12.2	-	44.2	N	24.40	1.00	54.5	1,330	55.5	1,354	53.2	1,298.85
	Fugitive	3.0	10	59	N	36.10	1.00	12.5	451	12.9	464	12.2	440.11
	Stack 1	13.1	-	30	Y	24.40	0.94	51.7	1,183	53.8	1,230	26.6	609.15
	Stack 2	12.6	-	38	Y	24.40	0.94	51.7	1,183	53.8	1,230	26.6	609.15
	Stack 3	13.2	-	44	Y	24.40	0.94	51.7	1,183	53.8	1,230	26.6	609.15
	Stack 4	12.2	-	19	Y	27.70	0.94	51.7	1,342	53.8	1,396	26.6	691.54
	Stack 5	12.8	-	23	Y	27.70	0.94	51.7	1,342	53.8	1,396	26.6	691.54
	Stack 6	13.7	-	31	Y	24.40	0.94	51.7	1,183	53.8	1,230	26.6	609.15
	Stack 7	14.0	-	26	Y	27.70	0.94	51.7	1,342	53.8	1,396	26.6	691.54
	Stack 8	14.0	-	34	Y	24.40	0.94	51.7	1,183	53.8	1,230	26.6	609.15
	Stack 9	15.2	-	41	Y	24.40	0.94	51.7	1,183	53.8	1,230	26.6	609.15
	Fugitive	4.3	10	46	Y	40.32	0.94	13.6	515	14.2	537	6.5	246.36
	Stack 1	13.7	-	12	N	27.70	1.00	1.7	47	1.7	46	1.8	49.82
	Fugitive	3.0	10	70	N	36.10	1.00	22.8	824	22.1	799	24.0	865.65

Table D-2. Tier 1 Sensitivity Analysis Long-Term Modeling Parameters and Individual Source Results at Selected Facilities

Facility Name	Source ID	Release Height (m)	Volume Source Length of Side (m)	Distance to Nearest Receptor (m)	Physical Fence (Y/N)	EPA Tier 1 Table: Normalized Maximum Annual Conc. ($\mu g/m^3$)/(tpy)	Proportion EGBE of Certain Glycol Ethers	2009		2010		2011	
								TRI Emissions (tpy)	Maximum Annual Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (tpy)	Maximum Annual Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (tpy)	Maximum Annual Tier I EGBE Conc. ($\mu g/m^3$)
[redacted]	Point	11.2	-	45	Unknown	24.40	1.00	4.3	104	3.6	87	3.1	74.69
	Fugitive	3.1	10	210	Unknown	13.79	1.00	36.1	498	38.8	535	45.2	623.50
	Stacks 1-10	14.0	-	75	Unknown	21.10	0.95	143.9	2,885	157.6	3,158	110.5	2,214.11
	Fugitive	3.0	10	91.7	Unknown	36.10	0.95	28.3	971	31.2	1,071	25.7	881.96

Table D-3. Tier 1 Sensitivity Analysis Long-Term Modeling Summary for Selected Facilities

Site Name	Source Type	2009 TRI		2010 TRI		2011 TRI	
		Maximum Annual Tier I EGBE Conc. (µg/m^3)	Long-Term HQ (combined)	Maximum Annual Tier I EGBE Conc. (µg/m^3)	Long-Term HQ (combined)	Maximum Annual Tier I EGBE Conc. (µg/m^3)	Long-Term HQ (combined)
[redacted]	Point	3654.7	**3**	3176.1	**2**	3553.4	**3**
	Volume	589.5		512.3		573.2	
	Point	104.4	0.4	87.5	0.4	74.7	0.4
	Volume	498.5		535.1		623.5	
	Point	2852.4	**2**	3056.1	**2**	2954.3	**2**
	Volume	651.8		688.0		675.9	
	Point	1753.1	**2**	1665.4	**2**	1598.8	**2**
	Volume	1526.5		1450.2		1392.2	
	Point	2885.0	**2**	3158.4	**3**	2214.1	**2**
	Volume	971.0		1070.7		882.0	
	Point	2268.3	**2**	2275.3	**2**	2099.0	**2**
	Volume	521.7		523.3		482.6	
	Point	1049.7	1	1364.6	1	1469.6	1
	Volume	718.4		413.1		431.0	
	Point	2743.0	**2**	2743.0	**2**	2848.5	**2**
	Volume	884.5		902.5		920.6	
	Point	1329.8	1	1354.2	1	1298.8	1
	Volume	451.3		463.9		440.1	
	Point	47.4	0.5	46.0	0.5	49.8	0.6
	Volume	823.6		799.2		865.6	
	Point	1833.0	**2**	1919.7	**2**	1998.5	**2**
	Volume	725.5		761.0		789.3	
	Point	1342.4	1	1395.9	1	691.5	0.6
	Volume	515.3		536.8		246.4	
	Point	1253.3	1	1171.5	1	1185.5	1
	Volume	608.1		568.4		575.2	
	Point	2068.4	**2**	1953.6	**2**	1950.4	1
	Volume	475.7		449.3		448.6	
	Point	1177.4	1	1336.4	1	1100.4	1
	Volume	579.7		659.1		542.7	

Hazard quotient (HQ) equals the sum of the maximum annual average concentration for fugitive/volume source emissions and point source emissions, at or beyond the fence line, is compared to an RfC for EGBE of 1,600 µg/m^3.
Bold text indicates an HQ greater than 1
EGBE: ethylene glycol monobutyl ether
HQ: hazard quotient
RfC: reference concentration
TRI: Toxics Release Inventory
µg/m^3: micrograms per cubic meter

Table D-4. Tier 2 Modeling Stack Parameters and Individual Source Results at Individual Facilities

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]	Worst case annual average unit emission rate concentration[b] (µg/m3) (1g/s)
[redacted]	Stack 1	L1-IBO-Hot		21.49	0.686	9.64	349.8	1.431	1.860	2.004	59.41
[redacted]	Stack 2	L1-ISS		21.79	0.405	11.70	298.0	1.431	1.860	2.004	165.81
[redacted]	Stack 3	L1-PO1-Hot		25.91	0.381	19.16	374.8	1.431	1.860	2.004	61.09
[redacted]	Stack 4	L1-PO2-Hot		15.85	0.405	20.70	374.8	1.431	1.860	2.004	72.90
[redacted]	Stack 5	L1-PR-11		13.52	0.399	10.18	298.0	1.431	1.860	2.004	195.17
[redacted]	Stack 6	L1-PR-12		13.52	0.399	10.18	298.0	1.431	1.860	2.004	202.66
[redacted]	Stack 7	L2-IBO-Hot		21.49	0.686	2.71	349.8	1.431	1.860	2.004	140.47
[redacted]	Stack 8	L2-ISS		21.79	0.405	11.70	298.0	1.431	1.860	2.004	156.61
[redacted]	Stack 9	L2-PO1-Hot		25.91	0.393	19.19	374.8	1.431	1.860	2.004	59.16
[redacted]	Stack 10	L2-PO2-Hot		25.91	0.381	15.63	374.8	1.431	1.860	2.004	83.54
[redacted]	Stack 11	L2-PR-21		13.52	0.399	10.18	298.0	1.431	1.860	2.004	204.17
[redacted]	Stack 12	L2-PR-22		13.52	0.399	10.18	298.0	1.431	1.860	2.004	211.88
[redacted]	Stack 13	L3-IBO-Hot		25.91	0.686	7.59	349.8	1.431	1.860	2.004	88.27
[redacted]	Stack 14	L3-ISS		21.79	0.405	11.70	298.0	1.431	1.860	2.004	151.97
[redacted]	Stack 15	L3-PO1-Hot		25.91	0.381	17.20	374.8	1.431	1.860	2.004	77.60
[redacted]	Stack 16	L3-PO2-Hot		25.91	0.393	14.71	374.8	1.431	1.860	2.004	83.30
[redacted]	Stack 17	L3-PR-31		13.52	0.399	10.18	298.0	1.431	1.860	2.004	210.52
[redacted]	Stack 18	L3-PR-32		13.52	0.399	10.18	298.0	1.431	1.860	2.004	196.63
[redacted]	Stack 19	L4-BCO-Hot		21.49	0.393	17.23	453.2	1.431	1.860	2.004	62.85
[redacted]	Stack 20	L4-IBO-Hot		25.91	0.381	32.32	349.8	1.431	1.860	2.004	56.94
[redacted]	Stack 21	L4-ISS		21.79	0.405	7.31	298.0	1.431	1.860	2.004	172.87
[redacted]	Stack 22	L4-PO-Hot		25.91	0.686	5.00	374.8	1.431	1.860	2.004	85.12
[redacted]	Stack 23	L4-PR-41		15.75	1.119	1.30	298.0	1.431	1.860	2.004	**284.49**
[redacted]	Stack 1	B_PO11	PO11	16.61	0.457	7.00	510.9	3.740	3.740	3.883	**49.10**
[redacted]	Stack 2	B_PO12	PO12	16.61	0.305	29.07	510.9	3.740	3.740	3.883	32.25
[redacted]	Stack 3	B_PO21	PO21	19.81	0.457	9.79	499.8	3.740	3.740	3.883	19.29
[redacted]	Stack 4	B_PO22	PO22	19.81	0.457	11.32	488.7	3.740	3.740	3.883	18.31
[redacted]	Stack 5	B_IBO11	IBO11	14.17	0.610	11.62	477.6	3.740	3.740	3.883	27.00
[redacted]	Stack 6	B_IBO21B	IBO21-B	21.18	0.610	3.98	477.6	3.740	3.740	3.883	21.02
[redacted]	Stack 7	B_IBO31	IBO31	21.64	0.864	5.12	494.3	3.740	3.740	3.883	11.49
[redacted]	Stack 8	B_WCO31	WashCoat Ov	20.42	0.813	2.58	510.9	3.740	3.740	3.883	18.91
[redacted]	Stack 9	B_BH	Baghouse	20.73	0.330	37.48	294.3	3.740	3.740	3.883	22.86
[redacted]	Stack 1	PO2	S019	18.47	0.406	13.53	402.0	3.889	4.167	4.028	27.18
[redacted]	Stack 2	PO3	S006	18.87	0.406	12.25	365.9	3.889	4.167	4.028	39.52
[redacted]	Stack 3	PO4Z1	S035	15.54	0.483	6.77	402.6	3.889	4.167	4.028	88.33
[redacted]	Stack 4	PO4Z2	S036	15.16	0.483	9.49	395.9	3.889	4.167	4.028	77.59

Table D-4. Tier 2 Modeling Stack Parameters and Individual Source Results at Individual Facilities

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]	Worst case annual average unit emission rate concentration[b] (µg/m3) (1g/s)
[redacted]	Stack 5	PO5Z1	S037	13.13	0.483	9.63	369.8	3.889	4.167	4.028	85.53
[redacted]	Stack 6	PO5Z2	S038	13.13	0.483	8.84	380.9	3.889	4.167	4.028	79.85
[redacted]	Stack 7	IBO2Z1	S021	18.52	0.406	7.60	362.6	3.889	4.167	4.028	46.41
[redacted]	Stack 8	IBO2Z2	S020	18.42	0.508	6.60	382.6	3.889	4.167	4.028	36.78
[redacted]	Stack 9	IBO3Z1	S011	18.34	0.406	6.06	322.6	3.889	4.167	4.028	80.16
[redacted]	Stack 10	IBO3Z2	S010	18.59	0.508	7.29	389.3	3.889	4.167	4.028	37.88
[redacted]	Stack 11	IBO4/5Z1	S027	18.31	0.406	2.85	356.5	3.889	4.167	4.028	**129.63**
[redacted]	Stack 12	IBO4/5Z2	S028	18.29	0.508	5.13	384.8	3.889	4.167	4.028	59.16
[redacted]	Stack 13	IBO4/5Z3	S039	18.34	0.406	13.05	373.7	3.889	4.167	4.028	38.05
[redacted]	Stack 14	BCPOL2	S016	18.47	0.406	13.01	391.5	3.889	4.167	4.028	30.40
[redacted]	Stack 15	BCPOL4Z1	S033	15.54	0.483	9.00	355.9	3.889	4.167	4.028	91.25
[redacted]	Stack 16	BCPOL4Z2	S034	15.54	0.483	10.22	382.0	3.889	4.167	4.028	74.95
[redacted]	Stack 17	ICEXH02	S024	17.86	0.305	11.26	293.2	3.889	4.167	4.028	78.39
[redacted]	Stack 18	ICEXH03	S023	17.86	0.305	11.89	295.9	3.889	4.167	4.028	85.78
[redacted]	Stack 19	ICEXH045	S022	17.86	0.406	8.61	295.9	3.889	4.167	4.028	89.46
[redacted]	Stack 1	IBO	IBO (Can Lin	18.29	0.305	10.20	459.8	1.302	1.217	1.231	114.57
[redacted]	Stack 2	Ross	Ross (Can Lir	15.24	0.305	16.72	422.6	1.302	1.217	1.231	103.34
[redacted]	Stack 3	IBO	IBO (Can Lin	15.24	0.305	9.51	459.8	1.302	1.217	1.231	132.80
[redacted]	Stack 4	Ross	Ross (Can Lir	18.29	0.305	16.72	422.6	1.302	1.217	1.231	92.75
[redacted]	Stack 5	IBO	IBO (Can Lin	15.24	0.305	10.20	459.8	1.302	1.217	1.231	**155.87**
[redacted]	Stack 6	Ross	Ross (Can Lir	15.24	0.305	16.72	422.6	1.302	1.217	1.231	131.89
[redacted]	Stack 7	Ross	Ross (Can Lir	18.29	0.305	16.72	422.6	1.302	1.217	1.231	118.04
[redacted]	Stack 1	IBO #1A		14.33	0.710	3.97	460.9	1.388	1.576	1.297	62.08
[redacted]	Stack 2	IBO #2C		16.76	1.067	7.98	316.5	1.388	1.576	1.297	93.81
[redacted]	Stack 3	LSM #1A		12.80	0.280	8.32	294.3	1.388	1.576	1.297	294.50
[redacted]	Stack 4	LSM #2A		12.80	0.280	6.91	294.3	1.388	1.576	1.297	**310.14**
[redacted]	Stack 1	LSM2		8.53	0.457	1.42	449.8	1.409	1.225	1.370	281.40
[redacted]	Stack 2	L1PO		8.53	0.457	2.10	291.5	1.409	1.225	1.370	**817.14**
[redacted]	Stack 3	IBO1		8.53	0.457	3.31	533.2	1.409	1.225	1.370	187.50
[redacted]	Stack 4	LSM1		8.53	0.457	1.18	449.8	1.409	1.225	1.370	365.71
[redacted]	Stack 5	L1V1		8.53	0.457	3.42	291.5	1.409	1.225	1.370	764.54
[redacted]	Stack 6	IBO3		8.53	0.457	10.25	291.5	1.409	1.225	1.370	317.95
[redacted]	Stack 7	L3S		8.53	0.457	1.18	449.8	1.409	1.225	1.370	254.13
[redacted]	Stack 8	L3VI		8.53	0.457	3.42	291.5	1.409	1.225	1.370	537.98
[redacted]	Stack 9	IBO4		8.53	0.457	8.52	291.5	1.409	1.225	1.370	437.56
[redacted]	Stack 10	L4S		8.53	0.457	1.42	449.8	1.409	1.225	1.370	250.24

Table D-4. Tier 2 Modeling Stack Parameters and Individual Source Results at Individual Facilities

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]	Worst case annual average unit emission rate concentration[b] (µg/m3) (1g/s)
[redacted]	Stack 11	L3PO		8.53	0.457	3.42	291.5	1.409	1.225	1.370	533.91
[redacted]	Stack 12	IBO2		8.53	0.457	3.68	533.2	1.409	1.225	1.370	151.60
[redacted]	Stack 1	TO-1		11.00	1.219	16.17	659.2	1.821	1.730	1.660	19.68
[redacted]	Stack 2	TO-2		17.00	0.597	13.49	773.2	1.821	1.730	1.660	**33.64**
[redacted]	Stack 1	EU-001		17.98	0.311	31.08	310.9	2.499	2.617	2.725	**93.44**
[redacted]	Stack 2	EU-003		17.98	0.311	18.65	394.3	2.499	2.617	2.725	82.12
[redacted]	Stack 3	EU-005		17.98	0.311	18.65	394.3	2.499	2.617	2.725	80.28
[redacted]	Stack 4	EU-007		17.98	0.311	31.08	449.8	2.499	2.617	2.725	55.63
[redacted]	Stack 5	EU-008		17.98	0.311	31.08	449.8	2.499	2.617	2.725	52.29
[redacted]	Stack 1	SV4	Printer Oven S	15.24	0.457	6.10	422.0	2.356	2.363	2.180	98.65
[redacted]	Stack 2	SV5	Printer Oven S	15.54	0.396	6.10	422.0	2.356	2.363	2.180	102.13
[redacted]	Stack 3	SV 6	Inside Spray M	11.58	0.610	3.96	294.3	2.356	2.363	2.180	**363.01**
[redacted]	Stack 4	SV 7	Inside Spray M	14.02	0.610	3.96	294.3	2.356	2.363	2.180	295.01
[redacted]	Stack 5	SV 8	Inside Spray M	14.02	0.610	3.96	294.3	2.356	2.363	2.180	294.17
[redacted]	Stack 6	SV9	Inside Bake O	15.24	0.762	4.88	422.0	2.356	2.363	2.180	59.82
[redacted]	Stack 7	SV10	Inside Bake O	15.24	0.762	4.88	422.0	2.356	2.363	2.180	60.45
[redacted]	Stack 8	SV11	Inside Bake O	15.24	0.762	4.88	422.0	2.356	2.363	2.180	59.70
[redacted]	Stack 1	REX_SV21	Printer Oven S	13.11	0.396	9.58	366.5	1.394	1.450	0.718	165.67
[redacted]	Stack 2	REX_SV22	Printer Oven S	12.65	0.396	9.57	366.5	1.394	1.450	0.718	175.24
[redacted]	Stack 3	REX_SV23	Base Coater F	13.17	0.396	9.57	366.5	1.394	1.450	0.718	190.89
[redacted]	Stack 4	RED_SV31	Inside Spray M	12.19	1.097	2.50	294.3	1.394	1.450	0.718	321.15
[redacted]	Stack 5	REX_SV32	Inside Spray M	12.80	1.189	2.13	294.3	1.394	1.450	0.718	**376.82**
[redacted]	Stack 6	REX_SV33	Inside Spray M	13.72	0.914	3.59	294.3	1.394	1.450	0.718	305.07
[redacted]	Stack 7	REX_SV41	Inside Bake O	14.02	0.762	8.07	449.8	1.394	1.450	0.718	71.92
[redacted]	Stack 8	REX_SV42	Inside Bake O	14.02	0.823	6.92	449.8	1.394	1.450	0.718	69.03
[redacted]	Stack 9	REX_RTO	Regenerative	15.24	1.158	7.61	488.7	1.394	1.450	0.718	42.09
[redacted]	Stack 1	SV7A	Printer Pin Ov	14.63	0.558	4.83	422.0	2.148	2.029	2.026	129.19
[redacted]	Stack 2	SV7B	Printer Pin Ov	14.63	0.558	4.83	444.3	2.148	2.029	2.026	153.09
[redacted]	Stack 3	SV7C	Printer Pin Ov	16.61	0.914	1.80	397.0	2.148	2.029	2.026	152.01
[redacted]	Stack 4	SV7D	Printer Pin Ov	14.63	0.610	4.04	399.8	2.148	2.029	2.026	131.78
[redacted]	Stack 5	SV8A	Inside Spray M	13.50	0.838	2.14	299.8	2.148	2.029	2.026	472.44
[redacted]	Stack 6	SV8B	Inside Spray M	14.17	0.838	2.14	299.8	2.148	2.029	2.026	413.91
[redacted]	Stack 7	SV8C	Inside Spray M	13.20	0.850	2.08	299.8	2.148	2.029	2.026	**481.59**
[redacted]	Stack 8	SV8D	Inside Spray M	13.72	0.838	2.14	299.8	2.148	2.029	2.026	453.99
[redacted]	Stack 9	SV9A	Inside Bake O	15.24	0.762	3.62	358.2	2.148	2.029	2.026	167.40
[redacted]	Stack 10	SV9B	Inside Bake O	15.33	0.762	3.62	360.9	2.148	2.029	2.026	152.46

Table D-4. Tier 2 Modeling Stack Parameters and Individual Source Results at Individual Facilities

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]	Worst case annual average unit emission rate concentration[b] (µg/m3) (1g/s)
[redacted]	Stack 11	SV9C	Inside Bake C	15.33	0.762	3.62	366.5	2.148	2.029	2.026	152.35
[redacted]	Stack 12	SV9D	Inside Bake C	15.33	0.762	3.62	360.9	2.148	2.029	2.026	172.04
[redacted]	Stack 1	Stack1		14.00	6.096	0.46	394.3	3.933	4.306	3.019	55.33
[redacted]	Stack 2	Stack2		14.00	6.096	0.46	394.3	3.933	4.306	3.019	67.54
[redacted]	Stack 3	Stack3		14.00	6.096	0.46	394.3	3.933	4.306	3.019	70.24
[redacted]	Stack 4	Stack4		14.00	6.096	0.46	394.3	3.933	4.306	3.019	58.47
[redacted]	Stack 5	Stack5		14.00	6.096	0.46	394.3	3.933	4.306	3.019	54.25
[redacted]	Stack 1	C11	L1Roll1	15.80	0.719	17.42	477.6	1.568	1.597	1.531	27.42
[redacted]	Stack 2	C12	L1Roll2	15.80	0.719	7.37	477.6	1.568	1.597	1.531	55.07
[redacted]	Stack 3	C13	L1IS1	17.11	0.905	5.13	477.6	1.568	1.597	1.531	44.89
[redacted]	Stack 4	C14	L1IS2	17.11	0.905	5.13	477.6	1.568	1.597	1.531	45.44
[redacted]	Stack 5	C15	L1IS3	17.11	0.905	12.32	477.6	1.568	1.597	1.531	23.93
[redacted]	Stack 6	C16	L1IS4	17.11	0.914	10.78	477.6	1.568	1.597	1.531	26.33
[redacted]	Stack 7	C21	L2Roll1	15.80	0.719	17.42	477.6	1.568	1.597	1.531	28.58
[redacted]	Stack 8	C22	L2Roll2	15.80	0.719	7.37	477.6	1.568	1.597	1.531	49.54
[redacted]	Stack 9	C23	L2IS1	16.46	0.799	9.42	477.6	1.568	1.597	1.531	35.83
[redacted]	Stack 10	C24	L2IS2	16.78	0.799	18.85	477.6	1.568	1.597	1.531	25.58
[redacted]	Stack 11	S1	IS_1_Over_F	16.00	0.695	12.44	294.3	1.568	1.597	1.531	**132.66**
[redacted]	Stack 12	S2	IS_2_Over_F	16.13	0.362	45.87	294.3	1.568	1.597	1.531	69.78

a. All point EGBE emissions were conservatively assumed to exhaust through each stack for AERSCREEN modeling.
The emission rate for each source is calculated from the TRI reported stack emissions of Certain Glycol Ethers as follows
EGBE Emission Rate (g/s) = Stack TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 8,760 (hrs/yr)
The calculated emission rate assumes EGBE emissions occur continuously 8,760 hours per year.

b. Worst case annual average unit emission rate concentration in (µg/m3) (1g/s) assumes stack emission rate of 1 g/s.
It is obtained by multiplying worst-case 1-hr average unit emission rate concentration by a factor of 0.1, in accordance with EPA's AERSCREEN guidance
Tier 2 annual concentration for a stack is obtained by multiplying the unit emission rate concentration by Tier 2 stack emission rate (in g/s) for a given TRI year
The maximum point source unit emission rate impact (considering all point sources for a facility) is shown in **bolded** text.

g/s: grams per second
K: degrees Kelvin
m: meter
m/s: meters per second
$\mu g/m^3$: micrograms per cubic meter
tpy: ton per year
TRI: Toxic Release Inventory

Table D-5. Tier 2 Modeling Fugitive Volume Parameters and Results at Individual Facilities

Site Name	Source Type	Volume Release Height (m) [b]	Volume Intial Lateral Dimension (m) [c]	Volume Intial Vertical Dimension (m) [d]	2009 TRI Emission Rate (g/s)[e]	2010 TRI Emission Rate (g/s)[e]	2011 TRI Emission Rate (g/s)[e]	Worst case fugitive annual average unit emission rate concentration[f] (µg/m3) (1g/s)
	Volume	12.420	22.790	5.777	0.572	0.32916	0.34347	86.09
	Volume	12.420	11.230	5.780	0.705	0.71917	0.73355	131.53
	Volume	14.630	13.730	6.805	0.750	0.79165	0.77776	52.37
	Volume	7.315	19.850	3.402	0.434	0.40553	0.41038	184.57
	Volume	10.670	24.820	4.962	0.462	0.52520	0.43242	93.98
	Volume	6.096	27.300	2.835	0.470	0.40825	0.45675	95.61
	Volume	9.144	14.120	4.253	1.089	1.03458	0.99320	198.76
	Volume	10.670	30.710	4.962	0.835	0.87561	0.90821	82.09
	Volume	10.670	28.840	4.962	0.416	0.41699	0.38457	87.58
	Volume	9.144	20.930	4.253	0.368	0.38295	0.17576	108.26
	Volume	7.925	24.550	3.686	0.379	0.35802	0.35745	129.65
	Volume	7.000	27.240	3.250	0.774	0.85314	0.70277	111.01
	Volume	12.192	20.698	5.670	0.360	0.36965	0.35069	104.77

a. Fugitive releases of EGBE are reported to occur through the building's roof vents in the production area of the facility building where stacks emitting EGBE are located. Fugitive emissions from the roof vents are modeled as a single volume source.

b. The volume source release height is taken to be at the release height of fugitive emissions; it is set to be equal to the roof height of the process building

c. Per EPA's AERMOD guidance, the volume source initial lateral dimension is taken to be the length of the side of the volume divided by 4.3.

d. Per EPA's AERMOD guidance, the volume source initial vertical dimension is taken to be the height of the volume source (roof height) divided by 2.15.

e. The emission rate for each source is calculated from the TRI reported fugitive emissions of Certain Glycol Ethers as folbws:
EGBE Emission Rate (g/s) = Fugitive TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 8,760 (hrs/yr)
The calculated emission rate assumes EGBE emissions occur continuously 8,760 hours per year.

f. Worst case annual average unit emission rate concentration in (µg/m3) (1g/s) assumes fugitive emission rate of 1 g/s. Tier 2 annual concentration for a fugitive volume is obtained by multiplying the unit emission rate concentration by Tier 2 fugitive emission rate (in g/s) for a given TRI year

g/s: grams per second
hrs/yr: hours per year
m: meter
tpy: ton per year
TRI: Toxic Release Inventory

Table D-6. Tier 2 Modeling Stack Parameters and Individual Source Results in Clusters

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]	Worst case annual average unit emission rate concentration[b] (µg/m3) (1g/s)
	Stack 1	REX_SV21	Printer Oven Stack # 1 – SV 21	13.11	0.396	9.58	366.5	1.394	1.450	0.718	165.67
	Stack 1	REX_SV22	Printer Oven Stack # 2 – SV 22	12.65	0.396	9.57	366.5	1.394	1.450	0.718	175.24
	Stack 1	REX_SV23	Base Coater Pin Oven Stack # 3 – SV 23	13.17	0.396	9.57	366.5	1.394	1.450	0.718	190.89
	Stack 4	RED_SV31	Inside Spray Machines Bank 1 – SV 31	12.19	1.097	2.50	294.3	1.394	1.450	0.718	321.15
	Stack 5	REX_SV32	Inside Spray Machines Bank 2 – SV 32	12.80	1.189	2.13	294.3	1.394	1.450	0.718	**376.82**
	Stack 6	REX_SV33	Inside Spray Machines Bank 2 – SV 33	13.72	0.914	3.59	294.3	1.394	1.450	0.718	305.07
	Stack 7	REX_SV41	Inside Bake Oven Stack # 1 – SV 41	14.02	0.762	8.07	449.8	1.394	1.450	0.718	71.92
	Stack 8	REX_SV42	Inside Bake Oven Stack # 2 – SV 42	14.02	0.823	6.92	449.8	1.394	1.450	0.718	69.03
	Stack 9	REX_RTO	Regenerative Thermal Oxidizer Stack	15.24	1.158	7.61	488.7	1.394	1.450	0.718	42.09
	Stack1	N/A	3960***	9.75	0.396	2.74	294.3	0.740	1.241	0.976	460.83
	Stack 1	B_PO11	PO11	16.61	0.457	7.00	510.9	3.740	3.740	3.883	**49.10**
	Stack 2	B_PO12	PO12	16.61	0.305	29.07	510.9	3.740	3.740	3.883	32.25
	Stack 3	B_PO21	PO21	19.81	0.457	9.79	499.8	3.740	3.740	3.883	19.29
	Stack 4	B_PO22	PO22	19.81	0.457	11.32	488.7	3.740	3.740	3.883	18.31
	Stack 5	B_IBO11	IBO11	14.17	0.610	11.62	477.6	3.740	3.740	3.883	27.00
	Stack 6	B_IBO21B	IBO21-B	21.18	0.610	3.98	477.6	3.740	3.740	3.883	21.02
	Stack 7	B_IBO31	IBO31	21.64	0.864	5.12	494.3	3.740	3.740	3.883	11.49
	Stack 8	B_WCO31	WashCoat Oven31	20.42	0.813	2.58	510.9	3.740	3.740	3.883	18.91
	Stack 9	B_BH	Baghouse	20.73	0.330	37.48	294.3	3.740	3.740	3.883	22.86
	Stack 1	Stk_2	8194****	12.19	0.305	0.39	327.6	0.591	0.579	0.557	287.86
	Stack 1	C11	L1Roll1	15.80	0.719	17.42	477.6	1.568	1.597	1.531	27.42
	Stack 2	C12	L1Roll2	15.80	0.719	7.37	477.6	1.568	1.597	1.531	55.07
	Stack 3	C13	L1IS1	17.11	0.905	5.13	477.6	1.568	1.597	1.531	44.89
	Stack 4	C14	L1IS2	17.11	0.905	5.13	477.6	1.568	1.597	1.531	45.44
	Stack 5	C15	L1IS3	17.11	0.905	12.32	477.6	1.568	1.597	1.531	23.93
	Stack 6	C16	L1IS4	17.11	0.914	10.78	477.6	1.568	1.597	1.531	26.33
	Stack 7	C21	L2Roll1	15.80	0.719	17.42	477.6	1.568	1.597	1.531	28.58
	Stack 8	C22	L2Roll2	15.80	0.719	7.37	477.6	1.568	1.597	1.531	49.54
	Stack 9	C23	L2IS1	16.46	0.799	9.42	477.6	1.568	1.597	1.531	35.83
	Stack 10	C24	L2IS2	16.78	0.799	18.85	477.6	1.568	1.597	1.531	25.58
	Stack 11	S1	IS_1_Over_Fug	16.00	0.695	12.44	294.3	1.568	1.597	1.531	**132.66**
	Stack 12	S2	IS_2_Over_Fug	16.13	0.362	45.87	294.3	1.568	1.597	1.531	69.78
	Stack 1	Stk_2	not used	9.14	0.914	3.23	505.4	0.145	0.222	0.199	101.81
	Stack 1	0001	0001 (Bldg 5G)	12.80	2.070	8.41	405.9	0.231	0.161	0.066	15.46
	Stack 2	TO-1	TO-1 (Bldg 5D)	11.58	1.220	7.80	488.2	0.231	0.161	0.066	31.62
	Stack 3	TO-2	TO-2 (Bldg 5D)	10.67	0.670	6.86	704.3	0.231	0.161	0.066	46.93
	Stack 4	0003	0003 (Bldg 5D)	10.05	0.640	1.66	649.8	0.231	0.161	0.066	**92.82**
	Stack 1	TO-1		11.00	1.219	16.17	659.2	1.821	1.730	1.660	19.68
	Stack 2	TO-2		17.00	0.597	13.49	773.2	1.821	1.730	1.660	**33.64**
	Stack 1	Coater #1		12.50	0.610	31.01	824.8	0.031	0.032	0.006	17.65
	Stack 2	Coater #2		14.33	0.610	9.15	783.2	0.031	0.032	0.006	**31.19**
	Stack 3	Coater #3		12.50	0.457	22.27	760.9	0.031	0.032	0.006	23.90
	Stack 4	Coater #4		12.19	0.457	15.45	745.4	0.031	0.032	0.006	26.08
	Stack 1		No stack parameters available. All emissions (stack + fugitives) modeled as a volume								

Table D-6. Tier 2 Modeling Stack Parameters and Individual Source Results in Clusters

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]	Worst case annual average unit emission rate concentration[b] (µg/m3) (1g/s)
[redacted]	Stack 1	PO1		15.95	0.508	4.32	479.0	1.812	2.230	2.369	76.93
[redacted]	Stack 2	PO2		16.31	0.508	4.28	465.0	1.812	2.230	2.369	89.85
[redacted]	Stack 3	PO3		16.08	0.508	6.14	458.0	1.812	2.230	2.369	82.55
[redacted]	Stack 4	IBO1		16.00	0.457	12.15	473.0	1.812	2.230	2.369	53.74
[redacted]	Stack 5	IBO2		16.00	0.457	7.11	475.0	1.812	2.230	2.369	69.59
[redacted]	Stack 6	IBO3		16.00	0.457	13.17	474.0	1.812	2.230	2.369	60.47
[redacted]	Stack 7	Printer 1		15.95	0.508	0.50	298.0	1.812	2.230	2.369	**303.39**
[redacted]	Stack 8	Printer 2		15.90	0.508	0.50	298.0	1.812	2.230	2.369	258.17
[redacted]	Stack 9	Printer 3		16.08	0.508	0.50	298.0	1.812	2.230	2.369	278.44
[redacted]	Stack 10	Spray line 1		14.94	0.381	6.39	298.0	1.812	2.230	2.369	193.05
[redacted]	Stack 11	Spray line 2		14.99	0.381	7.28	298.0	1.812	2.230	2.369	194.68
[redacted]	Stack 12	Spray line 3		14.99	0.381	8.74	298.0	1.812	2.230	2.369	210.93
[redacted]	Stack 1	Stk_2		11.64	0.432	5.44	370.9	0.0004	0.0004	0.0004	178.83

a. All point EGBE emissions were conservatively assumed to exhaust through each stack for AERSCREEN modeling.
The emission rate for each source is calculated from the TRI reported stack emissions of Certain Glycol Ethers as follows:
EGBE Emission Rate (g/s) = Stack TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 8,760 (hrs/yr)
The calculated emission rate assumes EGBE emissions occur continuously 8,760 hours per year.

b. Worst case annual average unit emission rate concentration in (µg/m3) (1g/s) assumes stack emission rate of 1 g/s.
It is obtained by multiplying worst-case 1-hr average unit emission rate concentration by a factor of 0.1, in accordance with EPA's AERSCREEN guidance
Tier 2 annual concentration for a stack is obtained by multiplying the unit emission rate concentration by Tier 2 stack emission rate (in g/s) for a given TRI year
The maximum point source unit emission rate impact (considering all point sources for a facility) is shown in **bolded** text.

g/s: grams per second
K: degrees Kelvin
m: meter
m/s: meters per second
$\mu g/m^3$: micrograms per cubic meter
tpy: ton per year
TRI: Toxic Regulatory Index

Table D-7. Tier 2 Modeling Fugitive Volume Parameters and Results in Clusters

Site Name	Source Type	Volume Release Height (m) [b]	Volume Intial Lateral Dimension (m) [c]	Volume Intial Vertical Dimension (m) [d]	2009 TRI Emission Rate (g/s)[e]	2010 TRI Emission Rate (g/s)[e]	2011 TRI Emission Rate (g/s)[e]	Worst case fugitive annual average unit emission rate concentration[f] (µg/m3) (1g/s)
	Volume	9.144	20.930	4.253	0.368	0.38295	0.17576	108.26
	Volume	No fugitive emissions reported to TRI. All reported emissions modeled as a stack release						
	Volume	12.420	11.230	5.780	0.705	0.71917	0.73355	131.53
	Volume	8.800	47.280	4.093	0.066	0.06437	0.06187	49.60
	Volume	12.192	20.698	5.670	0.360	0.36965	0.35069	104.77
	Volume	9.144	39.535	4.251	0.000	0.00000	0.00058	73.37
	Volume	7.315	19.900	3.402	0.338	0.19243	0.13205	185.81
	Volume	12.192	16.247	5.670	0.174	0.09913	0.06802	106.82
	Volume	9.144	14.120	4.253	1.089	1.03458	0.99320	198.76
	Volume	9.750	11.881	4.540	0.000	0.00011	0.00118	191.64
	Volume	9.144	16.000	4.250	0.164	0.20797	0.07570	147.46
	Volume	13.106	30.930	6.096	0.334	0.40419	0.47387	54.07
	Volume	10.000	9.698	4.651	0.001	0.00101	0.00101	186.65

a. Fugitive releases of EGBE are reported to occur through the building's roof vents in the production area of the facility building where stacks emitting EGBE are located. Fugitive emissions from the roof vents are modeled as a single volume source.

b. The volume source release height is taken to be at the release height of fugitive emissions; it is set to be equal to the roof height of the process building

c. Per EPA's AERMOD guidance, the volume source initial lateral dimension is taken to be the length of the side of the volume divided by 4.3.

d. Per EPA's AERMOD guidance, the volume source initial vertical dimension is taken to be the height of the volume source (roof height) divided by 2.15.

e. The emission rate for each source is calculated from the TRI reported fugitive emissions of Certain Glycol Ethers as follows:
EGBE Emission Rate (g/s) = Fugitive TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 8,760 (hrs/yr)
The calculated emission rate assumes EGBE emissions occur continuously 8,760 hours per year.

f. Worst case annual average unit emission rate concentration in (µg/m3) (1g/s) assumes fugitive emission rate of 1 g/s. Tier 2 annual concentration for a fugitive volume is obtained by multiplying the unit emission rate concentration by Tier 2 fugitive emission rate (in g/s) for a given TRI year

g. Ball Facility in Weirton has two distinct (physically separate) buildings associtaed with fugitive emissions which were modeled separately. Their emissions were estimated based on the breakdown of the total fugitive emissions provided by the faciltiy in Tier 2 Survey a signle volume (building) with worse dispersion characteristics

g/s: grams per second
hrs/yr: hours per year
m: meter
tpy: ton per year
TRI: Toxic Release Inventory

Table D-8. Tier 3 Modeling Stack Parameters at Individual Facilities

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]
[redacted]	Stack 1	LSM2		8.530	0.457	2.103	291.483	0.1174	0.1021	0.1142
[redacted]	Stack 2	L1PO		8.530	0.457	3.312	533.150	0.1174	0.1021	0.1142
[redacted]	Stack 3	IBO1		8.530	0.457	1.183	449.817	0.1174	0.1021	0.1142
[redacted]	Stack 4	LSM1		8.530	0.457	3.417	291.483	0.1174	0.1021	0.1142
[redacted]	Stack 5	L1V1		8.530	0.457	10.252	291.483	0.1174	0.1021	0.1142
[redacted]	Stack 6	IBO3		8.530	0.457	1.183	449.817	0.1174	0.1021	0.1142
[redacted]	Stack 7	L3S		8.530	0.457	3.417	291.483	0.1174	0.1021	0.1142
[redacted]	Stack 8	L3VI		8.530	0.457	8.517	291.483	0.1174	0.1021	0.1142
[redacted]	Stack 9	IBO4		8.530	0.457	1.419	449.817	0.1174	0.1021	0.1142
[redacted]	Stack 10	L4S		8.530	0.457	3.417	291.483	0.1174	0.1021	0.1142
[redacted]	Stack 11	L3PO		8.530	0.457	3.680	533.150	0.1174	0.1021	0.1142
[redacted]	Stack 12	IBO2		8.530	0.457	1.183	449.817	0.1174	0.1021	0.1142
[redacted]	Stack 1	S30		13.720	0.966	9.546	422.000	0.049	0.0454	0.0491
[redacted]	Stack 1	TO-1		11.000	1.219	16.149	659.150	0.7724	0.7337	0.7044
[redacted]	Stack 2	TO-2		17.000	0.597	13.492	773.150	1.0482	0.9958	0.9560
[redacted]	Stack 1	SV4	Printer Oven Stack # 1 – SV4	15.200	0.460	6.100	422.000	0.2197	0.2204	0.2033
[redacted]	Stack 2	SV5	Printer Oven Stack # 2 – SV5	15.500	0.400	6.100	422.000	0.2197	0.2204	0.2033
[redacted]	Stack 3	SV 6	Inside Spray Machines Bank 1 – SV 6	11.600	0.610	3.960	294.000	0.0958	0.0961	0.0886
[redacted]	Stack 4	SV 7	Inside Spray Machines Bank 2 – SV 7	14.000	0.610	3.960	294.000	0.0958	0.0961	0.0886
[redacted]	Stack 5	SV 8	Inside Spray Machines Bank 3 – SV 8	14.000	0.610	3.960	294.000	0.0958	0.0961	0.0886
[redacted]	Stack 6	SV9	Inside Bake Oven Stack # 1 – SV9	15.200	0.760	4.880	422.000	0.5430	0.5447	0.5025
[redacted]	Stack 7	SV10	Inside Bake Oven Stack # 2 – SV10	15.200	0.760	4.880	422.000	0.5430	0.5447	0.5025
[redacted]	Stack 8	SV11	Inside Bake Oven Stack # 3 – SV11	15.200	0.760	4.880	422.000	0.5430	0.5447	0.5025
[redacted]	Stack 1	REX_SV21	Printer Oven Stack # 1 – SV 21	13.106	0.396	9.580	366.500	0.1446	0.1504	0.0745
[redacted]	Stack 1	REX_SV22	Printer Oven Stack # 2 – SV 22	12.649	0.396	9.568	366.500	0.1446	0.1504	0.0745
[redacted]	Stack 1	REX_SV23	Base Coater Pin Oven Stack # 3 – SV 23	13.167	0.396	9.568	366.500	0.0014	0.0015	0.0007
[redacted]	Stack 4	RED_SV31	Inside Spray Machines Bank 1 – SV 31	12.192	1.097	2.495	294.261	0.0708	0.0736	0.0365
[redacted]	Stack 5	REX_SV32	Inside Spray Machines Bank 2 – SV 32	12.802	1.189	2.126	294.261	0.0708	0.0736	0.0365
[redacted]	Stack 6	REX_SV33	Inside Spray Machines Bank 2 – SV 33	13.716	0.914	3.593	294.261	0.0185	0.0192	0.0095
[redacted]	Stack 7	REX_SV41	Inside Bake Oven Stack # 1 – SV 41	14.021	0.762	8.072	449.817	0.4020	0.4180	0.2071
[redacted]	Stack 8	REX_SV42	Inside Bake Oven Stack # 2 – SV 42	14.021	0.823	6.921	449.817	0.4020	0.4180	0.2071
[redacted]	Stack 9	REX_RTO	Regenerative Thermal Oxidizer Stack	15.240	1.158	7.615	488.706	0.1395	0.1450	0.0718
[redacted]	Stack 1	SV7A	Printer Pin Oven Stack 1 – SV 7A	14.630	0.558	4.828	422.039	0.1459	0.1378	0.1376
[redacted]	Stack 2	SV7B	Printer Pin Oven Stack 2 – SV 7B	14.630	0.558	4.828	444.261	0.1459	0.1378	0.1376
[redacted]	Stack 3	SV7C	Printer Pin Oven Stack 3 – SV 7C	16.612	0.914	1.797	397.039	0.1459	0.1378	0.1376
[redacted]	Stack 4	SV7D	Printer Pin Oven Stack 4 – SV 7D	14.630	0.610	4.043	399.817	0.1459	0.1378	0.1376
[redacted]	Stack 5	SV8A	Inside Spray Machines Bank 1 – SV 8A	13.503	0.838	2.138	299.817	0.0587	0.0554	0.0553
[redacted]	Stack 6	SV8B	Inside Spray Machines Bank 2 – SV 8B	14.173	0.838	2.138	299.817	0.0587	0.0554	0.0553
[redacted]	Stack 7	SV8C	Inside Spray Machines Bank 3 – SV 8C	13.198	0.850	2.079	299.817	0.0587	0.0554	0.0553
[redacted]	Stack 8	SV8D	Inside Spray Machines Bank 4 – SV 8D	13.716	0.838	2.138	299.817	0.0587	0.0554	0.0553
[redacted]	Stack 9	SV9A	Inside Bake Oven Stack # 1 – SV 9A	15.240	0.762	3.622	358.150	0.3325	0.3140	0.3135

Table D-8. Tier 3 Modeling Stack Parameters at Individual Facilities

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]
[redacted]	Stack 10	SV9B	Inside Bake Oven Stack # 2 – SV 9B	15.331	0.762	3.622	360.928	0.3325	0.3140	0.3135
[redacted]	Stack 11	SV9C	Inside Bake Oven Stack # 3 – SV 9C	15.331	0.762	3.622	366.483	0.3325	0.3140	0.3135
[redacted]	Stack 12	SV9D	Inside Bake Oven Stack # 4 – SV 9D	15.331	0.762	3.622	360.928	0.3325	0.3140	0.3135
[redacted]	Stack 1	WS1		14.000	0.457	6.096	394.261	3.9333	4.3060	3.0186
[redacted]	Stack 2	WS2		14.000	0.457	6.096	394.261	3.9333	4.3060	3.0186
[redacted]	Stack 3	WS3		14.000	0.457	6.096	394.261	3.9333	4.3060	3.0186
[redacted]	Stack 4	WS4		14.000	0.457	6.096	394.261	3.9333	4.3060	3.0186
[redacted]	Stack 5	WS5		14.000	0.457	6.096	394.261	3.9333	4.3060	3.0186

a. Individual stack emissions were based on total TRI Stack emissions and actual breakdown of EGBE emissions among individual stacks
The emission rate for each source is calculated from the TRI reported stack emissions of Certain Glycol Ethers as follows:
EGBE Emission Rate (g/s) = Stack TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 8,760 (hrs/yr) x Stack_fraction
The calculated emission rate assumes EGBE emissions occur continuously 8,760 hours per year.
Stack_fraction represents the percent of the total TRI stack emissions emitted through the individual stack

g/s: grams per second
K: degrees Kelvin
m: meter
m/s: meters per second
$\mu g/m^3$: micrograms per cubic meter
tpy: ton per year
TRI: Toxic Release Inventory

Table D-9. Tier 3 Modeling Fugitive Volume Parameters and Results at Individual Facilities

Site Name	Source Type	Volume Release Height (m) [b]	Volume Intial Lateral Dimension (m) [c]	Volume Intial Vertical Dimension (m) [d]	2009 TRI Emission Rate (g/s)[e]	2010 TRI Emission Rate (g/s)[e]	2011 TRI Emission Rate (g/s)[e]
	Volume	6.096	27.310	2.840	0.470	0.40825	0.45675
	Volume	9.144	14.120	4.253	1.089	1.03458	0.99320
	Volume	10.668	28.840	4.960	0.416	0.41699	0.38457
	Volume	9.144	20.900	4.253	0.368	0.38295	0.17576
	Volume	7.920	24.558	3.686	0.379	0.35802	0.35745
	Volume	7.000	27.242	3.250	0.774	0.85314	0.70277

a. Fugitive releases of EGBE are reported to occur through the building's roof vents in the production area of the facility building where stacks emitting EGBE are located. Fugitive emissions from the roof vents are modeled as a single volume source.

b. The volume source release height is taken to be at the release height of fugitive emissions; it is set to be equal to the roof height of the process building

c. Per EPA's AERMOD guidance, the volume source initial lateral dimension is taken to be the length of the side of the volume divided by 4.3.

d. Per EPA's AERMOD guidance, the volume source initial vertical dimension is taken to be the height of the volume source (roof height) divided by 2.15.

e. The emission rate for each source is calculated from the TRI reported fugitive emissions of Certain Glycol Ethers as folbws:
EGBE Emission Rate (g/s) = Fugitive TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 8,760 (hrs/yr)
The calculated emission rate assumes EGBE emissions occur continuously 8,760 hours per year.

g/s: grams per second
hrs/yr: hours per year
m: meter
tpy: ton per year
TRI: Toxic Release Inventory

Table D-10. Tier 3 Modeling Stack Parameters and Individual Source Results in Clusters

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]
[redacted]	Stack 1	REX_SV21	Printer Oven Stack # 1 – SV 21	13.100	0.396	9.580	366.500	0.1446	0.1504	0.0745
[redacted]	Stack 1	REX_SV22	Printer Oven Stack # 2 – SV 22	12.649	0.396	9.568	366.500	0.1446	0.1504	0.0745
[redacted]	Stack 1	REX_SV23	Base Coater Pin Oven Stack # 3 – SV 23	13.167	0.396	9.568	366.500	0.0014	0.0015	0.0007
[redacted]	Stack 4	RED_SV31	Inside Spray Machines Bank 1 – SV 31	12.192	1.097	2.495	294.261	0.0708	0.0736	0.0365
[redacted]	Stack 5	REX_SV32	Inside Spray Machines Bank 2 – SV 32	12.802	1.189	2.126	294.261	0.0708	0.0736	0.0365
[redacted]	Stack 6	REX_SV33	Inside Spray Machines Bank 2 – SV 33	13.716	0.914	3.593	294.261	0.0185	0.0192	0.0095
[redacted]	Stack 7	REX_SV41	Inside Bake Oven Stack # 1 – SV 41	14.021	0.762	8.072	449.817	0.4020	0.4180	0.2071
[redacted]	Stack 8	REX_SV42	Inside Bake Oven Stack # 2 – SV 42	14.021	0.823	6.921	449.817	0.4020	0.4180	0.2071
[redacted]	Stack 9	REX_RTO	Regenerative Thermal Oxidizer Stack	15.240	1.158	7.615	488.706	0.1395	0.1450	0.0718
[redacted]	Stack1	N/A	3960***	9.144	0.396	2.743	294.260	0.7404	1.2411	0.9764
[redacted]	Stack 1	BA5G_P1	0001 (Bldg 5G)	12.802	2.070	8.414	405.930	0.1278	0.0889	0.0367
[redacted]	Stack 1	BA5D_PT1	TO-1 (Bldg 5D)	11.580	1.220	7.796	488.150	0.0406	0.0282	0.0116
[redacted]	Stack 1	BA5D_PT2	TO-2 (Bldg 5D)	10.670	0.670	6.860	704.300	0.0203	0.0141	0.0058
[redacted]	Stack 4	BA5D_P3	0003 (Bldg 5D)	10.050	0.640	1.659	649.800	0.0426	0.0296	0.0122
[redacted]	Stack 1	CR_PTO1	TO-1	11.000	1.219	16.149	659.150	0.7724	0.7337	0.7044
[redacted]	Stack 2	CR_PTO2	TO-2	17.000	0.597	13.492	773.150	1.0482	0.9958	0.9560
[redacted]	Stack 1	AR_PC1	Coater #1	12.497	0.610	31.008	824.820	0.0084	0.0086	0.0017
[redacted]	Stack 2	AR_PC2	Coater #2	14.330	0.610	9.147	783.150	0.0072	0.0074	0.0015
[redacted]	Stack 3	AR_PC3	Coater #3	12.497	0.457	22.269	760.930	0.0066	0.0068	0.0014
[redacted]	Stack 4	AR_PC4	Coater #4	12.190	0.457	15.447	745.370	0.0087	0.0089	0.0018
[redacted]	Stack 1		No stack parameters available. All emissions (stack + fugitives) modeled as a volume							

a. Individual stack emissions were based on total TRI Stack emissions and actual breakdown of EGBE emissions among individual stacks
The emission rate for each source is calculated from the TRI reported stack emissions of Certain Glycol Ethers as follows:
EGBE Emission Rate (g/s) = Stack TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 8,760 (hrs/yr) x Stack_fraction
The calculated emission rate assumes EGBE emissions occur continuously 8,760 hours per year.
Stack_fraction represents the percent of the total TRI stack emissions emitted through the individual stack

g/s: grams per second
K: degrees Kelvin
m: meter
m/s: meters per second
$\mu g/m^3$: micrograms per cubic meter
tpy: ton per year
TRI: Toxic Release Inventory

Table D-11. Tier 3 Modeling Fugitive Volume Parameters and Results in Clusters

Site Name	Source Type	Volume Release Height (m) [b]	Volume Intial Lateral Dimension (m) [c]	Volume Intial Vertical Dimension (m) [d]	2009 TRI Emission Rate (g/s)[e]	2010 TRI Emission Rate (g/s)[e]	2011 TRI Emission Rate (g/s)[e]
	Volume	9.144	20.900	4.253	0.368	0.38295	0.17576
	Volume	No fugitive emissions reported to TRI. All reported emissions modeled as a stack release					
	Volume	7.315	19.900	3.402	0.338	0.19246	0.13205
	Volume	12.192	16.247	5.670	0.174	0.09914	0.06802
	Volume	9.144	14.120	4.253	1.089	1.03458	0.99320
	Volume	9.750	11.881	4.540	0.000	0.00011	0.00118
	Volume	9.144	26.700	4.250	0.164	0.20800	0.07570

a. Fugitive releases of EGBE are reported to occur through the building's roof vents in the production area of the facility building where stacks emitting EGBE are located. Fugitive emissions from the roof vents are modeled as a single volume source.

b. The volume source release height is taken to be at the release height of fugitive emissions; it is set to be equal to the roof height of the process building

c. Per EPA's AERMOD guidance, the volume source initial lateral dimension is taken to be the length of the side of the volume divided by 4.3.

d. Per EPA's AERMOD guidance, the volume source initial vertical dimension is taken to be the height of the volume source (roof height) divided by 2.15.

e. The emission rate for each source is calculated from the TRI reported fugitive emissions of Certain Glycol Ethers as follows:
EGBE Emission Rate (g/s) = Fugitive TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 8,760 (hrs/yr)
The calculated emission rate assumes EGBE emissions occur continuously 8,760 hours per year.

g. Ball Facility in Weirton has two distinct (physically separate) buildings associtaed with fugitive emissions which were modeled separately. Their emissions were estimated based on the breakdown of the total fugitive emissions provided by the faciltiy in Tier 2 Survey

g/s: grams per second
hrs/yr: hours per year
m: meter
tpy: ton per year
TRI: Toxic Release Inventory

APPENDIX E

Outcome of Short-Term Tiered Modeling

Table E-1. Tier 1 Table of Maximum Normalized 1-Hour Concentrations (µg/m^3)/(gps)

Source Type	Release Height (m)	Side Length (m)	Normalized Maximum 1-Hour Average Concentrations At or Beyond: Receptor Distance					
			10 m	30 m	50 m	100 m	200 m	500 m
Area (10 m)	0.00	10.00	332,000	105,000	57,000	22,500	8,070	1,920
Area (10 m)[a]	3.00	10.00	35,825	11,294	10,415	9,771	6,168	1,802
Area (20 m)	0.00	20.00	179,000	63,600	37,200	16,600	6,620	1,750
Area (30 m)	0.00	30.00	122,000	45,400	27,500	13,000	5,590	1,590
Volume	3[a]	10.00	44,427	14,027	12,558	8,697	4,798	1,553
Point	0	-	1,880,000	275,000	113,000	33,600	10,100	2,110
Point	2	-	65,100	49,200	46,900	25,300	9,180	2,070
Point	5	-	33,400	25,900	18,000	9,440	5,130	1,800
Point	10	-	9,610	8,490	7,360	4,710	2,490	1,000
Point	20	-	2,450	1,570	1,570	1,320	846	367
Point	35	-	784	784	394	385	312	153
Point	50	-	384	384	384	163	147	88

a. Not included in EPA's Tier 1 table. Included in the EGBE HAPs Petition Table 4-2. These values are based on ratios of predicted SCREEN3 impacts for each receptor distance. The 10 m2 area source with the 0 m release height was used as the basis for the SCREEN3 predicted ratios. Ratios at the 10 m receptor distance were set equal to the ratios at the 30 m receptor distance.

m: meter
gps: grams per second
µg/m^3: micrograms per cubic meter

Table E-2. Tier 1 Short-Term Modeling Parameters and Individual Source Results at Selected Facilities for Short-Term Exposures

Facility Name	Source ID	Release Height (m)	Volume Source Length of Side (m)	Distance to Nearest Receptor (m)	Physical Fence (Y/N)	Tier 1 Table: Normalized Maximum 1-Hour Average Conc. ($\mu g/m^3$)/(gps)	Proportion EGBE of Certain Glycol Ethers	2009		2010		2011	
								TRI Emissions (gps)	Maximum 1-Hour Average Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (gps)	Maximum 1-Hour Average Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (gps)	Maximum 1-Hour Average Tier I EGBE Conc. ($\mu g/m^3$)
[redacted]	Stack 1	16.6116	-	89	Y	7360.00	1.00	16.4	120,555	16.4	120,555	17.0	125,191.49
	Stack 2	16.6116	-	91	Y	7360.00	1.00	16.4	120,555	16.4	120,555	17.0	125,191.49
	Stack 3	19.812	-	89	Y	7360.00	1.00	16.4	120,555	16.4	120,555	17.0	125,191.49
	Stack 4	19.812	-	100	Y	4710.00	1.00	16.4	77,148	16.4	77,148	17.0	80,115.75
	Stack 5	14.1732	-	127	Y	4710.00	1.00	16.4	77,148	16.4	77,148	17.0	80,115.75
	Stack 6	21.1836	-	108	Y	1320.00	1.00	16.4	21,621	16.4	21,621	17.0	22,452.82
	Stack 7	21.6408	-	135	Y	1320.00	1.00	16.4	21,621	16.4	21,621	17.0	22,452.82
	Stack 8	20.4216	-	105	Y	1320.00	1.00	16.4	21,621	16.4	21,621	17.0	22,452.82
	Stack 9	20.7264	-	100	Y	1320.00	1.00	16.4	21,621	16.4	21,621	17.0	22,452.82
	Fugitive	6.911162791	10	84	Y	12558.23	1.00	3.1	38,767	3.1	39,558	3.2	40,348.92
	Stack 1	21.49	-	58	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 2	21.79	-	61	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 3	25.91	-	62	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 4	15.85	-	68	N	7360.00	1.00	6.3	46,135	8.2	59,976	8.8	64,589.53
	Stack 5	13.52	-	57	N	7360.00	1.00	6.3	46,135	8.2	59,976	8.8	64,589.53
	Stack 6	13.52	-	68	N	7360.00	1.00	6.3	46,135	8.2	59,976	8.8	64,589.53
	Stack 7	21.49	-	65	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 8	21.79	-	70	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 9	25.91	-	69	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 10	25.91	-	60	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 11	13.52	-	68	N	7360.00	1.00	6.3	46,135	8.2	59,976	8.8	64,589.53
	Stack 12	13.52	-	68	N	7360.00	1.00	6.3	46,135	8.2	59,976	8.8	64,589.53
	Stack 13	25.91	-	59	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 14	21.79	-	55	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 15	25.91	-	52	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 16	25.91	-	48	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 17	13.52	-	58	N	7360.00	1.00	6.3	46,135	8.2	59,976	8.8	64,589.53
	Stack 18	13.52	-	57	N	7360.00	1.00	6.3	46,135	8.2	59,976	8.8	64,589.53
	Stack 19	21.49	-	37	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 20	25.91	-	49	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 21	21.79	-	45	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 22	25.91	-	43	N	1570.00	1.00	6.3	9,841	8.2	12,794	8.8	13,777.93
	Stack 23	15.75	-	53	N	7360.00	1.00	6.3	46,135	8.2	59,976	8.8	64,589.53
	Fugitive	5.777023256	10	50	N	12558.23	1.00	2.5	31,488	1.4	18,106	1.5	18,892.79
	Stack 1	18.4658	-	147	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 2	18.8722	-	127	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 3	15.5448	-	102	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 4	15.1638	-	102	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 5	13.1318	-	98	Y	7360.00	0.97	17.6	125,362	18.9	134,317	18.3	129,839.34
	Stack 6	13.1318	-	96	Y	7360.00	0.97	17.6	125,362	18.9	134,317	18.3	129,839.34
	Stack 7	18.5166	-	140	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 8	18.415	-	145	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 9	18.3388	-	122	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 10	18.5928	-	118	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 11	18.3134	-	103	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 12	18.288	-	111	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12

Table E-2. Tier 1 Short-Term Modeling Parameters and Individual Source Results at Selected Facilities for Short-Term Exposures

Facility Name	Source ID	Release Height (m)	Volume Source Length of Side (m)	Distance to Nearest Receptor (m)	Physical Fence (Y/N)	Tier 1 Table: Normalized Maximum 1-Hour Average Conc. ($\mu g/m^3$)/(gps)	Proportion EGBE of Certain Glycol Ethers	2009		2010		2011	
								TRI Emissions (gps)	Maximum 1-Hour Average Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (gps)	Maximum 1-Hour Average Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (gps)	Maximum 1-Hour Average Tier I EGBE Conc. ($\mu g/m^3$)
[redacted]	Stack 13	18.3388	-	121	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 14	18.4658	-	142	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 15	15.5448	-	106	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 16	15.5448	-	110	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 17	17.8562	-	136	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 18	17.8562	-	116	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Stack 19	17.8562	-	114	Y	4710.00	0.97	17.6	80,225	18.9	85,955	18.3	83,090.12
	Fugitive	6.804837209	10	135	Y	8696.57	0.97	3.4	28,568	3.6	30,155	3.5	29,625.57
	Stack 1	18.29	-	18.71	N	9610.00	0.88	6.5	54,786	6.1	51,208	6.1	51,820.35
	Stack 2	15.24	-	18.71	N	9610.00	0.88	6.5	54,786	6.1	51,208	6.1	51,820.35
	Stack 3	15.24	-	24	N	9610.00	0.88	6.5	54,786	6.1	51,208	6.1	51,820.35
	Stack 4	18.29	-	24	N	9610.00	0.88	6.5	54,786	6.1	51,208	6.1	51,820.35
	Stack 5	15.24	-	37.92	N	8490.00	0.88	6.5	48,401	6.1	45,240	6.1	45,780.93
	Stack 6	15.24	-	32.99	N	8490.00	0.88	6.5	48,401	6.1	45,240	6.1	45,780.93
	Stack 7	18.29	-	37.92	N	8490.00	0.88	6.5	48,401	6.1	45,240	6.1	45,780.93
	Fugitive	3.402418605	10	43.67	N	14026.73	0.88	2.2	26,655	2.0	24,914	2.0	25,212.29
	Stack 1	8.7	-	38	N	25900.00	0.91	6.8	159,872	5.9	138,938	6.6	155,442.47
	Stack 2	8.7	-	41	N	25900.00	0.91	6.8	159,872	5.9	138,938	6.6	155,442.47
	Stack 3	8.7	-	39	N	25900.00	0.91	6.8	159,872	5.9	138,938	6.6	155,442.47
	Stack 4	8.7	-	40	N	25900.00	0.91	6.8	159,872	5.9	138,938	6.6	155,442.47
	Stack 5	8.7	-	34	N	25900.00	0.91	6.8	159,872	5.9	138,938	6.6	155,442.47
	Stack 6	8.7	-	42	N	25900.00	0.91	6.8	159,872	5.9	138,938	6.6	155,442.47
	Stack 7	8.7	-	60	N	18000.00	0.91	6.8	111,108	5.9	96,559	6.6	108,029.52
	Stack 8	8.7	-	64	N	18000.00	0.91	6.8	111,108	5.9	96,559	6.6	108,029.52
	Stack 9	8.7	-	46	N	25900.00	0.91	6.8	159,872	5.9	138,938	6.6	155,442.47
	Stack 10	8.7	-	62	N	18000.00	0.91	6.8	111,108	5.9	96,559	6.6	108,029.52
	Stack 11	8.7	-	63	N	18000.00	0.91	6.8	111,108	5.9	96,559	6.6	108,029.52
	Stack 12	8.7	-	50	N	18000.00	0.91	6.8	111,108	5.9	96,559	6.6	108,029.52
	Fugitive	2.835348837	10	75	N	12558.23	0.91	2.3	25,840	2.0	22,456	2.2	25,123.56
	Stack 1	14.33	-	44.63	N	8490.00	0.94	6.5	51,617	7.3	58,590	6.0	48,240.72
	Stack 2	16.76	-	55.57	N	7360.00	0.94	6.5	44,747	7.3	50,792	6.0	41,819.98
	Stack 3	12.8	-	63.77	N	7360.00	0.94	6.5	44,747	7.3	50,792	6.0	41,819.98
	Stack 4	12.8	-	72.24	N	7360.00	0.94	6.5	44,747	7.3	50,792	6.0	41,819.98
	Fugitive	4.961860465	10	69.36	N	12558.23	0.94	2.2	25,409	2.4	28,888	2.0	23,785.31
	Stack 1	17.98	-	70.7	N	7360.00	0.99	11.1	80,560	11.6	84,371	12.1	87,833.68
	Stack 2	17.98	-	81.66	N	7360.00	0.99	11.1	80,560	11.6	84,371	12.1	87,833.68
	Stack 3	17.98	-	98.33	N	7360.00	0.99	11.1	80,560	11.6	84,371	12.1	87,833.68
	Stack 4	17.98	-	104.03	N	4710.00	0.99	11.1	51,554	11.6	53,993	12.1	56,208.78
	Stack 5	17.98	-	78.13	N	7360.00	0.99	11.1	80,560	11.6	84,371	12.1	87,833.68
	Fugitive	4.961860465	10	102.8	N	8696.57	0.99	3.7	31,797	3.9	33,353	4.0	34,594.57
	Stack 1	11	-	12	N	9610.00	1.00	8.0	76,632	7.6	72,800	7.3	69,887.84
	Stack 2	17	-	15	N	9610.00	1.00	8.0	76,632	7.6	72,800	7.3	69,887.84
	Fugitive	4.253023256	10	31.36	N	14026.73	1.00	4.8	66,907	4.5	63,561	4.4	61,019.13
	Stack 1	15.24	-	22	Y	9610.00	1.00	10.3	99,153	10.4	99,459	9.6	91,751.81
	Stack 2	15.5448	-	43	Y	8490.00	1.00	10.3	87,597	10.4	87,868	9.6	81,058.57
	Stack 3	11.5824	-	13	Y	9610.00	1.00	10.3	99,153	10.4	99,459	9.6	91,751.81

Table E-2. Tier 1 Short-Term Modeling Parameters and Individual Source Results at Selected Facilities for Short-Term Exposures

Facility Name	Source ID	Release Height (m)	Volume Source Length of Side (m)	Distance to Nearest Receptor (m)	Physical Fence (Y/N)	Tier 1 Table: Normalized Maximum 1-Hour Average Conc. ($\mu g/m^3$)/(gps)	Proportion EGBE of Certain Glycol Ethers	2009		2010		2011	
								TRI Emissions (gps)	Maximum 1-Hour Average Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (gps)	Maximum 1-Hour Average Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (gps)	Maximum 1-Hour Average Tier I EGBE Conc. ($\mu g/m^3$)
[redacted]	Stack 4	14.0208	-	16	Y	9610.00	1.00	10.3	99,153	10.4	99,459	9.6	91,751.81
	Stack 5	14.0208	-	19	Y	9610.00	1.00	10.3	99,153	10.4	99,459	9.6	91,751.81
	Stack 6	15.24	-	11	Y	9610.00	1.00	10.3	99,153	10.4	99,459	9.6	91,751.81
	Stack 7	15.24	-	18	Y	9610.00	1.00	10.3	99,153	10.4	99,459	9.6	91,751.81
	Stack 8	15.24	-	23	Y	9610.00	1.00	10.3	99,153	10.4	99,459	9.6	91,751.81
	Fugitive	4.961860465	10	63	Y	12558.23	1.00	1.8	22,865	1.8	22,937	1.7	21,153.27
	Stack 1	14.6304	-	36	Y	8490.00	1.00	9.4	79,876	8.9	75,444	8.9	75,321.63
	Stack 2	14.6304	-	40	Y	8490.00	1.00	9.4	79,876	8.9	75,444	8.9	75,321.63
	Stack 3	16.6116	-	42	Y	8490.00	1.00	9.4	79,876	8.9	75,444	8.9	75,321.63
	Stack 4	14.6304	-	29	Y	9610.00	1.00	9.4	90,414	8.9	85,397	8.9	85,258.05
	Stack 5	13.50264	-	56	Y	7360.00	1.00	9.4	69,245	8.9	65,403	8.9	65,296.49
	Stack 6	14.1732	-	61	Y	7360.00	1.00	9.4	69,245	8.9	65,403	8.9	65,296.49
	Stack 7	13.19784	-	62	Y	7360.00	1.00	9.4	69,245	8.9	65,403	8.9	65,296.49
	Stack 8	13.716	-	65	Y	7360.00	1.00	9.4	69,245	8.9	65,403	8.9	65,296.49
	Stack 9	15.24	-	56	Y	7360.00	1.00	9.4	69,245	8.9	65,403	8.9	65,296.49
	Stack 10	15.33144	-	62	Y	7360.00	1.00	9.4	69,245	8.9	65,403	8.9	65,296.49
	Stack 11	15.33144	-	65	Y	7360.00	1.00	9.4	69,245	8.9	65,403	8.9	65,296.49
	Stack 12	15.33144	-	60	Y	7360.00	1.00	9.4	69,245	8.9	65,403	8.9	65,296.49
	Fugitive	3.685953488	10	64	Y	12558.23	1.00	1.7	20,851	1.6	19,693	1.6	19,661.51
	Stack 1	12.19	-	37.8	N	8490.00	1.00	6.9	58,300	7.0	59,370	6.7	56,942.90
	Stack 2	12.19	-	32.22	N	8490.00	1.00	6.9	58,300	7.0	59,370	6.7	56,942.90
	Stack 3	13.41	-	41.76	N	8490.00	1.00	6.9	58,300	7.0	59,370	6.7	56,942.90
	Stack 4	13.41	-	41.76	N	8490.00	1.00	6.9	58,300	7.0	59,370	6.7	56,942.90
	Stack 5	13.41	-	45.11	N	8490.00	1.00	6.9	58,300	7.0	59,370	6.7	56,942.90
	Stack 7	12.19	-	41.45	N	8490.00	1.00	6.9	58,300	7.0	59,370	6.7	56,942.90
	Stack 8	12.19	-	32.61	N	8490.00	1.00	6.9	58,300	7.0	59,370	6.7	56,942.90
	Stack 9	12.19	-	49.07	N	8490.00	1.00	6.9	58,300	7.0	59,370	6.7	56,942.90
	Stack 10	12.8	-	53.95	N	7360.00	1.00	6.9	50,540	7.0	51,468	6.7	49,363.93
	Stack 11	12.19	-	56.39	N	7360.00	1.00	6.9	50,540	7.0	51,468	6.7	49,363.93
	Stack 12	12.19	-	44.2	N	8490.00	1.00	6.9	58,300	7.0	59,370	6.7	56,942.90
	Fugitive	3	10	59	N	12558.23	1.00	1.6	19,779	1.6	20,333	1.5	19,289.95
	Stack 1	13.1064	-	30	Y	8490.00	0.94	6.5	51,842	6.8	53,908	3.4	26,705.88
	Stack 2	12.6492	-	38	Y	8490.00	0.94	6.5	51,842	6.8	53,908	3.4	26,705.88
	Stack 3	13.16736	-	44	Y	8490.00	0.94	6.5	51,842	6.8	53,908	3.4	26,705.88
	Stack 4	12.192	-	19	Y	9610.00	0.94	6.5	58,681	6.8	61,020	3.4	30,228.91
	Stack 5	12.8016	-	23	Y	9610.00	0.94	6.5	58,681	6.8	61,020	3.4	30,228.91
	Stack 6	13.716	-	31	Y	8490.00	0.94	6.5	51,842	6.8	53,908	3.4	26,705.88
	Stack 7	14.0208	-	26	Y	9610.00	0.94	6.5	58,681	6.8	61,020	3.4	30,228.91
	Stack 8	14.0208	-	34	Y	8490.00	0.94	6.5	51,842	6.8	53,908	3.4	26,705.88
	Stack 9	15.24	-	41	Y	8490.00	0.94	6.5	51,842	6.8	53,908	3.4	26,705.88
	Fugitive	4.253023256	10	46	Y	14026.73	0.94	1.7	22,587	1.8	23,528	0.8	10,798.10
	Stack 1	13.716	-	12	N	9610.00	1.00	0.2	2,072	0.2	2,011	0.2	2,177.69
	Fugitive	3	10	70	N	12558.23	1.00	2.9	36,100	2.8	35,030	3.0	37,941.43
	Point	11.17	-	45	Unknown	8490.00	1.00	0.5	4,575	0.5	3,835	0.4	3,274.42
	Fugitive	3.05	10	210	Unknown	4798.11	1.00	4.6	21,848	4.9	23,455	5.7	27,327.85
	Stacks 1-10	14	-	75	Unknown	7360.00	0.95	18.1	126,798	19.9	138,812	13.9	97,310.09

Table E-2. Tier 1 Short-Term Modeling Parameters and Individual Source Results at Selected Facilities for Short-Term Exposures

Facility Name	Source ID	Release Height (m)	Volume Source Length of Side (m)	Distance to Nearest Receptor (m)	Physical Fence (Y/N)	Tier 1 Table: Normalized Maximum 1-Hour Average Conc. ($\mu g/m^3$)/(gps)	Proportion EGBE of Certain Glycol Ethers	2009		2010		2011	
								TRI Emissions (gps)	Maximum 1-Hour Average Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (gps)	Maximum 1-Hour Average Tier I EGBE Conc. ($\mu g/m^3$)	TRI Emissions (gps)	Maximum 1-Hour Average Tier I EGBE Conc. ($\mu g/m^3$)
[redacted]	Fugitive	3	10	91.7	Unknown	12558.23	0.95	3.6	42,558	3.9	46,927	3.2	38,656.16

Table E-3. Tier 1 Short-Term Modeling Summary for Selected Facilities

Site Name	Source Type	2009 TRI		2010 TRI		2011 TRI	
		Maximum 1-Hour Average Tier I EGBE Conc. (µg/m^3)	Short-Term HQ (combined)	Maximum 1-Hour Average Tier I EGBE Conc. (µg/m^3)	Short-Term HQ (combined)	Maximum 1-Hour Average Tier I EGBE Conc. (µg/m^3)	Short-Term HQ (combined)
[redacted]	Point	1674648.6	**18**	1455360.1	**15**	1628244.9	**17**
	Volume	25839.6		22455.8		25123.6	
	Point	4575.2	0.3	3835.5	0.3	3274.4	0.3
	Volume	21848.5		23455.4		27327.9	
	Point	1614548.3	**17**	1729873.2	**18**	1672210.7	**18**
	Volume	28567.5		30154.6		29625.6	
	Point	153263.2	**2**	145599.8	**2**	139775.7	**2**
	Volume	66907.0		63561.5		61019.1	
	Point	126797.7	**2**	138811.6	**2**	97310.1	1
	Volume	42558.5		46926.7		38656.2	
	Point	781664.4	**8**	784081.0	**8**	723321.2	**8**
	Volume	22865.5		22936.6		21153.3	
	Point	516703.7	**6**	671714.9	**7**	723385.2	**8**
	Volume	31488.0		18105.6		18892.8	
	Point	602446.2	**7**	602446.2	**7**	625617.2	**7**
	Volume	38766.6		39557.8		40348.9	
	Point	625779.2	**7**	637261.3	**7**	611214.0	**7**
	Volume	19778.9		20332.7		19289.9	
	Point	2071.7	0.4	2010.6	0.4	2177.7	0.4
	Volume	36099.6		35030.0		37941.4	
	Point	373793.1	**4**	391475.5	**4**	407543.5	**5**
	Volume	31796.9		33353.0		34594.6	
	Point	487099.1	**5**	506509.5	**5**	250922.0	**3**
	Volume	22587.1		23527.5		10798.1	
	Point	364345.2	**4**	340549.6	**4**	344624.2	**4**
	Volume	26654.8		24914.5		25212.3	
	Point	884003.8	**9**	834954.6	**9**	833594.9	**9**
	Volume	20850.7		19693.1		19661.5	
	Point	185857.0	**2**	210964.4	**2**	173700.7	**2**
	Volume	25408.8		28888.5		23785.3	

Hazard quotient (HQ) equals the sum of the maximum annual average concentration for fugitive/volume source emissions and point source emissions, at or beyond the fence line, is compared to a NOAEL for EGBE of 97,000 µg/m^3.
EGBE: ethylene glycol monobutyl ether
HQ: hazard quotient
RfC: reference concentration
TRI: Toxics Release Inventory
µg/m^3: micrograms per cubic meter
Bold font indicates an HQ greather than 1.

Table E-4. Tier 2 Modeling Stack Parameters and Individual Source Results at Individual Facilities

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]	Worst case annual average unit emission rate concentration[b] (µg/m3) (1g/s)
[redacted]	Stack 1	L1-IBO-Hot		21.49	0.686	9.64	349.8	6.268	8.149	8.776	594.06
	Stack 2	L1-ISS		21.79	0.405	11.70	298.0	6.268	8.149	8.776	1658.08
	Stack 3	L1-PO1-Hot		25.91	0.381	19.16	374.8	6.268	8.149	8.776	610.95
	Stack 4	L1-PO2-Hot		15.85	0.405	20.70	374.8	6.268	8.149	8.776	728.96
	Stack 5	L1-PR-11		13.52	0.399	10.18	298.0	6.268	8.149	8.776	1951.66
	Stack 6	L1-PR-12		13.52	0.399	10.18	298.0	6.268	8.149	8.776	2026.61
	Stack 7	L2-IBO-Hot		21.49	0.686	2.71	349.8	6.268	8.149	8.776	1404.66
	Stack 8	L2-ISS		21.79	0.405	11.70	298.0	6.268	8.149	8.776	1566.07
	Stack 9	L2-PO1-Hot		25.91	0.393	19.19	374.8	6.268	8.149	8.776	591.61
	Stack 10	L2-PO2-Hot		25.91	0.381	15.63	374.8	6.268	8.149	8.776	835.39
	Stack 11	L2-PR-21		13.52	0.399	10.18	298.0	6.268	8.149	8.776	2041.74
	Stack 12	L2-PR-22		13.52	0.399	10.18	298.0	6.268	8.149	8.776	2118.85
	Stack 13	L3-IBO-Hot		25.91	0.686	7.59	349.8	6.268	8.149	8.776	882.72
	Stack 14	L3-ISS		21.79	0.405	11.70	298.0	6.268	8.149	8.776	1519.69
	Stack 15	L3-PO1-Hot		25.91	0.381	17.20	374.8	6.268	8.149	8.776	776.04
	Stack 16	L3-PO2-Hot		25.91	0.393	14.71	374.8	6.268	8.149	8.776	832.98
	Stack 17	L3-PR-31		13.52	0.399	10.18	298.0	6.268	8.149	8.776	2105.18
	Stack 18	L3-PR-32		13.52	0.399	10.18	298.0	6.268	8.149	8.776	1966.29
	Stack 19	L4-BCO-Hot		21.49	0.393	17.23	453.2	6.268	8.149	8.776	628.53
	Stack 20	L4-IBO-Hot		25.91	0.381	32.32	349.8	6.268	8.149	8.776	569.39
	Stack 21	L4-ISS		21.79	0.405	7.31	298.0	6.268	8.149	8.776	1728.75
	Stack 22	L4-PO-Hot		25.91	0.686	5.00	374.8	6.268	8.149	8.776	851.15
	Stack 23	L4-PR-41		15.75	1.119	1.30	298.0	6.268	8.149	8.776	**2844.86**
	Stack 1	B_PO11	PO11	16.61	0.457	7.00	510.9	16.380	16.380	17.010	**490.97**
	Stack 2	B_PO12	PO12	16.61	0.305	29.07	510.9	16.380	16.380	17.010	322.51
	Stack 3	B_PO21	PO21	19.81	0.457	9.79	499.8	16.380	16.380	17.010	192.92
	Stack 4	B_PO22	PO22	19.81	0.457	11.32	488.7	16.380	16.380	17.010	183.11
	Stack 5	B_IBO11	IBO11	14.17	0.610	11.62	477.6	16.380	16.380	17.010	269.99
	Stack 6	B_IBO21B	IBO21-B	21.18	0.610	3.98	477.6	16.380	16.380	17.010	210.23
	Stack 7	B_IBO31	IBO31	21.64	0.864	5.12	494.3	16.380	16.380	17.010	114.93
	Stack 8	B_WCO31	WashCoat Ov	20.42	0.813	2.58	510.9	16.380	16.380	17.010	189.14
	Stack 9	B_BH	Baghouse	20.73	0.330	37.48	294.3	16.380	16.380	17.010	228.58
	Stack 1	PO2	S019	18.47	0.406	13.53	402.0	17.033	18.250	17.641	271.76
	Stack 2	PO3	S006	18.87	0.406	12.25	365.9	17.033	18.250	17.641	395.24
	Stack 3	PO4Z1	S035	15.54	0.483	6.77	402.6	17.033	18.250	17.641	883.30
	Stack 4	PO4Z2	S036	15.16	0.483	9.49	395.9	17.033	18.250	17.641	775.94

Table E-4. Tier 2 Modeling Stack Parameters and Individual Source Results at Individual Facilities

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]	Worst case annual average unit emission rate concentration[b] (µg/m3) (1g/s)
[redacted]	Stack 5	PO5Z1	S037	13.13	0.483	9.63	369.8	17.033	18.250	17.641	855.28
	Stack 6	PO5Z2	S038	13.13	0.483	8.84	380.9	17.033	18.250	17.641	798.49
	Stack 7	IBO2Z1	S021	18.52	0.406	7.60	362.6	17.033	18.250	17.641	464.09
	Stack 8	IBO2Z2	S020	18.42	0.508	6.60	382.6	17.033	18.250	17.641	367.79
	Stack 9	IBO3Z1	S011	18.34	0.406	6.06	322.6	17.033	18.250	17.641	801.58
	Stack 10	IBO3Z2	S010	18.59	0.508	7.29	389.3	17.033	18.250	17.641	378.79
	Stack 11	IBO4/5Z1	S027	18.31	0.406	2.85	356.5	17.033	18.250	17.641	**1296.25**
	Stack 12	IBO4/5Z2	S028	18.29	0.508	5.13	384.8	17.033	18.250	17.641	591.59
	Stack 13	IBO4/5Z3	S039	18.34	0.406	13.05	373.7	17.033	18.250	17.641	380.54
	Stack 14	BCPOL2	S016	18.47	0.406	13.01	391.5	17.033	18.250	17.641	304.05
	Stack 15	BCPOL4Z1	S033	15.54	0.483	9.00	355.9	17.033	18.250	17.641	912.54
	Stack 16	BCPOL4Z2	S034	15.54	0.483	10.22	382.0	17.033	18.250	17.641	749.49
	Stack 17	ICEXH02	S024	17.86	0.305	11.26	293.2	17.033	18.250	17.641	783.91
	Stack 18	ICEXH03	S023	17.86	0.305	11.89	295.9	17.033	18.250	17.641	857.76
	Stack 19	ICEXH045	S022	17.86	0.406	8.61	295.9	17.033	18.250	17.641	894.58
	Stack 1	IBO	IBO (Can Lin	18.29	0.305	10.20	459.8	5.701	5.329	5.392	1145.73
	Stack 2	Ross	Ross (Can Lir	15.24	0.305	16.72	422.6	5.701	5.329	5.392	1033.43
	Stack 3	IBO	IBO (Can Lin	15.24	0.305	9.51	459.8	5.701	5.329	5.392	1328.00
	Stack 4	Ross	Ross (Can Lir	18.29	0.305	16.72	422.6	5.701	5.329	5.392	927.51
	Stack 5	IBO	IBO (Can Lin	15.24	0.305	10.20	459.8	5.701	5.329	5.392	**1558.72**
	Stack 6	Ross	Ross (Can Lir	15.24	0.305	16.72	422.6	5.701	5.329	5.392	1318.91
	Stack 7	Ross	Ross (Can Lir	18.29	0.305	16.72	422.6	5.701	5.329	5.392	1180.43
	Stack 1	IBO #1A		14.33	0.710	3.97	460.9	6.080	6.901	5.682	620.78
	Stack 2	IBO #2C		16.76	1.067	7.98	316.5	6.080	6.901	5.682	938.12
	Stack 3	LSM #1A		12.80	0.280	8.32	294.3	6.080	6.901	5.682	2944.95
	Stack 4	LSM #2A		12.80	0.280	6.91	294.3	6.080	6.901	5.682	**3101.38**
	Stack 1	LSM2		8.53	0.457	1.42	449.8	6.173	5.364	6.002	2814.02
	Stack 2	L1PO		8.53	0.457	2.10	291.5	6.173	5.364	6.002	**8171.36**
	Stack 3	IBO1		8.53	0.457	3.31	533.2	6.173	5.364	6.002	1874.95
	Stack 4	LSM1		8.53	0.457	1.18	449.8	6.173	5.364	6.002	3657.09
	Stack 5	L1V1		8.53	0.457	3.42	291.5	6.173	5.364	6.002	7645.40
	Stack 6	IBO3		8.53	0.457	10.25	291.5	6.173	5.364	6.002	3179.53
	Stack 7	L3S		8.53	0.457	1.18	449.8	6.173	5.364	6.002	2541.28
	Stack 8	L3VI		8.53	0.457	3.42	291.5	6.173	5.364	6.002	5379.82
	Stack 9	IBO4		8.53	0.457	8.52	291.5	6.173	5.364	6.002	4375.61
	Stack 10	L4S		8.53	0.457	1.42	449.8	6.173	5.364	6.002	2502.39

Table E-4. Tier 2 Modeling Stack Parameters and Individual Source Results at Individual Facilities

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]	Worst case annual average unit emission rate concentration[b] (µg/m3) (1g/s)
[redacted]	Stack 11	L3PO		8.53	0.457	3.42	291.5	6.173	5.364	6.002	5339.13
	Stack 12	IBO2		8.53	0.457	3.68	533.2	6.173	5.364	6.002	1515.96
	Stack 1	TO-1		11.00	1.219	16.17	659.2	7.974	7.575	7.272	196.82
	Stack 2	TO-2		17.00	0.597	13.49	773.2	7.974	7.575	7.272	**336.36**
	Stack 1	EU-001		17.98	0.311	31.08	310.9	10.946	11.463	11.934	**934.36**
	Stack 2	EU-003		17.98	0.311	18.65	394.3	10.946	11.463	11.934	821.21
	Stack 3	EU-005		17.98	0.311	18.65	394.3	10.946	11.463	11.934	802.77
	Stack 4	EU-007		17.98	0.311	31.08	449.8	10.946	11.463	11.934	556.34
	Stack 5	EU-008		17.98	0.311	31.08	449.8	10.946	11.463	11.934	522.95
	Stack 1	SV4	Printer Oven S	15.24	0.457	6.10	422.0	10.318	10.350	9.548	986.47
	Stack 2	SV5	Printer Oven S	15.54	0.396	6.10	422.0	10.318	10.350	9.548	1021.25
	Stack 3	SV 6	Inside Spray M	11.58	0.610	3.96	294.3	10.318	10.350	9.548	**3630.15**
	Stack 4	SV 7	Inside Spray M	14.02	0.610	3.96	294.3	10.318	10.350	9.548	2950.11
	Stack 5	SV 8	Inside Spray M	14.02	0.610	3.96	294.3	10.318	10.350	9.548	2941.73
	Stack 6	SV9	Inside Bake O	15.24	0.762	4.88	422.0	10.318	10.350	9.548	598.16
	Stack 7	SV10	Inside Bake O	15.24	0.762	4.88	422.0	10.318	10.350	9.548	604.47
	Stack 8	SV11	Inside Bake O	15.24	0.762	4.88	422.0	10.318	10.350	9.548	597.03
	Stack 1	REX_SV21	Printer Oven S	13.11	0.396	9.58	366.5	6.106	6.350	3.146	1656.67
	Stack 2	REX_SV22	Printer Oven S	12.65	0.396	9.57	366.5	6.106	6.350	3.146	1752.38
	Stack 3	REX_SV23	Base Coater F	13.17	0.396	9.57	366.5	6.106	6.350	3.146	1908.85
	Stack 4	RED_SV31	Inside Spray M	12.19	1.097	2.50	294.3	6.106	6.350	3.146	3211.46
	Stack 5	REX_SV32	Inside Spray M	12.80	1.189	2.13	294.3	6.106	6.350	3.146	**3768.25**
	Stack 6	REX_SV33	Inside Spray M	13.72	0.914	3.59	294.3	6.106	6.350	3.146	3050.71
	Stack 7	REX_SV41	Inside Bake O	14.02	0.762	8.07	449.8	6.106	6.350	3.146	719.15
	Stack 8	REX_SV42	Inside Bake O	14.02	0.823	6.92	449.8	6.106	6.350	3.146	690.34
	Stack 9	REX_RTO	Regenerative	15.24	1.158	7.61	488.7	6.106	6.350	3.146	420.86
	Stack 1	SV7A	Printer Pin Ov	14.63	0.558	4.83	422.0	9.408	8.886	8.872	1291.94
	Stack 2	SV7B	Printer Pin Ov	14.63	0.558	4.83	444.3	9.408	8.886	8.872	1530.94
	Stack 3	SV7C	Printer Pin Ov	16.61	0.914	1.80	397.0	9.408	8.886	8.872	1520.13
	Stack 4	SV7D	Printer Pin Ov	14.63	0.610	4.04	399.8	9.408	8.886	8.872	1317.77
	Stack 5	SV8A	Inside Spray M	13.50	0.838	2.14	299.8	9.408	8.886	8.872	4724.42
	Stack 6	SV8B	Inside Spray M	14.17	0.838	2.14	299.8	9.408	8.886	8.872	4139.12
	Stack 7	SV8C	Inside Spray M	13.20	0.850	2.08	299.8	9.408	8.886	8.872	**4815.86**
	Stack 8	SV8D	Inside Spray M	13.72	0.838	2.14	299.8	9.408	8.886	8.872	4539.85
	Stack 9	SV9A	Inside Bake O	15.24	0.762	3.62	358.2	9.408	8.886	8.872	1674.02
	Stack 10	SV9B	Inside Bake O	15.33	0.762	3.62	360.9	9.408	8.886	8.872	1524.62

Table E-4. Tier 2 Modeling Stack Parameters and Individual Source Results at Individual Facilities

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]	Worst case annual average unit emission rate concentration[b] (µg/m3) (1g/s)
[redacted]	Stack 11	SV9C	Inside Bake C	15.33	0.762	3.62	366.5	9.408	8.886	8.872	1523.51
	Stack 12	SV9D	Inside Bake C	15.33	0.762	3.62	360.9	9.408	8.886	8.872	1720.38
	Stack 1	Stack1		14.00	6.096	0.46	394.3	17.228	18.860	13.221	553.27
	Stack 2	Stack2		14.00	6.096	0.46	394.3	17.228	18.860	13.221	675.40
	Stack 3	Stack3		14.00	6.096	0.46	394.3	17.228	18.860	13.221	702.45
	Stack 4	Stack4		14.00	6.096	0.46	394.3	17.228	18.860	13.221	584.73
	Stack 5	Stack5		14.00	6.096	0.46	394.3	17.228	18.860	13.221	542.50
	Stack 1	C11	L1Roll1	15.80	0.719	17.42	477.6	6.867	6.993	6.707	274.20
	Stack 2	C12	L1Roll2	15.80	0.719	7.37	477.6	6.867	6.993	6.707	550.70
	Stack 3	C13	L1IS1	17.11	0.905	5.13	477.6	6.867	6.993	6.707	448.93
	Stack 4	C14	L1IS2	17.11	0.905	5.13	477.6	6.867	6.993	6.707	454.40
	Stack 5	C15	L1IS3	17.11	0.905	12.32	477.6	6.867	6.993	6.707	239.27
	Stack 6	C16	L1IS4	17.11	0.914	10.78	477.6	6.867	6.993	6.707	263.33
	Stack 7	C21	L2Roll1	15.80	0.719	17.42	477.6	6.867	6.993	6.707	285.75
	Stack 8	C22	L2Roll2	15.80	0.719	7.37	477.6	6.867	6.993	6.707	495.43
	Stack 9	C23	L2IS1	16.46	0.799	9.42	477.6	6.867	6.993	6.707	358.27
	Stack 10	C24	L2IS2	16.78	0.799	18.85	477.6	6.867	6.993	6.707	255.84
	Stack 11	S1	IS_1_Over_Fu	16.00	0.695	12.44	294.3	6.867	6.993	6.707	**1326.56**
	Stack 12	S2	IS_2_Over_Fu	16.13	0.362	45.87	294.3	6.867	6.993	6.707	697.82

a. All point EGBE emissions were conservatively assumed to exhaust through each stack for AERSCREEN modeling.
The emission rate for each source is calculated from the TRI reported stack emissions of Certain Glycol Ethers as follows
EGBE Emission Rate (g/s) = Stack TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 2,000 (hrs/yr)
The calculated emission rate assumes the total annual EGBE emissions are relased over a period of 2,000 hours a year, which would correspond to a facility steadily emitting EGBE 40 hours a week, 50 weeks per year.

b. Worst case 1-hr average unit emission rate concentration in (µg/m3) (1g/s) assumes stack emission rate of 1 g/s.
It is used to calculate Tier 2 1-hr concentration for a stack by multiplying the unit emission rate concentration by Tier2 stack emission rate (in g/s) for a given TRI year
The maximum point source unit emission rate impact (considering all point sources for a facility) is shown in **bolded** text.

g/s: grams per second
K: degrees Kelvin
m: meter
m/s: meters per second
$\mu g/m^3$: micrograms per cubic meter
tpy: ton per year
TRI: Toxic Release Inventory

Table E-5. Tier 2 Modeling Fugitive Volume Parameters and Results at Individual Facilities

Site Name	Source Type	Volume Release Height (m) [b]	Volume Intial Lateral Dimension (m) [c]	Volume Intial Vertical Dimension (m) [d]	2009 TRI Emission Rate (g/s)[e]	2010 TRI Emission Rate (g/s)[e]	2011 TRI Emission Rate (g/s)[e]	Worst case fugitive annual average unit emission rate concentration[f] (µg/m3) (1g/s)
	Volume	12.420	22.790	5.777	2.507	1.44173	1.50441	860.89
	Volume	12.420	11.230	5.780	3.087	3.14995	3.21295	1315.32
	Volume	14.630	13.730	6.805	3.285	3.46741	3.40658	523.70
	Volume	7.315	19.850	3.402	1.900	1.77621	1.79745	1845.69
	Volume	10.670	24.820	4.962	2.023	2.30036	1.89400	939.75
	Volume	6.096	27.300	2.835	2.058	1.78813	2.00057	956.11
	Volume	9.144	14.120	4.253	4.770	4.53145	4.35020	1987.61
	Volume	10.670	30.710	4.962	3.656	3.83519	3.97795	820.91
	Volume	10.670	28.840	4.962	1.821	1.82642	1.68442	875.76
	Volume	9.144	20.930	4.253	1.610	1.67733	0.76982	1082.62
	Volume	7.925	24.550	3.686	1.660	1.56814	1.56563	1296.45
	Volume	7.000	27.240	3.250	3.389	3.73673	3.07815	1110.14
	Volume	12.192	20.698	5.670	1.575	1.61907	1.53604	1047.65

a. Fugitive releases of EGBE are reported to occur through the building's roof vents in the production area of the facility building where stacks emitting EGBE are located. Fugitive emissions from the roof vents are modeled as a single volume source.

b. The volume source release height is taken to be at the release height of fugitive emissions; it is set to be equal to the roof height of the process building

c. Per EPA's AERMOD guidance, the volume source initial lateral dimension is taken to be the length of the side of the volume divided by 4.3.

d. Per EPA's AERMOD guidance, the volume source initial vertical dimension is taken to be the height of the volume source (roof height) divided by 2.15.

e. The emission rate for each source is calculated from the TRI reported fugitive emissions of Certain Glycol Ethers as folbws:
EGBE Emission Rate (g/s) = Fugitive TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 2,000 (hrs/yr)
The calculated emission rate assumes the total annual EGBE emissions are relased over a period of 2,000 hours a year, which would correspond to a facility steadily emitting EGBE 40 hours a week, 50 weeks per year.

f. Worst case 1-hr average unit emission rate concentration in (µg/m3) (1g/s) assumes fugitive emission rate of 1 g/s. It is used to calculate Tier 2 1-hr concentration for a fugitive volume by multiplying the unit emission rate concentratıon by Tier 2 fugitive emission rate (in g/s) for a given TRI year

g/s: grams per second
hrs/yr: hours per year
m: meter
µg/m^3: micrograms per cubic meter
tpy: ton per year
TRI: Toxic Release Inventory

Table E-6. Tier 2 Modeling Stack Parameters and Individual Source Results in Clusters

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]	Worst case annual average unit emission rate concentration[b] (µg/m3) (1g/s)
	Stack 1	REX_SV21	Printer Oven Stack # 1 – SV 21	13.11	0.396	9.58	366.5	6.106	6.350	3.146	1656.67
	Stack 1	REX_SV22	Printer Oven Stack # 2 – SV 22	12.65	0.396	9.57	366.5	6.106	6.350	3.146	1752.38
	Stack 1	REX_SV23	Base Coater Pin Oven Stack # 3 – SV 23	13.17	0.396	9.57	366.5	6.106	6.350	3.146	1908.85
	Stack 4	RED_SV31	Inside Spray Machines Bank 1 – SV 31	12.19	1.097	2.50	294.3	6.106	6.350	3.146	3211.46
	Stack 5	REX_SV32	Inside Spray Machines Bank 2 – SV 32	12.80	1.189	2.13	294.3	6.106	6.350	3.146	**3768.25**
	Stack 6	REX_SV33	Inside Spray Machines Bank 2 – SV 33	13.72	0.914	3.59	294.3	6.106	6.350	3.146	3050.71
	Stack 7	REX_SV41	Inside Bake Oven Stack # 1 – SV 41	14.02	0.762	8.07	449.8	6.106	6.350	3.146	719.15
	Stack 8	REX_SV42	Inside Bake Oven Stack # 2 – SV 42	14.02	0.823	6.92	449.8	6.106	6.350	3.146	690.34
	Stack 9	REX_RTO	Regenerative Thermal Oxidizer Stack	15.24	1.158	7.61	488.7	6.106	6.350	3.146	420.86
	Stack1	N/A	3960***	9.75	0.396	2.74	294.3	3.243	5.436	4.277	4608.31
	Stack 1	B_PO11	PO11	16.61	0.457	7.00	510.9	16.380	16.380	17.010	**490.97**
	Stack 2	B_PO12	PO12	16.61	0.305	29.07	510.9	16.380	16.380	17.010	322.51
	Stack 3	B_PO21	PO21	19.81	0.457	9.79	499.8	16.380	16.380	17.010	192.92
	Stack 4	B_PO22	PO22	19.81	0.457	11.32	488.7	16.380	16.380	17.010	183.11
	Stack 5	B_IBO11	IBO11	14.17	0.610	11.62	477.6	16.380	16.380	17.010	269.99
	Stack 6	B_IBO21B	IBO21-B	21.18	0.610	3.98	477.6	16.380	16.380	17.010	210.23
	Stack 7	B_IBO31	IBO31	21.64	0.864	5.12	494.3	16.380	16.380	17.010	114.93
	Stack 8	B_WCO31	WashCoat Oven31	20.42	0.813	2.58	510.9	16.380	16.380	17.010	189.14
	Stack 9	B_BH	Baghouse	20.73	0.330	37.48	294.3	16.380	16.380	17.010	228.58
	Stack 1	Stk_2	8194****	12.19	0.305	0.39	327.6	2.591	2.537	2.439	2878.62
	Stack 1	C11	L1Roll1	15.80	0.719	17.42	477.6	6.867	6.993	6.707	274.20
	Stack 2	C12	L1Roll2	15.80	0.719	7.37	477.6	6.867	6.993	6.707	550.70
	Stack 3	C13	L1IS1	17.11	0.905	5.13	477.6	6.867	6.993	6.707	448.93
	Stack 4	C14	L1IS2	17.11	0.905	5.13	477.6	6.867	6.993	6.707	454.40
	Stack 5	C15	L1IS3	17.11	0.905	12.32	477.6	6.867	6.993	6.707	239.27
	Stack 6	C16	L1IS4	17.11	0.914	10.78	477.6	6.867	6.993	6.707	263.33
	Stack 7	C21	L2Roll1	15.80	0.719	17.42	477.6	6.867	6.993	6.707	285.75
	Stack 8	C22	L2Roll2	15.80	0.719	7.37	477.6	6.867	6.993	6.707	495.43
	Stack 9	C23	L2IS1	16.46	0.799	9.42	477.6	6.867	6.993	6.707	358.27
	Stack 10	C24	L2IS2	16.78	0.799	18.85	477.6	6.867	6.993	6.707	255.84
	Stack 11	S1	IS_1_Over_Fug	16.00	0.695	12.44	294.3	6.867	6.993	6.707	**1326.56**
	Stack 12	S2	IS_2_Over_Fug	16.13	0.362	45.87	294.3	6.867	6.993	6.707	697.82
	Stack 1	Stk_2	not used	9.14	0.914	3.23	505.4	0.633	0.974	0.871	1018.09
	Stack 1	0001	0001 (Bldg 5G)	12.80	2.070	8.41	405.9	1.013	0.705	0.291	154.56
	Stack 2	TO-1	TO-1 (Bldg 5D)	11.58	1.220	7.80	488.2	1.013	0.705	0.291	316.24
	Stack 3	TO-2	TO-2 (Bldg 5D)	10.67	0.670	6.86	704.3	1.013	0.705	0.291	469.30
	Stack 4	0003	0003 (Bldg 5D)	10.05	0.640	1.66	649.8	1.013	0.705	0.291	**928.20**
	Stack 1	TO-1		11.00	1.219	16.17	659.2	7.974	7.575	7.272	196.82
	Stack 2	TO-2		17.00	0.597	13.49	773.2	7.974	7.575	7.272	**336.36**
	Stack 1	Coater #1		12.50	0.610	31.01	824.8	0.135	0.139	0.028	176.53
	Stack 2	Coater #2		14.33	0.610	9.15	783.2	0.135	0.139	0.028	**311.95**
	Stack 3	Coater #3		12.50	0.457	22.27	760.9	0.135	0.139	0.028	239.00
	Stack 4	Coater #4		12.19	0.457	15.45	745.4	0.135	0.139	0.028	260.81
	Stack 1		No stack parameters available. All emissions (stack + fugitives) modeled as a volume								

Table E-6. Tier 2 Modeling Stack Parameters and Individual Source Results in Clusters

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]	Worst case annual average unit emission rate concentration[b] (µg/m3) (1g/s)
	Stack 1	PO1		15.95	0.508	4.32	479.0	7.936	9.767	10.378	769.29
	Stack 2	PO2		16.31	0.508	4.28	465.0	7.936	9.767	10.378	898.51
	Stack 3	PO3		16.08	0.508	6.14	458.0	7.936	9.767	10.378	825.45
	Stack 4	IBO1		16.00	0.457	12.15	473.0	7.936	9.767	10.378	537.42
	Stack 5	IBO2		16.00	0.457	7.11	475.0	7.936	9.767	10.378	695.90
	Stack 6	IBO3		16.00	0.457	13.17	474.0	7.936	9.767	10.378	604.66
	Stack 7	Printer 1		15.95	0.508	0.50	298.0	7.936	9.767	10.378	**3033.94**
	Stack 8	Printer 2		15.90	0.508	0.50	298.0	7.936	9.767	10.378	2581.65
	Stack 9	Printer 3		16.08	0.508	0.50	298.0	7.936	9.767	10.378	2784.36
	Stack 10	Spray line 1		14.94	0.381	6.39	298.0	7.936	9.767	10.378	1930.54
	Stack 11	Spray line 2		14.99	0.381	7.28	298.0	7.936	9.767	10.378	1946.81
	Stack 12	Spray line 3		14.99	0.381	8.74	298.0	7.936	9.767	10.378	2109.27
	Stack 1	Stk_2		11.64	0.432	5.44	370.9	0.0019	0.0019	0.0019	1788.26

a. All point EGBE emissions were conservatively assumed to exhaust through each stack for AERSCREEN modeling.
The emission rate for each source is calculated from the TRI reported stack emissions of Certain Glycol Ethers as follows:
EGBE Emission Rate (g/s) = Stack TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 2,000 (hrs/yr)
The calculated emission rate assumes the total annual EGBE emissions are relased over a period of 2,000 hours a year, which would correspond to a facility steadily emitting EGBE 40 hours a week, 50 weeks per year.

b. Worst case 1-hr average unit emission rate concentration in (µg/m3) (1g/s) assumes stack emission rate of 1 g/s.
It is used to calculate Tier 2 1-hr concentration for a stack by multiplying the unit emission rate concentration by Tier 2 stack emission rate (in g/s) for a given TRI year
The maximum point source unit emission rate impact (considering all point sources for a facility) is shown in **bolded** text.

g/s: grams per second
K: degrees Kelvin
m: meter
m/s: meters per second
$\mu g/m^3$: micrograms per cubic meter
tpy: ton per year
TRI: Toxic Release Inventory

Table E-7. Tier 2 Modeling Fugitive Volume Parameters and Results in Clusters

Site Name	Source Type	Volume Release Height (m) [b]	Volume Intial Lateral Dimension (m) [c]	Volume Intial Vertical Dimension (m) [d]	2009 TRI Emission Rate (g/s)[e]	2010 TRI Emission Rate (g/s)[e]	2011 TRI Emission Rate (g/s)[e]	Worst case fugitive annual average unit emission rate concentration[f] (µg/m3) (1g/s)
[redacted]	Volume	9.144	20.930	4.253	1.610	1.67733	0.76982	1082.62
	Volume	No fugitive emissions reported to TRI. All reported emissions modeled as a stack release						
	Volume	12.420	11.230	5.780	3.087	3.14995	3.21295	1315.32
	Volume	8.800	47.280	4.093	0.288	0.28192	0.27101	495.99
	Volume	12.192	20.698	5.670	1.575	1.61907	1.53604	1047.65
	Volume	9.144	39.535	4.251	0.000	0.00000	0.00252	733.69
	Volume	7.315	19.900	3.402	1.482	0.84285	0.57837	1858.10
	Volume	12.192	16.247	5.670	0.764	0.43420	0.29795	1068.24
	Volume	9.144	14.120	4.253	4.770	4.53145	4.35020	1987.61
	Volume	9.750	11.881	4.540	0.000	0.00048	0.00517	1916.41
	Volume	9.144	16.000	4.250	0.716	0.91090	0.33156	1474.64
	Volume	13.106	30.930	6.096	1.465	1.77033	2.07556	540.72
	Volume	10.000	9.698	4.651	0.004	0.00441	0.00441	1866.55

a. Fugitive releases of EGBE are reported to occur through the building's roof vents in the production area of the facility building where stacks emitting EGBE are located. Fugitive emissions from the roof vents are modeled as a single volume source.

b. The volume source release height is taken to be at the release height of fugitive emissions; it is set to be equal to the roof height of the process building

c. Per EPA's AERMOD guidance, the volume source initial lateral dimension is taken to be the length of the side of the volume divided by 4.3.

d. Per EPA's AERMOD guidance, the volume source initial vertical dimension is taken to be the height of the volume source (roof height) divided by 2.15.

e. The emission rate for each source is calculated from the TRI reported fugitive emissions of Certain Glycol Ethers as follows:
EGBE Emission Rate (g/s) = Fugitive TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 2,000 (hrs/yr)
The calculated emission rate assumes the total annual EGBE emissions are relased over a period of 2,000 hours a year, which would correspond to a facility steadily emitting EGBE 40 hours a week, 50 weeks per year.

f. Worst case 1-hr average unit emission rate concentration in (µg/m3) (1g/s) assumes fugitive emission rate of 1 g/s. It is used to calculate Tier 2 1-hr concentration for a fugitive volume by multiplying the unit emission rate concentration by Tier 2 fugitive emission rate (in g/s) for a given TRI year

g. Ball Facility in Weirton has two distinct (physically separate) buildings associtaed with fugitive emissions which were modeled separately. Their emissions were estimated based on the breakdown of the total fugitive emissions provided by the faciltiy in Tier 2 Survey The maximum impact from fugitive sources for that facility is obtained by summing maximum impacts of the two volume sources.

g/s: grams per second
hrs/yr: hours per year
m: meter
tpy: ton per year
TRI: Toxic Release Inventory

Table E-8. Tier 3 Modeling Stack Parameters at Individual Facilities

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]
[redacted]	Stack 1	LSM2		8.530	0.457	2.103	291.483	0.5144	0.4470	0.5001
	Stack 2	L1PO		8.530	0.457	3.312	533.150	0.5144	0.4470	0.5001
	Stack 3	IBO1		8.530	0.457	1.183	449.817	0.5144	0.4470	0.5001
	Stack 4	LSM1		8.530	0.457	3.417	291.483	0.5144	0.4470	0.5001
	Stack 5	L1V1		8.530	0.457	10.252	291.483	0.5144	0.4470	0.5001
	Stack 6	IBO3		8.530	0.457	1.183	449.817	0.5144	0.4470	0.5001
	Stack 7	L3S		8.530	0.457	3.417	291.483	0.5144	0.4470	0.5001
	Stack 8	L3VI		8.530	0.457	8.517	291.483	0.5144	0.4470	0.5001
	Stack 9	IBO4		8.530	0.457	1.419	449.817	0.5144	0.4470	0.5001
	Stack 10	L4S		8.530	0.457	3.417	291.483	0.5144	0.4470	0.5001
	Stack 11	L3PO		8.530	0.457	3.680	533.150	0.5144	0.4470	0.5001
	Stack 12	IBO2		8.530	0.457	1.183	449.817	0.5144	0.4470	0.5001
	Stack 1	S30		13.720	0.966	9.546	422.000	0.216	0.1988	0.2153
	Stack 1	TO-1		11.000	1.219	16.149	659.150	3.3830	3.2138	3.0853
	Stack 2	TO-2		17.000	0.597	13.492	773.150	4.5912	4.3616	4.1871
	Stack 1	SV4	Printer Oven Stack # 1 – SV4	15.200	0.460	6.100	422.000	0.9622	0.9652	0.8904
	Stack 2	SV5	Printer Oven Stack # 2 – SV5	15.500	0.400	6.100	422.000	0.9622	0.9652	0.8904
	Stack 3	SV 6	Inside Spray Machines Bank 1 – SV 6	11.600	0.610	3.960	294.000	0.4194	0.4207	0.3881
	Stack 4	SV 7	Inside Spray Machines Bank 2 – SV 7	14.000	0.610	3.960	294.000	0.4194	0.4207	0.3881
	Stack 5	SV 8	Inside Spray Machines Bank 3 – SV 8	14.000	0.610	3.960	294.000	0.4194	0.4207	0.3881
	Stack 6	SV9	Inside Bake Oven Stack # 1 – SV9	15.200	0.760	4.880	422.000	2.3783	2.3857	2.2008
	Stack 7	SV10	Inside Bake Oven Stack # 2 – SV10	15.200	0.760	4.880	422.000	2.3783	2.3857	2.2008
	Stack 8	SV11	Inside Bake Oven Stack # 3 – SV11	15.200	0.760	4.880	422.000	2.3783	2.3857	2.2008
	Stack 1	REX_SV21	Printer Oven Stack # 1 – SV 21	13.106	0.396	9.580	366.500	0.6334	0.6586	0.3263
	Stack 1	REX_SV22	Printer Oven Stack # 2 – SV 22	12.649	0.396	9.568	366.500	0.6334	0.6586	0.3263
	Stack 1	REX_SV23	Base Coater Pin Oven Stack # 3 – SV 23	13.167	0.396	9.568	366.500	0.0063	0.0065	0.0032
	Stack 4	RED_SV31	Inside Spray Machines Bank 1 – SV 31	12.192	1.097	2.495	294.261	0.3099	0.3223	0.1597
	Stack 5	REX_SV32	Inside Spray Machines Bank 2 – SV 32	12.802	1.189	2.126	294.261	0.3099	0.3223	0.1597
	Stack 6	REX_SV33	Inside Spray Machines Bank 2 – SV 33	13.716	0.914	3.593	294.261	0.0809	0.0841	0.0417
	Stack 7	REX_SV41	Inside Bake Oven Stack # 1 – SV 41	14.021	0.762	8.072	449.817	1.7608	1.8310	0.9071
	Stack 8	REX_SV42	Inside Bake Oven Stack # 2 – SV 42	14.021	0.823	6.921	449.817	1.7608	1.8310	0.9071
	Stack 9	REX_RTO	Regenerative Thermal Oxidizer Stack	15.240	1.158	7.615	488.706	0.6109	0.6352	0.3147
	Stack 1	SV7A	Printer Pin Oven Stack 1 – SV 7A	14.630	0.558	4.828	422.039	0.6390	0.6035	0.6025
	Stack 2	SV7B	Printer Pin Oven Stack 2 – SV 7B	14.630	0.558	4.828	444.261	0.6390	0.6035	0.6025
	Stack 3	SV7C	Printer Pin Oven Stack 3 – SV 7C	16.612	0.914	1.797	397.039	0.6390	0.6035	0.6025
	Stack 4	SV7D	Printer Pin Oven Stack 4 – SV 7D	14.630	0.610	4.043	399.817	0.6390	0.6035	0.6025
	Stack 5	SV8A	Inside Spray Machines Bank 1 – SV 8A	13.503	0.838	2.138	299.817	0.2569	0.2427	0.2423
	Stack 6	SV8B	Inside Spray Machines Bank 2 – SV 8B	14.173	0.838	2.138	299.817	0.2569	0.2427	0.2423
	Stack 7	SV8C	Inside Spray Machines Bank 3 – SV 8C	13.198	0.850	2.079	299.817	0.2569	0.2427	0.2423
	Stack 8	SV8D	Inside Spray Machines Bank 4 – SV 8D	13.716	0.838	2.138	299.817	0.2569	0.2427	0.2423
	Stack 9	SV9A	Inside Bake Oven Stack # 1 – SV 9A	15.240	0.762	3.622	358.150	1.4562	1.3754	1.3732

Table E-8. Tier 3 Modeling Stack Parameters at Individual Facilities

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]
[redacted]	Stack 10	SV9B	Inside Bake Oven Stack # 2 – SV 9B	15.331	0.762	3.622	360.928	1.4562	1.3754	1.3732
	Stack 11	SV9C	Inside Bake Oven Stack # 3 – SV 9C	15.331	0.762	3.622	366.483	1.4562	1.3754	1.3732
	Stack 12	SV9D	Inside Bake Oven Stack # 4 – SV 9D	15.331	0.762	3.622	360.928	1.4562	1.3754	1.3732
	Stack 1	WS1		14.000	0.457	6.096	394.261	17.2280	18.8603	13.2215
	Stack 2	WS2		14.000	0.457	6.096	394.261	17.2280	18.8603	13.2215
	Stack 3	WS3		14.000	0.457	6.096	394.261	17.2280	18.8603	13.2215
	Stack 4	WS4		14.000	0.457	6.096	394.261	17.2280	18.8603	13.2215
	Stack 5	WS5		14.000	0.457	6.096	394.261	17.2280	18.8603	13.2215

a. Individual stack emissions were based on total TRI Stack emissions and actual breakdown of EGBE emissions among individual stacks
The emission rate for each source is calculated from the TRI reported stack emissions of Certain Glycol Ethers as follows:
EGBE Emission Rate (g/s) = Stack TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 2,000 (hrs/yr) x Stack_fraction
The calculated emission rate assumes the total annual EGBE emissions are relased over a period of 2,000 hours a year, which would correspond to a facility steadily emitting EGBE 40 hours a week, 50 weeks per year.
Stack_fraction represents the percent of the total TRI stack emissions emitted through the individual stack

g/s: grams per second
K: degrees Kelvin
m: meter
m/s: meters per second
$\mu g/m^3$: micrograms per cubic meter
tpy: ton per year
TRI: Toxic Release Inventory

Table E-9. Tier 3 Modeling Fugitive Volume Parameters and Results at Individual Facilities

Site Name	Source Type	Volume Release Height (m) [b]	Volume Intial Lateral Dimension (m) [c]	Volume Intial Vertical Dimension (m) [d]	2009 TRI Emission Rate (g/s)[e]	2010 TRI Emission Rate (g/s)[e]	2011 TRI Emission Rate (g/s)[e]
[redacted]	Volume	6.096	27.310	2.840	2.058	1.78813	2.00057
	Volume	9.144	14.120	4.253	4.770	4.53145	4.35020
	Volume	10.668	28.840	4.960	1.821	1.82642	1.68442
	Volume	9.144	20.900	4.253	1.610	1.67733	0.76982
	Volume	7.920	24.558	3.686	1.660	1.56814	1.56563
	Volume	7.000	27.242	3.250	3.389	3.73675	3.07813

a. Fugitive releases of EGBE are reported to occur through the building's roof vents in the production area of the facility building where stacks emitting EGBE are located. Fugitive emissions from the roof vents are modeled as a single volume source.

b. The volume source release height is taken to be at the release height of fugitive emissions; it is set to be equal to the roof height of the process building

c. Per EPA's AERMOD guidance, the volume source initial lateral dimension is taken to be the length of the side of the volume divided by 4.3.

d. Per EPA's AERMOD guidance, the volume source initial vertical dimension is taken to be the height of the volume source (roof height) divided by 2.15.

e. The emission rate for each source is calculated from the TRI reported fugitive emissions of Certain Glycol Ethers as folbws:

EGBE Emission Rate (g/s) = Fugitive TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 2,000 (hrs/yr)

The calculated emission rate assumes the total annual EGBE emissions are relased over a period of 2,000 hours a year, which would correspond to a facility steadily emitting EGBE 40 hours a week, 50 weeks per year.

g/s: grams per second
hrs/yr: hours per year
m: meter
tpy: ton per year
TRI: Toxic Release Inventory

Table E-10. Tier 3 Modeling Stack Parameters and Individual Source Results in Clusters

Facility Name	Stack	Stack ID	Alternative Stack ID	Release Height (m)	Stack Inside Diameter (m)	Stack Exit Gas Velocity (m/s)	Stack Temperature (K)	2009 TRI Emission Rate (g/s)[a]	2010 TRI Emission Rate (g/s)[a]	2011 TRI Emission Rate (g/s)[a]
[redacted]	Stack 1	REX_SV21	Printer Oven Stack # 1 – SV 21	13.100	0.396	9.580	366.500	0.6334	0.6586	0.3263
	Stack 1	REX_SV22	Printer Oven Stack # 2 – SV 22	12.649	0.396	9.568	366.500	0.6334	0.6586	0.3263
	Stack 1	REX_SV23	Base Coater Pin Oven Stack # 3 – SV 23	13.167	0.396	9.568	366.500	0.0063	0.0065	0.0032
	Stack 4	RED_SV31	Inside Spray Machines Bank 1 – SV 31	12.192	1.097	2.495	294.261	0.3099	0.3223	0.1597
	Stack 5	REX_SV32	Inside Spray Machines Bank 2 – SV 32	12.802	1.189	2.126	294.261	0.3099	0.3223	0.1597
	Stack 6	REX_SV33	Inside Spray Machines Bank 2 – SV 33	13.716	0.914	3.593	294.261	0.0809	0.0841	0.0417
	Stack 7	REX_SV41	Inside Bake Oven Stack # 1 – SV 41	14.021	0.762	8.072	449.817	1.7608	1.8310	0.9071
	Stack 8	REX_SV42	Inside Bake Oven Stack # 2 – SV 42	14.021	0.823	6.921	449.817	1.7608	1.8310	0.9071
	Stack 9	REX_RTO	Regenerative Thermal Oxidizer Stack	15.240	1.158	7.615	488.706	0.6109	0.6352	0.3147
	Stack1	N/A	3960***	9.144	0.396	2.743	294.260	3.2430	5.4361	4.2767
	Stack 1	BA5G_P1	0001 (Bldg 5G)	12.802	2.070	8.414	405.930	0.5597	0.3894	0.1606
	Stack 1	BA5D_PT1	TO-1 (Bldg 5D)	11.580	1.220	7.796	488.150	0.1777	0.1236	0.0510
	Stack 1	BA5D_PT2	TO-2 (Bldg 5D)	10.670	0.670	6.860	704.300	0.0888	0.0618	0.0255
	Stack 4	BA5D_P3	0003 (Bldg 5D)	10.050	0.640	1.659	649.800	0.1866	0.1298	0.0535
	Stack 1	CR_PTO1	TO-1	11.000	1.219	16.149	659.150	3.3830	3.2138	3.0853
	Stack 2	CR_PTO2	TO-2	17.000	0.597	13.492	773.150	4.5912	4.3616	4.1871
	Stack 1	AR_PC1	Coater #1	12.497	0.610	31.008	824.820	0.0366	0.0377	0.0076
	Stack 2	AR_PC2	Coater #2	14.330	0.610	9.147	783.150	0.0314	0.0323	0.0065
	Stack 3	AR_PC3	Coater #3	12.497	0.457	22.269	760.930	0.0288	0.0297	0.0060
	Stack 4	AR_PC4	Coater #4	12.190	0.457	15.447	745.370	0.0379	0.0391	0.0078
	Stack 1		No stack parameters available. All emissions (stack + fugitives) modeled as a volume							

a. Individual stack emissions were based on total TRI Stack emissions and actual breakdown of EGBE emissions among individual stacks
The emission rate for each source is calculated from the TRI reported stack emissions of Certain Glycol Ethers as follows:
EGBE Emission Rate (g/s) = Stack TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 2,000 (hrs/yr) x Stack_fraction
The calculated emission rate assumes the total annual EGBE emissions are relased over a period of 2,000 hours a year, which would correspond to a facility steadily emitting EGBE 40 hours a week, 50 weeks per year.
Stack_fraction represents the percent of the total TRI stack emissions emitted through the individual stack

g/s: grams per second
K: degrees Kelvin
m: meter
m/s: meters per second
$\mu g/m^3$: micrograms per cubic meter
TRI: Toxic Release Inventory

Table E-11. Tier 3 Modeling Fugitive Volume Parameters and Results in Clusters

Site Name	Source Type	Volume Release Height (m) [b]	Volume Intial Lateral Dimension (m) [c]	Volume Intial Vertical Dimension (m) [d]	2009 TRI Emission Rate (g/s)[e]	2010 TRI Emission Rate (g/s)[e]	2011 TRI Emission Rate (g/s)[e]
[redacted]	Volume	9.144	20.900	4.253	1.610	1.67733	0.76982
	Volume	No fugitive emissions reported to TRI. All reported emissions modeled as a stack release					
	Volume	7.315	19.900	3.402	1.482	0.84296	0.57838
	Volume	12.192	16.247	5.670	0.764	0.43425	0.29793
	Volume	9.144	14.120	4.253	4.770	4.53145	4.35020
	Volume	9.750	11.881	4.540	0.000	0.00048	0.00517
	Volume	9.144	26.700	4.250	0.716	0.91104	0.33156

a. Fugitive releases of EGBE are reported to occur through the building's roof vents in the production area of the facility building where stacks emitting EGBE are located. Fugitive emissions from the roof vents are modeled as a single volume source.

b. The volume source release height is taken to be at the release height of fugitive emissions; it is set to be equal to the roof height of the process building

c. Per EPA's AERMOD guidance, the volume source initial lateral dimension is taken to be the length of the side of the volume divided by 4.3.

d. Per EPA's AERMOD guidance, the volume source initial vertical dimension is taken to be the height of the volume source (roof height) divided by 2.15.

e. The emission rate for each source is calculated from the TRI reported fugitive emissions of Certain Glycol Ethers as follows:
EGBE Emission Rate (g/s) = Fugitive TRI Emissions of Certain Glycol Ethers (tpy) x % EGBE x 254 (conversion factor) ÷ 2,000 (hrs/yr)
The calculated emission rate assumes the total annual EGBE emissions are relased over a period of 2,000 hours a year, which would correspond to a facility steadily emitting EGBE 40 hours a week, 50 weeks per year.

g. Ball Facility in Weirton has two distinct (physically separate) buildings associtaed with fugitive emissions which were modeled separately. Their emissions were estimated based on the breakdown of the total fugitive emissions provided by the faciltiy in Tier 2 Survey

hrs/yr: hours per year
m: meter
tpy: ton per year
TRI: Toxic Release Inventory

APPENDIX F

Tier 2 and Tier 3 Modeling Output Files (CDROM)

To: Dravis, Samantha[dravis.samantha@epa.gov]; Brown, Byron[brown.byron@epa.gov]
From: Roewer, James
Sent: Tue 5/23/2017 12:08:19 PM
Subject: RE: USWAG Comments on EO 13777

Samantha/Byron,

We would welcome the opportunity to discuss these comments and most importantly, our petition with you and your team.

Jim

Jim Roewer

Executive Director

USWAG

USWAG UTILITY SOLID WASTE ACTIVITIES GROUP

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202-508-5645
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From: Dravis, Samantha [mailto:dravis.samantha@epa.gov]
Sent: Friday, May 12, 2017 2:41 PM
To: Roewer, James; Brown, Byron
Subject: RE: USWAG Comments on EO 13777

This email originated from an external sender. Use caution before clicking links or opening attachments. For more information, visit The Grid. Questions? Please contact ITSupport@eei.org or ext. 5100.

Thank you.

From: Roewer, James [mailto:JRoewer@eei.org]
Sent: Friday, May 12, 2017 2:13 PM
To: Brown, Byron <brown.byron@epa.gov>
Cc: Dravis, Samantha <dravis.samantha@epa.gov>
Subject: USWAG Comments on EO 13777

Attached please find a copy of USWAG's comments on Executive Order 13777, "Enforcing the Regulatory Reform Agenda."

These comments include many of the same recommendations as our Rulemaking Petition on the CCR rule, submitted earlier today.

I look forward to discussing these comments and our Rulemaking Petition with you.

Jim

Jim Roewer

Executive Director

USWAG

USWAG UTILITY SOLID WASTE ACTIVITIES GROUP

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To: Dravis, Samantha[dravis.samantha@epa.gov]
From: megan.berge@bakerbotts.com
Sent: Mon 5/22/2017 3:03:04 PM
Subject: CCI and C85 Comments on the Regulatory Reform Agenda
C85 Comments on Evaluation of Regulations.pdf
CCIG Comments on Evaluation of Regulations.pdf

Samantha,

Attached for your review are comments by the Class of '85 Regulatory Response Groups, which consist of more than 20 electric generating companies located throughout the country, on EPA's request for comment on regulatory reforms. We attempted to be as narrow, targeted, and specific as possible in our feedback. Please do not hesitate to contact me if you have questions or would appreciate follow up information.

Best,

Megan

Megan Heuberger Berge
Partner
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COMMENTS OF THE CLASS OF '85 REGULATORY RESPONSE GROUP

ON THE

REQUEST FOR COMMENTS ON THE "EVALUATION OF EXISTING REGULATIONS"

EPA Docket No. EPA–HQ–OA–2017–0190

I. INTRODUCTION

On April 13, 2017, the U.S. Environmental Protection Agency ("EPA" or "Agency") published in the *Federal Register*, at 82 Fed. Reg. 17,793, a notice entitled "Evaluation of Existing Regulations" ("Notice"), requesting public comment on regulatory reform issues. The Notice was published in response to Executive Order 13777 ("EO"), entitled "Enforcing the Regulatory Reform Agenda," which directs federal agencies to establish Regulatory Reform Task Forces ("Task Forces") to evaluate existing regulations and make recommendations regarding their repeal, replacement, or modification, with the goal of alleviating "unnecessary regulatory burdens."[1] The EO directs the Task Forces to seek input from entities significantly affected by federal regulations in their efforts to identify regulations for reform. EPA's Notice specifically requests comments on EPA regulations "that may be appropriate for repeal, replacement, or modification."[2]

The Class of '85 Regulatory Response Group ("Class of '85" or "Group") respectfully submits these comments in response to the Notice.[3] The Class of '85 is a voluntary ad hoc coalition of approximately 30 electric generating companies from around the country that has been actively involved in the development of Clean Air Act ("CAA") rules and guidance affecting the electric generating industry for over 25 years. Members of the Class of '85 own and operate electric generating units ("EGUs") subject to the CAA in approximately 35 states throughout the country, and will be directly affected by any CAA-related regulations pertaining to the electric generating industry that are repealed, replaced, or modified by EPA.

The Class of '85 encourages EPA to make targeted edits to certain regulatory requirements that are redundant or unnecessary.[4] The changes proposed in these comments would significantly reduce the costs and burdens associated with a number of regulatory requirements, and this streamlining would have no negative environmental impacts, and, in some cases, even positive environmental outcomes.

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[1] 82 Fed. Reg. 12,285 (Mar. 1, 2017).

[2] 82 Fed. Reg. at 17,793.

[3] Attached as Appendix A is a list of the Class of '85 members who support these comments.

[4] Brief descriptions of the numerous regulatory programs addressed in these comments are included in Appendix B.

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II. COMMENTS

A. EPA Should Streamline Recordkeeping and Reporting Requirements to Eliminate Duplicative Obligations.

EPA should revise certain provisions of the Code of Federal Regulations ("C.F.R.") to streamline recordkeeping and reporting requirements across the Agency's various regulatory programs. In numerous cases, EGUs are required to submit the same information to the Agency under multiple programs, resulting in duplicative reporting that provides no environmental benefit at the cost of increased staff time. Specific examples of duplicative reporting requirements that EPA should streamline include the following:

- **Greenhouse Gas ("GHG") Emissions Reporting.** EPA should exempt from the requirement to submit carbon dioxide ("CO_2") emissions data pursuant to the GHG Reporting Rule[5] EGUs that already submit to EPA all information needed to calculate CO_2e emissions (*e.g.*, CO_2, nitrous oxide, and methane) pursuant to other rules, such as the Acid Rain Program. For instance, 40 C.F.R. § 98.3(c)(4)(iii)(B) of the GHG Reporting Rule is duplicative of the Acid Rain Program requirement in 40 C.F.R. § 75.64 that EGUs submit to EPA CO_2 mass emissions data. For EGUs subject to these duplicative requirements, submission of this data under the GHG Reporting Rule is superfluous and unnecessary. Eliminating these duplicative requirements would streamline reporting and eliminate a regulatory burden that provides no environmental benefits.

- **Periodic Maximum Achievable Control Technology ("MACT") Reports.** EPA should streamline duplicative reporting requirements in the National Emission Standards for Hazardous Air Pollutants ("NESHAP") for Industrial, Commercial, and Institutional and Process Heaters ("Boiler MACT") and Title V regulations. Specifically, EPA should eliminate the requirement to submit annual and biennial reports under the Boiler MACT,[6] where such submissions are duplicative of Title V reports. For example, under the Boiler MACT, periodic reports must include information on whether the source experienced any deviations from an emission limit or operating limit.[7] This requirement is duplicative of the requirement to include in Title V reports information on "[a]ll instances of deviations from permit requirements."[8] The Class of '85 urges EPA to streamline these regulations to reduce the regulatory burden on industry and the administrative burden on EPA.

- **Part 60 Summary Reports.** EPA should eliminate the requirement in Part 60[9] to submit information in a summary report that already is submitted pursuant to the Part

[5] 81 Fed. Reg. 89,188 (Dec. 9, 2016).

[6] *See* 40 C.F.R. § 63.7550.

[7] 40 C.F.R. § 63.7550(d).

[8] 40 C.F.R. § 70.6(3)(iii).

[9] *See* 40 C.F.R. § 60.7(d).

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75 Electronic Data Reporting ("EDR") requirements,[10] as the submission of certain information in the summary report is unnecessary and duplicative of the EDR submissions.

- **Part 64 Compliance Assurance Monitoring ("CAM").** EPA should modify the Part 64 CAM provisions[11] to eliminate requirements that have become unnecessary and outdated in light of subsequent regulations. For example, electrostatic precipitator ("ESP") power monitoring under CAM[12] has been rendered unnecessary by continuous particulate matter ("PM") monitoring utilizing either PM Continuous Emissions Monitoring Systems ("CEMS") or PM Continuous Parametric Monitoring Systems ("CPMS"), and testing required by the Mercury and Air Toxics Standards ("MATS").[13]

B. EPA Should Eliminate Monitoring and Testing Requirements That Provide No Environmental Benefits.

The Class of '85 urges EPA to eliminate emission monitoring and equipment testing requirements that provide no environmental benefits. Elimination of these requirements would result in significant cost savings for the electric generating industry with no environmental impact. In certain situations, elimination of equipment testing requirements would actually result in *reduced* emissions. Opportunities to eliminate these environmentally unnecessary (and in some cases, environmentally detrimental) requirements exist in numerous CAA programs, including the following:

- **Monitoring Certification and Quality Assurance/Quality Control ("QA/QC") Redundancies.** EPA should eliminate redundancies between the Part 60 and Part 75 monitoring certification and QA/QC requirements by adding language to Part 60 that provides sources the option to comply only with Part 75 where requirements are duplicative. For example, where Subpart A (*e.g.*, 40 C.F.R. § 60.8 and/or § 60.13), Subpart D, or Subpart GG refer to the appendices in Part 60 for test methods, performance specifications, and QA/QC standards (*e.g.*, Appendix A, B, or F), those references would be replaced by similar references to Part 75.

- **CEMS Certifications on Bypass Stacks.** EPA should reduce the MATS requirements for CEMS certification on bypass stacks in cases where bypass stacks are rarely used (*i.e.*, where bypass stacks operate equivalent to a capacity factor of less than one percent).[14] In these cases, affected sources may be required to bypass *only* for purposes of CEMS certification. For example, one Class of '85 member installed CEMS (PM, mercury, and hydrogen chloride) on the bypass stacks for two

[10] *See* 40 C.F.R. § 75.64.

[11] *See* 40 C.F.R. §§ 64.1-10.

[12] *See* 40 C.F.R. § 64.3.

[13] Table 5 to Subpart UUUUU of Part 63.

[14] *See* 40 C.F.R. § 63.10010(a)(4).

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of its units. This company has significantly reduced the use of these bypass stacks, and, in fact, has not used the bypasses since December 2016 and expects very limited use, if any, in the future. Because the company is using the bypass stacks on a very limited basis, it cannot fulfill the CEMS certification requirement unless it runs the stacks specifically for that purpose. In situations like this, the CEMS certification requirement actually results in *increased* emissions because the stacks would not otherwise be in use. Additionally, for some EGUs, the operation of bypass stacks for the sole purpose of CEMS certification could result in emission limit violations. It is illogical that compliance with a monitoring requirement would result in noncompliance with an emission limit. Reducing the frequency of CEMS certification requirements for infrequently used bypass stacks would prevent these unnecessary emissions.

- **Opacity Monitoring Requirements.** EPA should exempt from the Part 60 opacity monitoring requirements[15] units on which a PM CPMS or PM CEMS is installed, as these systems more accurately measure PM emissions than do opacity monitors. In such cases, opacity monitors are unnecessary to assure compliance with PM emissions limits. Relatedly, EPA should edit the text of 40 C.F.R. §§ 60.45(a) and 60.48Da(o)(2) so that EGUs with wet stacks have the option to use opacity monitors as parametric monitors rather than reporting monitors. This is appropriate for EGUs with wet stacks, as opacity monitors are not reliable indicators of PM emissions for facilities with wet scrubbers, as EPA has recognized.[16] Alternatively, EPA could allow EGUs with wet stacks the option of correlating a series of PM stack testing with the opacity monitor results to establish an appropriate compliance limit for the opacity monitor in light of the wet flue gas conditions. Finally, EPA should clarify that Subpart D PM and opacity standards and monitoring requirements apply only when a boiler is operating.[17] Boilers do not generate emissions when they are not combusting fuel, so there is no need for these requirements to apply during these times.

- **Infrequently Operated Reciprocating Internal Combustion Engines ("RICE").** EPA should reduce the RICE MACT monitoring and testing requirements for non-emergency engines that operate less than 50 hours per year.[18] First, EPA should revise the requirement that testing be completed every 8,760 hours of operation or every three years, whichever comes first,[19] to allow the option that testing be completed (1) based on a reasonable number of hours of engine operation (i.e., 500 hours) or (2) every three years. Eliminating the requirement to perform testing every

[15] *See* 40 C.F.R. § 60.45(a); § 60.48Da(o)(2).

[16] *See, e.g.*, 40 C.F.R. § 75.14(b) (exempting EGUs with wet flue gas streams from opacity monitoring requirements).

[17] *See* 40 C.F.R.§ 60.45.

[18] *See* 40 C.F.R. Part 63, Subpart ZZZZ.

[19] *See* 40 C.F.R. Part 63, Subpart ZZZZ, Table 3.

8,760 hours or every three years, whichever comes first, would allow for less frequent testing that would have both economic and environmental benefits. It would avoid forcing units to run and burn a significant amount of fuel solely for the purpose of compliance testing. For example, one Class of '85 member estimates that requiring testing once every three years wastes approximately 10,000 gallons of diesel fuel, as the units are forced to run purely for the purposes of testing. Second, the requirement to continuously monitor catalyst inlet temperature and pressure drop is excessive and provides little benefit.[20] These two parameters should be recorded during periodic compliance testing to verify that they are within the allowable ranges during normal operation.

- **Relative Accuracy Test Audits ("RATA") Testing.** Part 75 requires periodic RATAs of all CEMS.[21] EPA should reduce the number of RATA runs required under Part 75 from nine to three, which would provide just as accurate results with fewer burdens. A study by RMB Consulting & Research, Inc. and the Electric Power Research Institute has found that "if the RATA criteria is [stet] met using the results from the first three, four, five or six test runs, performing additional test runs has no impact on the RATA results and consequently no benefit."[22] *See* Table 1. Accordingly, if the RATA criteria are satisfied using the results from the first three test runs, no additional test runs should be required, and the RATA should be considered complete. Sources should retain the option to perform additional test runs as necessary, pursuant to the current RATA requirements.

[20] *See* 40 C.F.R. Part 63, Subpart ZZZZ, Table 6.

[21] *See* 40 C.F.R. Part 75, Appendix B; § 75.74.

[22] Russell S. Berry and Stephen K. Norfleet, RMB Consulting & Research, Inc., and Charles E. Dene, Electric Power Research Institute, *The Evolution of Part 75 Performance Test Procedures and Specifications*, at http://www.rmb-consulting.com/newpaper/tucson/perfspec.html.

Table 1: Simulated RATA Data[23]						
Run Number	**CEMS Value**	**Reference Method Value**	**Standard Deviation**	**t-value**	**Confidence Coefficient**	**Relative Accuracy**
1	103	100				
2	97	100	4.24	12.71	38.12	38.12
3	103	100	3.46	4.303	8.61	9.61
4	92	100	5.32	3.182	8.46	9.71
5	110	100	6.82	2.776	8.47	9.47
6	88	100	8.08	2.571	8.49	9.65
7	114	100	9.35	2.447	8.64	9.64
8	84	100	10.53	2.365	8.81	9.93
9	117	100	11.56	2.306	8.89	9.77

- **Relative Accuracy Audits ("RAAs").** EPA should eliminate the requirement to perform quarterly RAAs for units that have converted from hardware CEMS to a software-based predictive emission monitoring system ("PEMS").[24] This requirement is unnecessary because, unlike a CEMS, a PEMS is a computer model that does not change over time. These units already are required to perform annual RATA testing, which is sufficient to ensure adequate functioning of the PEMS. Performing RAAs on PEMS is a resource and time-intensive process that does not yield any incremental benefit. For example, one Group member has its plant staff maintain old CEMS sample lines, stack probes, and sample pumps so that they can perform the RAA at ground level rather than climb the stacks with a portable analyzer. This effectively defeats the purpose of replacing the old CEMS system.

- **Linearity.** EPA should allow EGUs to perform CEMS linearity and calibrations under Part 75 when units are offline. It takes approximately one hour to perform a linearity, so it is difficult to complete a linearity on combustion turbines that operate for short periods of time. Performance of a linearity while a unit is offline would have no impact on test accuracy, as the CEMS is monitoring calibration gas and not stack gas. Accordingly, this revision would avoid requiring units to operate longer than they otherwise would (and therefore emitting more than they otherwise would) solely to complete a test.

[23] *Id.*

[24] *See* 40 C.F.R. Part 60, Appendix F, § 5.1.3.

- **Wall Effects Adjustment Factor.** 40 C.F.R. § 75.59(a)(7)(ii)(S) allows for the establishment of a "[c]alculated (site-specific) wall effects adjustment factor determined *during the run*" (emphasis added). However, determining wall effects adjustment factors can take hours, which requires the source owner to maintain the unit at uneconomic loads for longer periods than necessary. EPA should allow EGUs the option to establish a site-specific reference method 2H Wall-Effects adjustment factor under Part 75 so that EGUs no longer need to operate at uneconomic loads for long periods of time just to establish a wall effects adjustment factor.[25]

- **Tuning Requirements for New/Modified Units.** EPA should exempt new and modified units with best available control technology ("BACT") limits from the initial MATS nitrogen oxides ("NOx") and carbon monoxide ("CO") tuning requirements.[26] Since these limits are set based on the "best performing" controls, tuning of newly installed equipment is unnecessary.[27]

C. EPA Should Revise Maintenance Requirements That Provide No Environmental Benefits.

Numerous CAA programs contain maintenance requirements that are time-consuming and burdensome and yet yield negligible environmental benefits. The Class of '85 urges EPA to revise these unnecessary maintenance requirements to reduce the regulatory burden on the electric generating industry. Examples of provisions that should be revised include the following:

- **Emergency Engines Under the RICE MACT and New Source Performance Standards ("NSPS").** The RICE MACT and NSPS limit operation of emergency engines to 100 hours of operation per year for maintenance and readiness testing, 50 of which can be used for non-emergency operation.[28] Additionally, the RICE NSPS requires owners/operators to maintain emergency engines per the manufacturer's specifications.[29] These requirements have two significant ramifications for owners and operators of emergency engines, while providing negligible environmental benefit.

  First, owners/operators must spend an unreasonable amount of time tracking the hours of operation of these engines, as well as the reasons for which operation occurred. The time spent on this tracking is grossly disproportionate to the amount of time that these engines operate. For example, one Group member has over 80 small

[25] *See* 40 C.F.R. § 75.59(a)(7)(ii)(S).

[26] *See* 40 C.F.R. § 63.10005(e).

[27] EPA should consider extending this exemption from initial tuning requirements to existing units with controls that have been determined to be equivalent to BACT pursuant to consent decrees or other regulatory program requirements, such as a regional haze state implementation plan.

[28] 40 C.F.R. § 63.6640(f); 40 C.F.R. § 60.4211(f).

[29] 40 C.F.R. §60.4211(a)(1).

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engines (*i.e.*, under 500 horsepower) that are subject to either the RICE MACT or NSPS. On average, these engines each operate approximately 20 hours per calendar year. To document compliance with the hours of operation limit, the company spends an average of six hours per engine, each year, tracking and reporting operations. In other words, for every 20 hours of operating time, the company spends six hours on paperwork—a highly inefficient ratio. Additionally, compliance with the Engine NSPS requirement to maintain emergency engines per the manufacturer's specifications requires burdensome tracking for facilities that own dozens of certified generators from different manufacturers, all of which have different maintenance procedures and schedules.

Second, owners/operators must comply with excessive maintenance requirements for these small, infrequently operated engines. Specifically, the RICE MACT requires owners/operators to perform frequent oil changes or oil analyses,[30] which are unnecessary for infrequently run units and result in the unnecessary and environmentally burdensome disposal of oil. These unnecessary oil changes and oil analyses also are expensive; one Group member estimates that it spends approximately $700 on annual maintenance for each emergency engine (over $55,000 annually combined). Additionally, the RICE NSPS requirement to comply with manufacturer specifications can similarly result in unnecessary oil changes,[31] as well as other unnecessary maintenance procedures, on emergency engines that run infrequently.

The Group proposes three solutions to these problems, all of which would significantly reduce the tracking, reporting, and maintenance burdens discussed above, with negligible environmental impact:

- *First*, the Group urges EPA to amend the RICE MACT and NSPS to exempt emergency engines under 500 horsepower. This would (1) eliminate the excessive tracking requirements for run hours and reasons for run; and (2) eliminate the requirement for unnecessary and environmentally detrimental oil changes or oil analyses under 40 C.F.R. § 63.6625(i)-(j). Instead, oil changes would be performed as needed to properly maintain units in light of how much they have run. These changes would result in significant cost savings and drastically reduce administrative burdens, without changing the environmental benefits of the MACT, as these units are very small with low emissions. At a minimum, EPA should exempt emergency engines under 500 horsepower from tracking requirements.

- *Second*, for emergency engines over 500 horsepower that remain subject to the RICE MACT and NSPS, EPA should eliminate the limitation of non-emergency operation to 50 hours per year; instead, EPA should allow these

[30] 40 C.F.R. § 63.6625(i)-(j).

[31] 40 C.F.R. § 60.4211(a)(1). .

units to operate up to 100 hours per year for maintenance, readiness testing, *and* non-emergency operation (not to include operation as part of a financial arrangement with another entity). This would eliminate the need to track the reasons for which the units operate while ensuring that these units do not operate any more than already is permitted under the current regulatory requirements. Alternatively, EPA should at a minimum exempt these engines from tracking requirements.

- *Third*, EPA should revise the requirement under the RICE NSPS to maintain emergency engines per the manufacturer's specifications to allow EGUs the ***option*** to develop their own operation and maintenance plans that would allow them an opportunity to streamline their maintenance obligations for their small generators. Exercise of this option would have negligible environmental impact, as owners/operators must properly maintain units, including by performing oil changes or oil analyses when appropriate based on how much the engine has actually run, so that they will be available when needed during emergencies, and because these units run very infrequently.

- **Definition of "Emergency Situation" in RICE MACT and NSPS.** EPA has interpreted the definition of an "emergency situation" under the RICE MACT narrowly to mean "a sudden, unplanned and unforeseen event."[32] Because of this narrow interpretation, companies are incentivized to rent higher-emitting diesel generators rather than rely on onsite back-up generators when power is lost to a facility due to planned maintenance, such as when work on a substation that provides power to a facility must be performed. EPA should define "emergency situation" in the RICE MACT and NSPS to clarify that in situations where power is not available, the operation of on-site emergency engines to provide replacement power would be considered an emergency situation. This would result in reduced emissions, as companies would no longer need to rent high-emitting diesel generators purely to avoid exceeding the 100-hour limitation of non-emergency operation.

- **Oil Change Requirements Under the RICE MACT.** EPA should amend 40 C.F.R. § 63.6625(i) to extend the deadline for performing an oil change from two to 20 business days after receiving an adverse oil analysis result. This would allow sufficient time to resample to confirm an adverse result and avoid unnecessary oil changes, which require the environmentally burdensome disposal of oil.

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[32] *See, e.g.*, Letter from Becky Weber, Director, EPA Region 7 Air and Waste Management Division, to Floyd Gilzow, Director of Member Relations and Public Affairs, Missouri Public Utility Alliance, re: 40 CFR Part 63 National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines; Final Rule Dated March 3, 2010, available at http://c.ymcdn.com/sites/www.kmunet.org/resource/resmgr/Presentations_Misc_Docs/EPA%20Response%20to%20MPUA.pdf.

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- **Boiler Tune-Ups.** EPA should amend the frequency of required tune-ups under the Boiler MACT to be based on calendar years (*e.g.*, once every calendar years), instead of every 13 months.[33] From a compliance perspective, tracking compliance deadlines based on a calendar year is significantly more manageable than tracking compliance deadlines that do not occur on the same date each year.

D. Additional Recommendations to Reduce Regulatory Burdens.

The Group urges EPA to make the following revisions to its CAA-related regulations to further streamline regulatory requirements while still protecting the environment:

- **Low-Emitting EGUs Under MATS**. The Group recommends that EPA amend the MATS provisions addressing the demonstration of low-emitting EGU ("LEE") status to permit use of actual unit operating data, rather than potential maximum operating data.[34] Eligibility for LEE status requires that a source calculate potential annual mercury emissions assuming "maximum potential annual heat input to the unit"[35] or "maximum potential annual electricity generation"[36] times 8,760 hours. This approach employs unreasonable assumptions about unit operation, as using maximum potential heat input or electricity generation vastly overestimates annual mercury emissions because coal-fired EGUs do not operate at maximum capacity constantly for every hour of a calendar year. It would be more accurate to use *actual* data to calculate annual mercury emissions. The Group urges EPA to amend the MATS so that the mercury emission rate result from the 30-day test (as described at 40 C.F.R. § 63.10005(h)(3)) performed during the reporting year would be multiplied by the actual annual heat input to the unit or annual electricity generation (instead of the maximum potential) and reported as part of the semiannual compliance report. This would allow more units to qualify as LEE, which allows for reduced testing obligations but also imposes more stringent mercury emissions limits. Overall, this would alleviate testing and reporting burdens, with no increase in mercury emissions, and could even decrease emissions.

- **Clarification in the MATS Rule**. The Group urges EPA to clarify the reference value to be used in the system integrity checks ("SICs") required under the MATS.[37] EPA also should clarify or update 40 C.F.R. § 63.10023(b) regarding PM CPMS operating limits to expressly allow for the use of stack concentration or other raw data signals in addition to milliamps to determine site specific operating limits ("SSOL"). Section 63.10023(b), which provides instructions on how to calculate the SSOL from the performance test, lists only milliamps and not stack concentration or other raw

[33] *See* 40 C.F.R. § 63.7515(d).

[34] *See* 40 C.F.R. § 63.10005(h).

[35] 40 C.F.R. § 63.10005(h)(3)(iii)(C)(1).

[36] 40 C.F.R. § 63.10005(h)(3)(iii)(C)(2).

[37] *See* 40 C.F.R. Part 63, Subpart UUUUU, Appendix A, § 4.1.1.3.

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data signals. The omission of stack concentration or other raw data signals from 40 C.F.R. § 63.10023(b) appears to be an oversight. For instance, 40 C.F.R. § 63.10023(a) expressly allows the use of multiple different output values (*e.g.*, milliamps, stack concentration, or other raw data signals) from the PM CPMS during the performance test. Further, Table 7 to Subpart UUUUU lists milliamps, PM concentration, and raw data signals as acceptable outputs to monitor for compliance with the 30 day operating limit. EPA should revise 40 C.F.R. § 63.10023(b) to similarly expressly list stack concentration or other raw data signals in addition to milliamps. This would avoid the regulatory confusion that could occur if regulators view milliamps as the only acceptable output to monitor because it is the only output specifically listed in 40 C.F.R. § 63.10023(b).

- **MATS Residual Risk Review**. The Group strongly recommends that EPA complete the residual risk and technology review for coal-fired power plants covered by the MATS. Section 112(f)(2) of the CAA requires EPA to assess the risk remaining after the implementation of a specific NESHAP. Specifically, within eight years of a final NESHAP, EPA must promulgate an emission standard, if promulgation of such a standard is required in order to provide an ample margin of safety to protect public health or to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect. Because the MATS was finalized and published in 2012, EPA is required to complete this review by 2020. EPA should undertake a rulemaking to fulfil this nondiscretionary statutory obligation.

- **Once in, Always in.** On May 16, 1995, EPA released a memorandum titled "Potential to Emit for MACT Standards-Guidance on Timing Issues."[38] This guidance document clarified that "facilities that are major sources for [hazardous air pollutants ("HAPs")] on the 'first compliance date' are required to comply permanently with the MACT standard to ensure that maximum achievable reductions in toxic emissions are achieved and maintained." This interpretation dis-incentivizes changes to major sources that would reduce emissions because these units will always be regulated as major sources. The Group urges EPA to withdraw this guidance document.

- **AP-42 Emission Factors.** EPA has been publishing a compilation of air pollutant factors (AP-42) since 1968.[39] The compilation currently contains emission factors and process information for more than 200 air pollution source categories. The Fifth Edition of AP-42 was published over 20 years ago, in January 1995. While EPA has published some supplements and updates to that edition, the Group encourages EPA to make long-overdue revisions to the AP-42 emission factors. Many of the current factors are based on outdated technology and small sample sizes, which results in

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[38] John S. Seitz, *Potential to Emit for MACT Standards-Guidance on Timing Issues* (1995), https://www.epa.gov/sites/production/files/2015-08/documents/pteguid.pdf

[39] R.L. Duprey, *Compilation of Air Pollutant Factors* (1968), https://www3.epa.gov/ttn/chief/ap42/oldeditions/1st_edition/ap42_phs_1968.pdf

inaccurate estimation of emissions. This impacts permit application development and compliance with reporting requirements. Updating the AP-42 emission factors will increase accuracy and help streamline the permitting process.

- **Ultrasonic Flow Monitors.** The Acid Rain Program establishes requirements for the monitoring, recordkeeping, and reporting of SO_2, NOx, CO_2, volumetric flow, and opacity data from affected units.[40] These monitoring requirements are performance-based, which means they generally do not require that a source use a particular type of CEMS.[41] However, the regulatory requirements differ depending on the particular type of CEMS utilized. Ultrasonic meters, which measure volumetric natural gas flow rates, are the most accurate type of meter, but are subject to more complicated regulatory requirements. Because ultrasonic monitoring is not explicitly approved under either Appendix D or Appendix E, use of ultrasonic monitors is conditioned upon development and implementation of a QA/QC program for the systems.[42] To ensure regulatory compliance, the ultrasonic meter readings must be compared to a primary standard (AGA/ASME/NIST) meter or to an in-line reference meter that has been tested for accuracy during the previous year.[43] For the in-line reference meter approach, the entity must run three separate tests for three different load levels each with a minimum length of 20 minutes.[44] This means the entity must complete at least nine 20 minute runs within seven consecutive unit operating days.[45] For ongoing QA/QC, this testing must be repeated every four fuel flow meter operating quarters, where an operating quarter is a quarter in which the fuel flow meter has operated for at least 168 partial or full operating hours.[46] Thus, the current regulation dis-incentivizes installation of the most advanced and modern monitoring technology by imposing significantly more testing requirements. The Class of '85 urges EPA to revise these regulations to update the monitoring systems approved under Appendix D and Appendix E to address the use of ultrasonic meters. This will allow companies to install the best monitoring technology without an increased regulatory burden.

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[40] *See* 40 C.F.R. § 75.1.

[41] *See* Part 75 CEMS Field Audit Manual, EPA at 15 (July 16, 2013), https://www.epa.gov/sites/production/files/2015-05/documents/part_75_cems_field_audit_manual.pdf

[42] 40 C.F.R Part 75, Appendix B.

[43] 40 C.F.R. Part 75, Appendix D, § 2.1.5-2.1.6(b).

[44] *Id.* § 2.1.5.2.

[45] *Id.*

[46] *Id.* § 2.1.6(a).

III. CONCLUSION

The Class of '85 appreciates the opportunity to comment on existing regulations and make recommendations regarding their repeal, replacement, or modification. The Group urges EPA to follow the recommendations in these comments, which would alleviate "unnecessary regulatory burdens." Specifically, adoption of the proposed regulatory reforms in these comments would significantly reduce costs associated with recordkeeping, reporting, testing and maintenance, while maintaining, and in some cases improving, environmental protection.

Dated: May 15, 2017

Respectfully submitted,

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Appendix A

CLASS OF '85 REGULATORY RESPONSE GROUP

AES Corporation
Alliant Energy Corporation
Arizona Electric Power Cooperative, Inc.
Arkansas Electric Cooperative Corporation
City of Tallahassee
Cleco Corporation
Cogentrix Energy Power Management, LLC
Dairyland Power Cooperative
Dayton Power & Light Company
Entergy Services, Inc.
Florida Municipal Electric Association
Florida Municipal Power Agency
Gainesville Regional Utilities
Great River Energy
Hawaiian Electric Company, Inc.
Indianapolis Power & Light Company
JEA
Lakeland Electric
Louisville Gas & Electric/Kentucky Utilities
National Grid
NextEra Energy, Inc.
OGE Energy Corp.
Orlando Utilities Commission
PowerSouth Energy Cooperative
Public Service Company of New Mexico
Salt River Project
Talen Energy
Tampa Electric Company
Westar Energy
Western Farmers Electric Cooperative
Xcel Energy Inc.

Appendix B

Rule	C.F.R.	*Federal Register*	Description
Acid Rain Program	40 C.F.R. Parts 72-78	58 Fed. Reg. 3,590 (Jan. 11, 1993); 58 Fed. Reg. 15,634 (Mar. 23, 1993); 62 Fed. Reg. 55,460 (Oct. 24, 1997)	The Acid Rain Program, established under Title IV of the Clean Air Act ("CAA"), requires electric generating units ("EGUs") to reduce emissions of sulfur dioxide ("SO_2") and nitrogen oxides ("NOx"), the primary precursors of acid rain.
Boiler MACT	40 C.F.R. Part 63, Subpart DDDDD	80 Fed. Reg. 72,790 (Nov. 20, 2015)	The Boiler Maximum Achievable Control Technology ("MACT") rule sets national emission standards for hazardous air pollutants ("NESHAPs") reflecting MACT for industrial boilers, commercial and institutional boilers, and process heaters that are located at major sources (*i.e.*, sources that emit or have the potential to emit above a certain threshold of hazardous air pollutants ("HAPs") per year) for various HAPs under Section 112 of the CAA.
CAM Rule	40 C.F.R. Part 64	62 Fed. Reg. 54,900 (Oct. 22, 1997)	The Compliance Assurance Monitoring ("CAM") Rule establishes enhanced monitoring and compliance certification requirements for major stationary sources that are required to obtain Title V operating permits.
GHG Reporting Rule	40 C.F.R. Part 98	74 Fed. Reg. 56,260 (Oct. 30, 2009); 81 Fed. Reg. 89,188 (Dec. 9, 2016)	The Greenhouse Gas ("GHG") Reporting Rule requires monitoring and reporting of GHG emissions from sources across multiple sectors of the economy, including EGUs, that emit above a certain threshold of carbon dioxide equivalent per year.
MATS	40 C.F.R. Part 63, Subpart	77 Fed. Reg. 9,304 (Feb.	The Mercury and Air Toxics Standards ("MATS") rule sets NESHAPs for EGUs for various HAPs, including mercury,

	UUUUU	16, 2012)	under Section 112 of the CAA.
Part 60	40 C.F.R. Part 60	36 Fed. Reg. 24,877 (Dec. 23, 1971)	Part 60 establishes standards of performance for new stationary sources, including general provisions under Subpart A; standards of performance for fossil fuel-fired steam generators under Subpart D; and standards of performance for electric utility steam generating units under Subpart Da. Part 60 also contains appendices that establish testing procedures that must be followed to establish compliance with the requirements of the various subparts.
RICE MACT	40 C.F.R. Part 63, Subpart ZZZZ	78 Fed. Reg. 6,674 (Jan. 30, 2013)	The Reciprocating Internal Combustion Engine ("RICE") MACT sets NESHAP reflecting MACT for RICE located at major or area sources for various HAPs under Section 112 of the CAA.
RICE NSPS	40 C.F.R. Part 60, Subparts IIII and JJJJ	78 Fed. Reg. 6,674 (Jan. 30, 2013)	The RICE New Source Performance Standards ("NSPS") set performance standards for emissions from new, modified, and reconstructed stationary compression ignition internal combustion engines and stationary spark ignition internal combustion engines under Section 111(b) of the CAA.
Title V Program	40 C.F.R. Parts 70 and 71	57 Fed. Reg. 32,250 (July 21, 1992)	Title V of the CAA requires major sources and some non-major sources to obtain and operate in compliance with an operating permit that contains all applicable CAA requirements for the source.

COMMENTS OF THE CROSS-CUTTING ISSUES GROUP ON EPA'S REQUEST FOR COMMENTS ON THE "EVALUATION OF EXISTING REGULATIONS"

EPA Docket No. EPA–HQ–OA–2017–0190

I. INTRODUCTION

On April 13, 2017, the U.S. Environmental Protection Agency ("EPA" or "Agency") published in the *Federal Register*, at 82 Fed. Reg. 17,793, a notice entitled "Evaluation of Existing Regulations" ("Notice"), requesting public comment on regulatory reform issues. The Notice was published in response to Executive Order 13777 ("EO"), entitled "Enforcing the Regulatory Reform Agenda," which directed federal agencies to establish Regulatory Reform Task Forces ("Task Forces") to evaluate existing regulations and make recommendations regarding their repeal, replacement, or modification, with the goal of alleviating "unnecessary regulatory burdens."[1] The EO directed the Task Forces to seek input from entities significantly affected by federal regulations in their efforts to identify regulations for reform. EPA's Notice specifically requested comments on EPA regulations "that may be appropriate for repeal, replacement, or modification."[2]

The Cross-Cutting Issues Group ("CCIG" or "Group")[3] respectfully submits these comments in response to the Notice. CCIG is a group of electric generating companies with a diverse portfolio of generating assets located throughout the country. CCIG members are subject to a diverse set of regulatory requirements established and implemented by EPA offices, including the Office of Water and the Office of Land and Emergency Management. CCIG urges EPA to make several revisions to its waste management regulations to facilitate compliance and reduce burdens associated with recordkeeping and reporting, all while maintaining environmental protections. Specifically, the Group recommends that EPA undertake narrow reforms to the Coal Ash Rule[4] pertaining to coal combustion residuals ("CCR"), as well as to the regulations under the Resource Conservation and Recovery Act ("RCRA") that streamline management standards for categories of hazardous waste considered "universal wastes."[5]

First, CCIG urges EPA to take the following actions with respect to the Coal Ash Rule:

- Revise the alternative closure provision to expressly include CCR units that receive both CCR *and non-CCR* waste. EPA may have inadvertently limited this existing exception to units that receive only CCR, as there is no environmental basis for this limitation.

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[1] 82 Fed. Reg. 12,285 (Mar. 1, 2017).

[2] 82 Fed. Reg. 17,793, 17,793 (Apr. 13, 2017).

[3] The CCIG members who support these comments are Alliant Energy Corporation, Entergy Services, Inc., Florida Power and Light, Louisville Gas & Electric/Kentucky Utilities, National Grid, NextEra Energy, Inc., OGE Energy Corp., Public Service Company of New Mexico, Talen Energy, and Salt River Project.

[4] 80 Fed. Reg. 21,302 (Apr. 17, 2015).

[5] *See* 40 C.F.R. § 273.

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- Revise the rule to include provisions allowing owners or operators of CCR units to adopt risk-based groundwater protection standards and corrective action remedies. The proposed rule contained such provisions, but the final rule did not retain them. EPA's expressed concerns about including these provisions in the final rule are no longer relevant.

- Continue the Agency's efforts to develop guidance on state coal ash permitting programs, and release a draft guidance document as soon as practicable. EPA also should begin developing its own federal coal ash permitting program. The efficient development of coal ash permitting programs and guidance would prevent expensive and time-consuming litigation, while providing clarity to regulated entities regarding their compliance obligations.

Second, the Group urges EPA to expand the list of universal wastes to include aerosol cans. Aerosol cans are similar to the other waste products that EPA already regulates as universal waste, as they are commonly used and pose a lower risk to people and the environment than hazardous wastes. This change would create significant cost savings with no negative impacts on public health or the environment.

CCIG appreciates EPA's consideration of these targeted edits to regulatory requirements that impose administrative costs without corresponding environmental benefits. The Group looks forward to continuing to work with the Agency in the coming months to achieve broader, programmatic regulatory reforms that would achieve even greater cost reductions costs while continuing to maintain environmental protections. For example, the Group intends to propose concrete suggestions for improvements to the Clean Water Rule[6] through outreach in the form of letters, white papers, and comments, as appropriate.

II. COMMENTS

A. EPA Should Expand the Alternative Closure Provision in the Coal Ash Rule.

The Coal Ash Rule establishes nationally applicable minimum criteria for the disposal of CCR in landfills and surface impoundments. The rule requires an owner or operator of an existing CCR surface impoundment that fails to meet Coal Ash Rule requirements to retrofit or close the unit.[7] However, it also specifically provides an exception, known as the "alternative closure" provision: if an owner or operator can demonstrate that there is no alternative disposal capacity for a surface impoundment otherwise required to close, the impoundment may continue to operate, in compliance with applicable provisions of the rule, for a limited time.[8] Specifically, the provision states that the "owner or operator of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit that is subject to closure . . . may continue to *receive CCR* in

[6] 80 Fed. Reg. 37,054 (June 29, 2015).

[7] 40 C.F.R. § 257.101.

[8] *Id.* at § 257.103.

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the unit . . . ."[9] EPA should revise the alternative closure provision to expressly include units that receive *both* CCR and non-CCR waste.

The current phrasing of the provision, which explicitly refers to the receipt of CCR but is silent on the receipt of non-CCR waste, could be interpreted to mean that a unit operating under the alternative closure provision may receive *only* CCR, instead of being able to receive both CCR and non-CCR waste. The Coal Ash Rule provides no rationale for why a unit utilizing the alternative closure provision should be limited to accepting only CCR. EPA has acknowledged that CCR surface impoundments were "designed to hold an accumulation of CCR and [non-CCR] liquids," such as storm water runoff.[10] The Agency also has recognized that there may be times when a specific CCR unit "will only receive non-CCR wastes or perform other forms of active waste management in the unit."[11] Further, EPA "is aware of no risks that would warrant cessation of such activities simply because the unit is no longer receiving CCR."[12] As this statement recognizes, impoundments that receive non-CCR waste do not pose a greater risk to human health or the environment than impoundments that receive only CCR.

Prohibiting surface impoundments that accept non-CCR wastes from using the alternative closure provision creates the very scenario EPA sought to avoid. EPA established the alternative closure exception because it understood that a unit might not have anywhere else to properly dispose of its waste.[13] Without the exception, a "facility may be faced with either violating the closure requirements in § 257.101 by continuing to place CCR in a unit that is required to close, or having to cease generating power at that facility because there is no place in which to dispose of the resulting waste."[14] Facilities that stop generating power to comply with the rule would create a significant risk to human health by leaving communities without electricity. As EPA recognizes, "the risks to the wider community from the disruption of power over the short-term outweigh the risks associated with the increased groundwater contamination from continued use of [CCR] units."[15]

CCIG urges EPA to modify the Coal Ash Rule to explicitly allow units that otherwise qualify for the alternative closure option to accept both CCR *and non-CCR* wastes when no alternative capacity is available. This modification could easily be made by revising the first paragraph of 40 C.F.R. § 257.103, as well as 40 C.F.R. § 257.103(a)(1) and (b)(1), to state that owners and operators "may continue to receive CCR and non-CCR wastes." This change would reduce regulatory burdens and advance environmental and public health goals.

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[9] *Id.* (emphasis added).

[10] *Id.* at § 257.53; *see also id.* at § 257.101(a)(1) ("[T]he owner or operator of the existing unlined CCR surface impoundment must cease placing *CCR and non-CCR* wastestreams into such CCR surface impoundment . . ." (emphasis added)); *id.* at § 257.53 ("Active portion means that part of the CCR unit that has received or is receiving *CCR or non-CCR* waste . . . ." (emphasis added)).

[11] 80 Fed. Reg. at 21,416.

[12] *Id.*

[13] *Id.* at 21,423.

[14] *Id.*

[15] *Id.*

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B. EPA Should Revise the Coal Ash Rule to Allow for the Adoption of Risk-Based Groundwater Protection Standards and Corrective Action Remedies.

Between proposing and finalizing the Coal Ash Rule, EPA made several changes to provisions concerning groundwater protection standards and corrective action remedies. CCIG requests that EPA readopt the proposed provisions, as EPA's concerns that formed the Agency's justification for abandoning this language have been rendered irrelevant by subsequent developments.

EPA made the following changes between the proposed and final rule with respect to groundwater protection standards and corrective action remedies:

- **Risk-based groundwater protection standards.** The proposed rule would have specifically allowed the owner or operator of a CCR unit to establish an alternative groundwater protection standard for constituents for which maximum contaminant levels ("MCLs") have not been established, provided that (1) the alternative groundwater protection standard has been certified by an independent registered professional engineer; (2) the state has been notified that the alternative groundwater protection standard has been placed in the operating record and on the owner's or operator's publicly accessible internet site; and (3) the alternative standard is an "appropriate health based level[]" that satisfies specified criteria.[16] In the proposal, EPA stated that it believed including the requirement for certification by an independent registered professional engineer in this approach would provide "an important independent validation of the particular route chosen."[17]

  The final Coal Ash Rule, in contrast, does not allow for alternative groundwater protection standards for constituents for which MCLs have not been established, instead providing that such standards must be set at the background concentration.[18] EPA indicated it made this change because the original approach would be "inappropriate in a self-implementing rule, as it was unlikely that a facility would have the scientific expertise necessary to conduct a risk assessment, and was too susceptible to potential abuse."[19]

- **Corrective Action Remedies.** The proposed rule would have provided:

  > The owner or operator of the CCR landfill or surface impoundment may determine that remediation of a release of an Appendix IV constituent from a CCR landfill or surface impoundment is not necessary if the owner or operator of the CCR landfill or surface impoundment demonstrates [several factors], and notifies the state that the demonstration, certified by an independent registered

[16] 75 Fed. Reg. 35,128, 35,249 (June 21, 2010); Proposed 40 C.F.R. § 257.95(h).

[17] *Id.* at 35,205.

[18] Final 40 C.F.R. § 257.95(h)(2).

[19] 80 Fed. Reg. 21,405.

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> professional engineer or hydrologist, has been placed in the operating record and on the owner's or operator's publicly accessible internet site.[20]

The final Coal Ash Rule did not retain this provision.[21] EPA indicated that it made the change because it was concerned that in a self-implementing program without direct regulatory oversight, "there is no…guarantee that an individual facility will act in the public interest."[22]

CCIG urges EPA to modify the Coal Ash Rule to include the proposed versions of 40 C.F.R. § 257.95(h) and § 257.97(e). These provisions would decrease regulatory burdens by increasing the rule's flexibility. EPA has articulated no reason for eliminating these two provisions that is still relevant, as EPA's concerns about potential abuse were rectified when former President Obama signed into law the Water Infrastructure Improvements for the Nation ("WIIN") Act on December 16, 2016. This law contains provisions reforming the Coal Ash Rule,[23] including authorization for states to directly regulate coal ash through permitting programs rather than leaving primary enforcement of the Coal Ash Rule to citizen suit actions. If a state does not create its own permitting program, or if its program is rejected by EPA, then EPA "shall implement a permit program" in that state.[24] Thus, EPA's concerns about potential abuse in a self-implementing program are no longer warranted because there will be state or federal oversight, in the form of a state or federal permitting program, over implementation of the Coal Ash Rule.

Furthermore, concerns about potential abuses by facilities are inconsistent with statements by the Agency that professional engineers can act in an unbiased manner even when acting for their employer. For example, EPA states it is "convinced that an employee of a facility, who is a qualified professional engineer and who has been licensed by a state licensing board would be no more likely to be biased than a professional engineer who is not an employee of the owner or operator."[25] EPA provides no explanation for why a certified professional engineer would be susceptible to bias in some instances but not others.

At minimum, CCIG recommends that EPA modify the Coal Ash Rule to specifically allow states to add those provisions to their own permitting programs. The WIIN Act provides that a state program must either directly implement the federal criteria applicable to coal ash units or utilize "such other state criteria . . . determin[ed] to be at least as protective" as the federal criteria provided in the Coal Ash Rule."[26] CCIG encourages EPA to make clear that state provisions allowing an owner or operator to tailor aspects of a facility's groundwater monitoring and corrective action program, through certification by a qualified professional engineer, to site-

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[20] 75 Fed. Reg. at 35,251; Proposed 40 C.F.R. § 257.97(e).

[21] *See* 80 Fed. Reg. at 21,406-07.

[22] *Id.* at 21,407.

[23] *See* WIIN Act, Pub. L. No. 114-322, Sec. 2301.

[24] *Id.* at Sec. 2301.

[25] 80 Fed. Reg. at 21,336.

[26] WIIN Act, Pub. L. No. 114-322, Sec. 2301.

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specific considerations are "at least as protective" as the federal Coal Ash Rule standards. The enactment of a state permitting program would be fundamentally more protective than the original federal plan because it would establish agency monitoring and enforcement that would provide more consistent oversight than a self-implementing regime. Accordingly, allowing states to add these provisions to their permitting programs would provide regulated entities with more flexibility in adapting groundwater monitoring and corrective action programs to site-specific conditions, while ensuring the same level of protection as the federal program.

C. EPA Should Continue its Efforts to Implement Coal Ash Permitting Programs.

As discussed above, the WIIN Act authorizes states to regulate coal ash directly through permitting programs.[27] States may submit to EPA permitting program proposals, and EPA has 180 days to approve the state programs.[28] The state programs must either directly implement the federal criteria applicable to coal ash units or utilize "such other state criteria . . . determin[ed] to be at least as protective" as the federal criteria provided in the Coal Ash Rule.[29] If a state does not create its own permitting program, or if its program is rejected by EPA, then the Agency "shall implement a permit program" in that state.[30] However, there is no specified time frame for the federal government to establish its own permitting program.

The Group supports Administrator Pruitt's efforts to develop EPA guidance on state coal ash permitting programs.[31] CCIG encourages EPA to release a draft of this guidance document as soon as practicable. The guidance will provide states with crucial information on the criteria EPA will use when determining whether to approve state permitting programs, which will facilitate the states' development of approvable programs. CCIG also encourages EPA to begin developing its own federal coal ash permitting program. The federal permitting program would be implemented in states that do not submit approvable plans and on tribal lands.[32]

EPA's work to facilitate the establishment of state and federal coal ash permitting programs would reduce regulatory burdens under the Coal Ash Rule and increase regulatory certainty. The establishment of EPA-approved state permitting programs would provide clarity to regulated entities regarding their coal ash obligations. Further, because units operating under a coal ash permit should not be subject to citizen suit enforcement of Coal Ash Rule requirements,[33] the efficient development of coal ash permitting programs could prevent expensive and time-consuming litigation.

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[27] *See id.*

[28] *Id.*

[29] *Id.*

[30] *Id.*

[31] *See* Letter from Scott Pruitt, EPA, to Governor Brian Sandoval (Apr. 28 2017), https://www.epa.gov/sites/production/files/2017-05/documents/sandoval-april282017.pdf.

[32] CCIG looks forward to engaging with EPA in the process of developing the federal coal ash permitting program.

[33] *See* WIIN Act, Pub. L. No. 114-322, Sec. 2301.

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D. EPA Should Expand its List of Universal Wastes Under RCRA to Include Aerosol Cans.

EPA's RCRA regulations streamline hazardous waste management standards for categories of hazardous waste considered "universal wastes" that are commonly generated and that pose a lower risk to people and the environment than other hazardous wastes.[34] These streamlined regulations ease the regulatory burden on generators and transporters of these wastes.[35] Currently, EPA classifies four types of waste as universal waste: (1) batteries, (2) pesticides, (3) mercury-containing equipment, and (4) mercury lamps.[36] CCIG urges EPA to expand this list of universal wastes to include aerosol cans.

Aerosol cans are similar to the other waste products that EPA already regulates as universal waste. Like those products, aerosol cans are commonly and widely used, which makes disposal as hazardous waste difficult to control.[37] Non-residential sources of all sizes, including businesses, industry, government agencies, and schools, use aerosol cans for a multitude of purposes, ranging from painting to cleaning. Aerosol cans are discarded for a number of reasons, including when the spray mechanism no longer operates as designed, the propellant is spent, or the product is no longer used.

Aerosol cans also pose a lower risk to people and the environment than hazardous wastes.[38] California and Colorado already have added aerosol cans to their universal waste regulations because of this lower risk.[39] According to EPA, "[f]eedback from state programs thus far indicates that management of items such as aerosol cans . . . as universal wastes works well."[40] Further, EPA has indicated that aerosol cans may be safely managed as universal waste and "that aerosol cans are likely to be good candidates for management under federal universal waste regulations."[41]

Adding aerosol cans to the list of universal wastes would result in significant cost savings. One CCIG member disposes of between 65,000 and 70,000 aerosol cans *per year*. It currently costs between $0.75 and $1.00 to dispose of each can, largely because of the increased transportation costs associated with the disposal of waste under RCRA. Classifying aerosol cans as universal waste would save the company between $48,750 and $70,000 per year. This type of cost savings would benefit not just electric generating companies, but all entities that use aerosol cans. For instance, aerosol cans comprise a large percentage of the retail sector's hazardous waste stream.[42]

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[34] *See* 40 C.F.R. § 273.

[35] *See, e.g.*, 60 Fed. Reg. 25,492, 25,501-02 (May 11, 1995).

[36] *See* 40 C.F.R. § 273.2-273.5.

[37] *See id.* at § 273.81(a).

[38] *See id.* at § 273.81(e).

[39] *See* 22 CA ADC § 66273.1; Colorado Hazardous Waste Regulations, 6 CCR 1007-3 Part 261.

[40] EPA, *Strategy for Addressing the Retail Sector under RCRA's Regulatory Framework* at 9 (Sept. 12, 2016).

[41] *Id.* at 7.

[42] *See id.* at 3.

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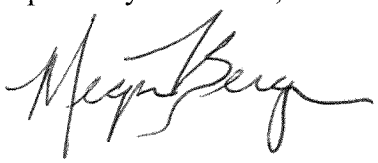
In sum, CCIG urges EPA to promptly draft and publish for public comment a proposed regulation classifying aerosol cans as universal waste. Adding aerosol cans to the list of universal waste products would create significant cost savings, with no significant increase in the risk of harm to people or the environment.

III. CONCLUSION

CCIG appreciates the opportunity to comment on existing regulations and make recommendations regarding their repeal, replacement, or modification. The Group urges EPA to follow its recommendations, which would alleviate "unnecessary regulatory burdens," without negatively impacting the overarching goals of each regulation.

Dated: May 15, 2017

Respectfully submitted,



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From: Nolan, Rich
Sent: Tue 5/16/2017 5:46:09 PM
Subject: NMA's Comments -- Hope you are well. Rich
NMA Regulatory Review Submission.pdf

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May 15, 2017

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Re: National Mining Association Response to Request for Comments on Regulations Appropriate for Repeal, Replacement, or Modification Pursuant to Executive Order 13777, 82 Fed. Reg. 17,793 (Apr. 13, 2017); Docket ID No. EPA-HQ-OAR-2017-0190

Dear Ms. Davis:

The National Mining Association (NMA) appreciates the opportunity to submit this letter in response to the U.S. Environmental Protection Agency's (EPA) April 13, 2017 *Federal Register* notice "seeking input on regulations that may be appropriate for repeal, replacement, or modification." 82 Fed. Reg. 17,793. Consistent with the directive contained in E.O. 13777, 82 Fed. Reg. 12,285 (Mar. 1, 2017), our review has focused on regulations that: (1) eliminate jobs, or inhibit job creation; (2) are outdated, unnecessary; or ineffective; (3) impose costs that exceed benefits; (4) create a serious inconsistency or otherwise interfere with regulatory reform initiatives and policies; (5) use secret science; and (6) derive from or implement other Presidential directives that have been rescinded or modified.

NMA is a national trade association that includes: the producers of most of the nation's coal, metals, industrial and agricultural minerals, the manufacturers of mining and mineral processing machinery, equipment and supplies, and the engineering and consulting firms, financial institutions and other firms serving the mining industry. Our members supply energy, metals, minerals and materials used by every sector of our economy that are indispensable for the development of technology and products that improve and sustain our way of life. Their interests span the array of regulations EPA has promulgated that impact the production, movement and use of mined products. As

such, our comments address regulations falling under the purview of numerous EPA offices whose actions weigh heavily on the upstream and downstream production and use of mined materials.

At the onset, we want to thank the administration for providing this opportunity for the regulated community to submit recommendations to reform, repeal or modify regulations that impede economic growth and job creation, place unnecessary and unrealistic burdens on our nation's employers, burden domestic energy production and reduce our ability to compete in the global marketplace.

Following are regulations that impose costs which greatly exceed tangible benefits, duplicate other federal or state regulations, lack a sound scientific basis or lack any compelling purpose or need and are inconsistent with the goals of E.O. 13783, Promoting Energy Independence and Economic Growth. We appreciate the opportunity to provide input on this matter and look forward to working with EPA to revise or eliminate these unnecessary regulatory burdens.

Sincerely,

Bruce Watzman.

National Mining Association Response to Request for Comments on Regulations Appropriate for Repeal, Replacement, or Modification Pursuant to Executive Order 13777, 82 Fed. Reg. 17,793 (Apr. 13, 2017)

Air

1. Regional Haze
2. New Source Review
3. Ozone National Ambient Air Quality Standards
4. 1-Hour PM 2.5 National Ambient Air Quality Standards
5. Cross-State Air Pollution Rule Update
6. Mercury Air Toxic Standards (MATS)
7. Primary NO2 National Ambient Air Quality Standards
8. National Ambient Air Quality Standards in Elevated Background Environments
9. Grant of Petition for Reconsideration and Stay of 2008 Fugitive Emissions Rule
10. NSPS and NESHAP Requirements and Restrictions for Stationary Engines
11. Greenhouse Gas Mandatory Reporting Rule – Subpart FF
12. Source Determination for Certain Emission Units in the Oil and Natural Gas Sector
13. NSPS provisions as applied to nonroad engines that temporarily replace a stationary engine
14. "Once in, Always" in policy under the NESHAP program
15. Interpretation of NSPS requirements for primary copper smelters
16. NESHAP requirements for primary copper smelters
17. "Common Control" interpretation for stationary source determinations under NSR and Title V operating permits
18. "Contiguous or Adjacent" interpretation for stationary source determinations under NSR and Title V operating permitting programs
19. Reactivation Policy under NSR and Title V operating permitting programs

Water

1. Steam Electric Power Generating Effluent Limitations Guidelines and Standards
2. Draft Conductivity Methodology
3. Selenium Water Quality Criterion and Implementation Guidance
4. Clean Water Act Sec. 404 Guidance Documents
5. Clean Water Act Sec. 402 Guidance Documents
6. Interpretation of CWA Sec. 404(c) Authority
7. NPDES Updates Rule
8. Compensatory Mitigation for Losses of Aquatic Resources
9. Hydrologic Alteration Report
10. Water Quality Standards Regulatory Revisions
11. Drinking Water Standards for Beryllium

Waste

1. Toxics Release Inventory (TRI) Reporting

Uranium

1. Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings and Uranium in Situ Leaching Processing Facilities
2. National Emissions Standards for Radon Emissions from Operating Mill Tailings

NMA Regulatory Review Submission

AIR

Regional Haze

I) Regulation

On January 10, 2017 EPA published a final rule, 82 *Fed. Reg.* 3078, implementing the second long-term strategy to achieve "reasonable progress" toward a national of preventing future, and remedying existing, impairment of visibility in certain nation parks and wilderness areas. The new rule establishes "reasonable progress goals" that states must implement to achieve visibility improvements during the second planning period from 2018-2028.

II) Problems with the Regulation

Despite the Clean Air Act's federalism mandate, the final rule imposes unrealistic reasonable progress goals that limit the discretion afforded states as to how to implement the program. This has resulted in EPA disapproving required State Implementation Plans and alternatively imposing Federal Implementation Plans (FIPs) with more stringent and costly federal emission control requirements. These requirements will, if left unchecked, result in the retirement of several coal-fired electric generating units.

III) E.O. 13777 Criteria

The regulation is a candidate for revision under E.O. 13771 as it: (1) imposes excessive costs with dubious benefit, and (2) has inhibited job creation and economic growth. EPA's preexisting regional haze program resulted in the loss of a significant number of coal-fired electric generating units and the new, revised rule, contains several changes to how EPA will approach regional haze in the future. The agencies decision to impose FIP's in Texas and Arkansas (stayed and remanded to EPA) threatened a large number of coal facilities and the attendant jobs at mines supplying coal to these units. In Texas, EPA Region VI would have required 7 additional FGD retrofits. In the West, EPA Region VII has elected to require SCR retrofits. The seven units threatened under the Texas FIP are responsible for hundreds of jobs at the mines supplying coal to the generating units. The concern centers on the use of the economic test to require additional retrofit control measures at non-BART carl-fired stations even when the current emission levels are below the glide-path required by the regulation.

New Source Review

I) Regulation

NSR is a regulatory permitting program established under Title I of the Clean Air Act and its implementing regulation in 40 CFR Parts 51 & 52. The regulations require major new sources of regulated emission and "major modifications" at existing major sources to obtain preconstruction permits and to comply with stringent case-by-case new source emission limits. For coal-fired generating units NSR review is triggered when (a) the unit undergoes a non-exempt physical or operational change and (b) the change is projected to cause a "significant" increase in annual emissions.

II) Problems with the Regulation

The NSR regulations serve as a deterrent to undertaking improvements at existing sources to restore efficiency that was lost over time through wear and tear. Under the regulation, if a major modification is projected to result in a significant increase in emissions as measured by the total annual emissions (tons/yr.) then it can trigger pre-construction permitting, including the case-by-case new source standards based on the Best Available Control Technology, a process that typically takes two years and frequently even longer for controversial projects. In the Clean Power Plan, EPA took the position that efficiency upgrades that result in lower emissions per unit of electricity produced (lbs/mmBTU) may trigger the NSR requirements because the plant may operate more hours per year after the project resulting in an increase in total tons of emissions from that unit over the course of the year. Any permit for upgrades to existing coal units would almost certainly be controversial and subject to extended permit and legal challenges which would in turn delay and increase the cost of the efficiency improvement projects.

III) E.O. 13771 and 13777 Criteria

NSR is a candidate for revision under (i) Executive Order 13771 of January 30, 2017 (Reducing Regulation and Controlling Regulatory Costs), and Executive Order 13777 of February 24, 2017 (Enforcing the Regulatory Reform Agenda). The NSR Rules (1) place undue burden on the development and use of domestic energy resources; (2) have the potential to eliminate jobs; (2) are outdated and ineffective; (3) create a serious inconsistency that serves as a deterrent to improved environmental performance; and (4) offers opportunities for reduction in regulatory costs.

Key to maintaining operation of the current fleet of coal-fired electric generating units is efficiency improvements. As utilities assess future generation needs an important consideration is to ensure that all assets are performing optimally – operating as

efficiently as possible. For electric generating unit's, unaddressed inefficiency results in less unit of electricity per input unit of heat. In short, inefficiency and the inability to implement efficiency upgrades without triggering controls for all regulated air pollutants threatens coal-fired units and coal miner jobs.

Additionally, and importantly, the hurdles presented by the NSR regulations prevent the continued reduction of emissions from coal-fired units. A one percentage improvement in the efficiency of a conventional pulverized coal plants results in a 2-3 percent reduction on CO2 emissions, depending on the level of efficiency prior to the change.

To remedy this, EPA should revise several longstanding NSR issues that impose undue regulatory burdens, limit operational flexibility, and result in regulatory uncertainty and enforcement exposure for all regulated sources. For some of these issues, EPA previously developed rulemaking proposals (but never finalized them) including the following:

i. EPA "Aggregation" policy: Through a series of guidance memoranda and applicability determinations, EPA developed a case-by-case, multi-factor approach for determining whether changes over time at a source should be "aggregated" and treated as a single project for purposes of determining NSR permitting requirements. EPA's current approach is cumbersome, prone to inconsistencies, and subject to aggressive/adverse agency interpretations. While EPA developed rule revisions intended to clarify when multiple projects should be aggregated for NSR permit applicability purposes, they were never finalized.

ii. EPA "Debottlenecking" policy: Through a series of guidance memoranda and applicability determinations, EPA developed a case-by-case approach for determining whether a proposed change would "debottleneck" upstream and downstream operations and whether the associated increase in emissions at those units should be included in determining NSR permitting requirements. EPA's case-by-case approach is cumbersome, unnecessarily complicated, prone to inconsistencies, and subject to aggressive/adverse agency interpretations. While EPA developed rule revisions intended to clarify that there must be a causal link between the change and the emissions increase from upstream or downstream units, it never finalized them.

iii. EPA "Project netting" policy: EPA has inconsistently taken the position that "project netting" (considering both emission increases and decreases attributable to project) may not be considered in determining whether the project would result in a significant emissions increase subject to NSR permitting requirements. While EPA developed rule revisions intended to allow project netting, EPA published a notice indicating that it was taking no action in 2009. Subsequent EPA determinations expressly state that project netting is not currently allowed by rule

or policy, which increases the scope of projects that potentially could be subject to NSR permitting requirements thereby subjecting the regulated community to additional regulatory burdens, delay, and costs.

Ozone National Ambient Air Quality Standards

I) Regulation

On Oct. 26, 2015, the agency published a final rule that reduced the ozone NAAQS from 75 to 70 ppb, 80 *Fed. Reg*. 65,292. Under the regulation states are required to designate non-attainment areas which, once designated, require the imposition of permitting restrictions for expansion of existing facilities or construction of new facilities that will contribute to overall ozone emissions.

II) Problems with the Regulation

Adoption of the 2015 NAAQS triggered a series of ongoing implementation dates for which States and sources must plan. In addition, northeastern states and environmental groups have submitted section 126 petitions claiming coal plants in upwind states will impede attainment of the NAAQS limits. Despite extensive comments submitted during the rulemaking, the final rule largely ignored the impact of natural sources of ozone, international transport of ozone and the use of modeling versus air quality monitoring to make determinations for areas as attainment, nonattainment or unclassifiable.

III) E.O. 13777 Criteria

The regulation is a candidate for revision under E.O. 13771 as it: (1) imposes excessive costs with dubious benefit, and (2) will result in job losses. While EPA estimated net benefits of the final rule of $1.5 to $4.5 billion in 2011$ an independent study conducted by National Economic Research Associates concluded that the rule would reduce GDP by $140 billion per year; result on 1.4 million few jobs at factories, mines, agricultural facilities.

1-Hour PM 2.5 National Ambient Air Quality Standards

I) Regulation

$PM_{2.5}$ primary and secondary standards were last reviewed and finalized on January 15, 2013, 75 *Fed. Reg.* 3085. The rule establishes 35 **m**g/m^3 as a 24-hour standard for $PM_{2.5}$ with a form of the standard: 98th percentile, averaged over 3 years. It also establishes an annual primary standard for $PM_{2.5}$ of 12.0 **m**g/m^3 and an annual secondary standard of 15.0 **m**g/m^3 based on an annual arithmetic mean, averaged over 3 years.

II) Problems with the Regulation

$PM_{2.5}$ standards are being used for modeling compliance that include crustal emissions such as fugitive dust, while the health-based concerns upon which the standards rely are derived from combustion emissions from fossil fuels. The supporting health studies were conducted in dominantly urban areas, where $PM_{2.5}$ emissions are predominantly derived from combustion sources. However, particulate matter emissions in more rural and remote areas are more significantly impacted by crustal material sourced from activities such as agriculture and mining. The health concerns for particulate matter derived from fugitive dust and crustal materials are appropriately addressed by the PM_{10} standards and should not be considered under compliance with $PM_{2.5}$ standards. Modelling compliance with the latest $PM_{2.5}$ standards using EPA's currently approved methodology often shows exceedances when considering crustal-derived particulate emissions from mining activities. This results in either restriction or reduction of existing mining activities that were previously permissible. Capital costs required to overcome this can also render new projects or expansions uneconomic.

III) E.O. 13777 Criteria

The regulation is a candidate for revision under E.O. 13771 as it: (1) will eliminate jobs or inhibit job creation, (2) is unnecessary, and (3) imposes costs that exceed benefits. EPA should consider redefining $PM_{2.5}$ emissions as only applying to particulate matter from combustion emissions, or excluding (earth material) crustal derived particulate matter from the regulation.

Cross State Air Pollution Rule Update

I) Regulation

The Cross State Air Pollution Rule Update was finalized on Oct. 28, 2016, 81 *Fed. Reg.* 7404. The rule establishes new NOx ozone-season (May through September) budgets for fossil fuel-fired electric generating units in 23 eastern states.

II) Problems with the Regulation

While the final rule was less stringent than the proposed rule, it still poses undue burdens for a number of utilities and could affect coal production and eliminate jobs.

III) E.O. 13777 Criteria

The regulation is a candidate for revision under E.O. 13771 as it: (1) imposes excessive costs exceeding any reasonable measure of projected benefits, and (3) will result in job losses. The negative impacts of the rule stem from EPA's use of a number of unreasonable analytic assumptions that bias the analysis toward finding that upwind sources are creating downwind nonattainment problems. These assumptions include, among others, the use of outdated data on emissions in upwind states and ambient pollution concentrations in downwind states and the use of a 1 percent threshold to determine whether upwind sources are meaningfully contributing to downwind impacts. EPA should grant pending reconsideration petitions and use the reconsideration process to redo the CSAPR-Update rule modeling based on more reasonable assumptions. The new modeling would likely significantly reduce the number of states that are subject to the rule and, for those states that remain subject to the rule, significantly increase their NOx budgets.

Mercury Air Toxic Standards (MATS)

I) Regulation

On Feb. 16, 2012 (effective April 16, 2012) the agency published a final rule under CAA Section 112 for new and existing coal- and oil-fired electric generating units establishing National Emission Standards for Hazardous Air Pollutants (NESHAPs) for major and areas source of HAPS (mercury, trace metals and acid gases). The rule required EGU's, within 3-years of finalization, to install pollution control equipment at many fossil-fueled power plants or retire a large number of units that cannot now be brought back on line. The rule was challenged and on June 29, 2015 the Supreme Court issued a 5-4 decision granting petitioner's request to strike down the final rule and remand the case back to the D.C. Circuit for further proceedings. Following publication of a supplemental finding EPA, on April 14, 2016, issued a final finding that it is appropriate and necessary to set standards for air toxics from coal- and oil-fired power plants. The finding has been challenged in *Murray Energy v. EPA*, Case No. 16-1127 (D.C. Cir. Apr. 25, 2016)

II) Problems with the Regulation

Despite EPA's claim that the final rule would result in the closure of 5GW of fossil-fueled electric generation coal unit retirements, based on utility reporting, by the 2015/2016 compliance deadline exceeded 50GW.

III) E.O. 13777 Criteria

The regulation is a candidate for revision under E.O. 13771 as it: (1) is ineffective; and (2) imposes excessive costs with dubious benefit, and (3) will has resulted in job losses. In promulgating the final rule the agency estimated the cost of the rule to be $9.8b per year, but bring, at most, only $4-$6 million in benefits. Additionally, more than half of the cists are attributable to imposing standards for emissions the agency found pose no danger to public health. The direct jobs impacts of the rule have proven devastating for coal miners, power plant workers and other Americans formerly employed in the coal supply chain. More than 65,000 coal miners have lost their high-wage jobs since 2011 with the vast majority attributable to coal-fired power plants clotures as a result of the final rule.

The appropriate and necessary finding on which the rule is based is completely contrived and serves as a negative precedent for future action. Reconsideration would provide value by removing the reliance on a faulty "co-benefits" concept as a precedent for cost-benefit analysis and subject the science underpinning the rule to scrutiny.

Primary NO2 National Ambient Air Quality Standard

I) Regulation

Primary NO_2 standard was reviewed and finalized for the first time to include a 1 hour standard on February 9, 2010, 75 *Fed. Reg.* 6474. The rule establishes 100 ppb as a 1 hour standard for NO_2 with a form of the standard: 98th percentile, 1-hour daily maximum, averaged over 3 years.

II) Problems with the Regulation

A 1-hour low level NO_2 standard is not warranted or necessary. For example, OSHA Permissible Exposure Level for 8 hours is 5 ppm for NO_2 while even California OSHA allows an 8 hour exposure of 1 ppm NO_2. There are no specific tests to diagnose for NO_2 poisoning. So the health-based analyses that EPA relied on are based on probable symptoms and causation statistics. Furthermore, EPA proposed as part of the same rule establishing a more extensive roadside NO_2 monitoring network, indicating that they did not have enough information to really assess NO_2 effects on the populace at large. Modelling compliance with the 1 hour NO_2 standard using EPA's currently approved methodology often shows exceedances due to either conservative model assumptions and/or variations in the meteorological parameters. This results in either restriction or reduction of existing mining activities that were previously permissible. Capital costs required to overcome this can also render new projects or expansions uneconomic.

III) E.O. 13777 Criteria

The regulation is a candidate for revision under E.O. 13771 as it: (1) will eliminate jobs or inhibit job creation, (2) is unnecessary, and (3) imposes costs that exceed benefits. EPA should consider removing the 1-hr NO_2 standard during the NAAQS review process that is court-ordered for a proposed rule by July 2017. If deemed necessary for health protection, alternatively EPA might consider replacing it with a 24-hour or an 8-hour standard.

National Ambient Air Quality Standards (NAAQS) in Elevated Background Environments

I) Regulation(s)

The most recent example is the Ozone Primary and Secondary standards that were last reviewed and finalized on October 26, 2015, 80 *Fed. Reg.* 65292. The rule establishes 0.070 ppm as an 8-hour standard for Ozone with a form of the standard: annual fourth highest daily maximum 8-hour average concentration, averaged over 3 years.

Another example are particulate matter standards such as $PM_{2.5}$ and PM_{10} which were last reviewed and finalized on January 15, 2013, 75 *Fed. Reg.* 3085. The rule establishes 35 **m**g/m^3 as a 24-hour standard for $PM_{2.5}$ with a form of the standard: 98th percentile, averaged over 3 years. It also establishes an annual primary standard for $PM_{2.5}$ of 12.0 **m**g/m^3 and an annual secondary standard of 15.0 **m**g/m^3 based on an annual arithmetic mean, averaged over 3 years. Furthermore, it confirms the standard for PM10 as 150 **m**g/m^3 as a 24-hour standard not to be exceeded more than once per year on average over a 3-year period.

II) Problems with the Regulation(s)

The ozone standard for example is approaching background concentrations in the Mountain West terrain that is optimal for mining activities. The elevated background concentrations are primarily driven by elevation and geography but are also further exacerbated by stratospheric intrusions, wildfires and international transport. Areas of measured elevated background concentration are in locations where no industrial or urban activities exist within the airshed.

Particulate matter standard can be exceeded periodically in many remote areas due to wind-blown dust in arid desert environments where precipitation is low and vegetation is naturally sparse.

Supporting health studies are typically conducted where there is a significant difference between background concentrations and the standard and not where the background concentration already approaches the standard due to natural conditions.

Demonstrating compliance with the latest Ozone, $PM_{2.5}$, and PM_{10} standards can show exceedances when elevated background concentrations are additive to mining activities. This results in either restriction or reduction of existing mining activities that were previously permissible. Capital costs required to overcome this can also render new projects or expansions uneconomic.

III) E.O. 13777 Criteria

These regulation(s) are candidate(s) for revision under E.O. 13771 as they: (1) will eliminate jobs or inhibit job creation, 2) are unnecessary, and (3) impose costs that exceed benefits. EPA should consider proposing alternative standards for these pollutants that allow for an increment + the background concentration or perhaps allowance for more exceedances. For example, the Ozone standard of 0.070 ppm could be allowed to have an alternative standard in an area with a background concentration of 0.065 ppm in addition to an allowable increment of 0.025 ppm which would be 0.090 ppm in that location. Another possibility: for the PM_{10} standard the alternative to the 150 mg/m^3 might be approached by allowing ten exceedances per year if the background concentration is above 100 mg/m^3.

Grant of Petition for Reconsideration and Stay of 2008 Fugitive Emissions Rule

I) Regulation

In 2008, EPA issued a rule clarifying when fugitive emissions should be considered when assessing emission thresholds for major source construction, as well as major modifications. 73 Fed. Reg. 77882 (Dec. 19, 2008) (The Fugitive Emissions Rule). The rule clarified that fugitive emissions are not to be considered when assessing thresholds for either major modifications or new construction unless the source belongs to one of the 28 listed source categories. In doing so, the rule introduced consistency and certainty into making such determinations. However, in April 2009, EPA granted a Natural Resources Defense Council petition for reconsideration and stayed indefinitely the 2008 rulemaking. *See* 74 Fed. Reg. 50115 (Sept. 30, 2009); 74 Fed. Reg. 65692 (Dec. 31, 2009); 75 Fed. Reg. 6823 (Feb. 11, 2010). EPA has not taken final action consistent with its granting the petition for reconsideration, creating substantial regulatory uncertainty regarding the treatment of fugitive emissions in major modification determinations.

II) Problems with the Regulation

Under the Clean Air Act (CAA), a source must make a threshold calculation of its potential to emit air pollutants to determine whether it is a "major stationary source" or has undertaken a "major modification" for purposes of NSR permitting requirements. EPA historically has not required sources to include fugitive emissions in the threshold calculation for new sources unless the source belongs to one of 28 source categories listed by EPA through rulemaking. (Mining operations are not included in these listed source categories.) EPA's 2009 grant of the Natural Resources Defense Council's petition for reconsideration challenging the 2008 rule raises an inconsistency with EPA's past practice that results in regulatory uncertainty for mining and other industry sectors.

III) E.O. 13777 Criteria

EPA's grant of the Natural Resources Defense Council's petition for reconsideration and the stay of the 2008 rulemaking is a candidate for revision under Executive Order 13777. EPA's approach as articulated in its decision to grant the petition for reconsideration is inconsistent with past practice, and is unnecessary and ineffective.

NSPS and NESHAP Requirements and Restrictions for Stationary Engines

I) Regulation(s)

Applicable National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines (RICE) are found in 40 CFR Part 63 Subpart ZZZZ. Applicable New Source Performance Standards (NSPS) for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE) are found in 40 CFR Part 60 Subpart IIII. Applicable NSPS for Station Spark Ignition (SI) ICE are found in 40 CFR Part 60 Subpart JJJJ.

II) Problems with the Regulation(s)

Given the remote locations of typical mining operations within sparsely populated airsheds, there are minimal health benefits to be gained by restricting owner/operators from using certain stationary engines for applicable uses depending on when the engine is placed in service. Most of these engines are only utilized in an emergency backup capacity with few actual hours of operation on an annual basis. Non-emergency generators are used occasionally in more remote locations where grid power is not readily available. These requirements can mandate substantial capital expenditures to upgrade stationary engines that are fully usable and functional in areas where health impacts are negligible given their location and application.

III) E.O. 13777 Criteria

These regulations are candidates for revision under E.O. 13771 as they: (1) impose costs that exceed benefits. EPA should consider granting an exemption from or eliminating these owner operator requirements and restrictions for Stationary Engines (especially emergency generators) that are located in sparsely populated airsheds (typical for many mining operations).

Greenhouse Gas Mandatory Reporting Rule – Subpart FF

I) Regulation

On Dec. 9, 2016 EPA published a final rule, 81 *Fed. Reg*. 89188 to amend the reporting requirements for 29 subparts, including underground coal mines, to expand monitoring or reporting requirements necessary to improve verification and the accuracy of data submitted.

II) Problems with the Regulation

The reporting requirements for underground coal mines in subpart FF are not warranted or necessary. Coal mine emissions are negligible when compared to overall emissions yet the costs to be borne by the industry are grossly disproportional to any perceived benefit. The rule requires, in many instances, mine operators to utilize continuous emission monitoring systems that have not been designed for use in the underground environment.

III) E.O. 13777 Criteria

The regulation is a candidate for revision under E.O. 13771 as it: (1) imposes excessive costs with dubious benefit. According to EPA "the incremental increase in costs for subpart FF reporters from the revised monitoring requirements are $28,440 per facility in the first year (RY2018) and $14,609 in subsequent years ($2011). The proposed revisions are estimated to affect 65 respondents and would have an industry incremental cost of $1,848,571 in the first year (RY2018) and $949,582 in subsequent years. The annual hourly burden associated with these monitoring costs are 320 hours per reporter in the first year and 165 hours in subsequent years." The incremental cost increase represented a cost increase of over 3 times what underground coal mines operators incurred prior to issuance of the final rule and one member has incurred a cost increase of more than 500 percent to comply with the regulation.

Source Determination for Certain Emission Units in the Oil and Natural Gas Sector

I) Regulation

The Source Determination for Certain Emission Units in the Oil and Natural Gas Sector rule was finalized on June 3, 2016, 81 Fed. Reg. 35622 (Source Determination Rule). The rule clarifies the meaning of the term ''adjacent'' that is used to determine the scope of a ''stationary source'' for purposes of the Prevention of Significant Deterioration (PSD) and Nonattainment NSR (NNSR) preconstruction permitting programs and the scope of a ''major source'' in the title V operating permit program in the onshore oil and natural gas sector.

II) Problems with the Regulation

Historically, the determination of the scope of a stationary source has been difficult in view of the ambiguity surrounding the interpretation of the term "adjacent." The Source Determination Rule establishes definitive criteria for determining the scope of a stationary source and thereby resolving, to a significant degree, the ambiguity surrounding such determinations; however, the rule's applicability is limited to the onshore oil and natural gas industry. The rule's applicability should be broadened to cover other industry sectors and, in particular, the mining sector in view of the commonalities – operations covering large areas and ownership issues – that the mining sector shares with the oil and gas industry.

III) E.O. 13777 Criteria

The Source Determination rule is a candidate for revision under Executive Order 13777. The lack of definition or clarity for the term "adjacent" under the PSD, NNSR and tile V programs (outside of the oil and natural gas industry) is outdated, unnecessary and ineffective, and creates a serious inconsistency.

NSPS provisions as applied to a Nonroad Engine that temporarily replaces a Stationary Engine

I) Regulation(s)

Applicable New Source Performance Standards (NSPS) for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE) are found in 40 CFR Part 60 Subpart IIII. Applicable NSPS for Stationary Spark Ignition (SI) ICE are found in 40 CFR Part 60 Subpart JJJJ.

II) Problems with the Regulation(s)

As part of the rulemaking for NSPS Subparts IIII and JJJJ, EPA took the position that nonroad engines (i.e., portable engines that are not used in the same location for 12 consecutive months or more) that temporarily replace a stationary engine would be considered stationary engines. EPA regulates nonroad engines and stationary engines under different regulatory programs that include prohibitions on changing status (from nonroad to stationary and vice versa) unless the engine complies with all requirements under the relevant program. As a result, sources using nonroad engines to temporarily replace an existing stationary engine (e.g., while repairs are conducted) are unnecessarily subject to stationary source permitting requirements, compliance issues, and enforcement exposure.

III) E.O. 13777 Criteria

These regulations are candidates for revision under E.O. 13771 as they: (1) impose costs that exceed benefits and (2) create a serious inconsistency. EPA should consider revising these Subparts as part of required periodic review and include necessary clarifications and corrections to address the use of nonroad engines to temporarily replace stationary engines in accordance with the respective regulatory programs.

Once in, always in policy under NESHAP program

I) Regulation(s)

The National Emission Standards for Hazardous Air Pollutants (NESHAP) are found in 40 CFR Part 63.

II) Problems with the Regulation(s)

Under the NESHAP program, EPA established a "Once In, Always In" policy that requires a source that is a major source of hazardous air pollutant (HAP) emissions on the first compliance date of a particular NESHAP standard to comply permanently with that standard even if the source subsequently lowers HAP emissions below major source applicability thresholds. Accordingly, the policy eliminates any incentive for sources to reduce HAP emissions below major source thresholds to avoid regulatory burdens and costs. While EPA developed rule amendments that would eliminate the "Once In, Always In" policy, EPA took no further action on the amendments after opponents in Congress included a rider in a 2007 appropriations bill prohibiting funding of the amendments.

III) E.O. 13777 Criteria

The "Once In, Always In" policy is a candidate for revision under E.O. 13777 as it: (1) is outdated, unnecessary, or ineffective and (2) imposes costs that exceed benefits. EPA should consider rescinding the prior policy through rulemaking establishing a new policy under the NESHAP program based on the prior proposal.

Interpretation of NSPS requirements for Primary Copper Smelters

I) Regulation(s)

Applicable New Source Performance Standards (NSPS) for Primary Copper Smelters are found in 40 CFR Part 60 Subpart P.

II) Problems with the Regulation(s)

Some EPA representatives have taken the position that the NSPS Subpart P emission standard applies to any emissions from an affected facility rather than those emissions exiting the control device as the achievable standard was developed (i.e., through performance testing) during the initial rulemaking. In light of this interpretation, sources subject to Subpart P are unnecessarily subject to compliance issues, regulatory uncertainty, and enforcement exposure because some smaller levels of emissions (i.e., fugitive emissions that are unable to be collected and controlled) are not amenable to compliance demonstrations through performance testing.

III) E.O. 13777 Criteria

The Subpart P regulations are candidates for revision under E.O. 13771 because as interpreted they: (1) impose costs that exceed benefits and (2) create a serious inconsistency. EPA should consider revising the Subpart P regulations as part of required periodic review and include necessary clarifications and corrections to address the appropriate compliance demonstration.

NESHAP requirements for Primary Copper Smelters

I) Regulation(s)

Applicable National Emission Standards for Hazardous Air Pollutants (NESHAP) for Primary Copper Smelters are found in 40 CFR Part 63 Subpart QQQ.

II) Problems with the Regulation(s)

The Subpart QQQ regulations contain several errors and ambiguities in the provisions for establishing operating parameter limits for control devices and capture systems as well as associated monitoring. Due to the errors and ambiguities, sources regulated by Subpart QQQ are subject to unnecessary regulatory burdens and costs; regulatory uncertainty; and enforcement exposure.

III) E.O. 13777 Criteria

The Subpart QQQ regulations are a candidate for revision under E.O. 13777 as they: (1) impose costs that exceed benefits and (2) create a serious inconsistency. During a required periodic review of the regulation, EPA should consider including necessary clarifications and corrections to provisions for establishing operating parameter limits for control devices and capture systems as well as associated monitoring.

"Common Control" interpretation for stationary source determinations under NSR and Title V operating permitting programs

I) Regulation(s)

The NSR permitting program requirements are found at 40 C.F.R §§ 51.165, 51.166, and 52.21. The Title V operating permit program requirements are found at 40 C.F.R. Part 70.

II) Problems with the Regulation(s)

EPA's evolving interpretations have taken the position that a contract for hire between two otherwise separate companies can establish "common control" (i.e., one of the elements for determining whether two or more operations should be considered a single source or separate sources for permitting purposes). Based on this interpretation, permitting could be required to allow the operation of temporary contractor-operated equipment and activities within an existing permitted source owned and operated by a separate company—even if the contractor's equipment and activities are already separately permitted.

III) E.O. 13777 Criteria

The "common control" interpretation for stationary source determinations is a candidate for revision under E.O. 13777 as it: (1) is outdated, unnecessary, or ineffective and (2) imposes costs that exceed benefits. EPA should consider rescinding its prior guidance through formal rulemaking establishing a definition of "common control" for purposes of stationary source determinations under the NSR and Title V operating permit programs. EPA should also consider issuing contemporaneous guidance on portable and temporary source permitting.

"Contiguous or Adjacent" interpretation for stationary source determinations under NSR and Title V operating permitting programs

I) Regulation(s)

The NSR permitting program requirements are found at 40 C.F.R §§51.165, 51.166, and 52.21. The Title V operating permit program requirements are found at 40 C.F.R. Part 70.

II) Problems with the Regulation(s)

EPA's evolving interpretations have taken the position that the functional relationship between two operations (rather than the physical proximity) can establish whether the operations are located on "contiguous or adjacent" properties (one of the elements for determining whether two or more operations should be considered a single source or separate sources for permitting purposes). Based on this interpretation, otherwise separate sources located miles apart could be considered part of the same source and potentially subject to more stringent permitting requirement as a single source. Although EPA's interpretation was rejected by the Sixth Circuit Court of Appeals, EPA, in guidance, indicated it planned to retain its interpretation in all areas except those within the Sixth Circuit's jurisdiction. The courts also vacated this guidance as a violation of EPA's Regional Consistency rule. Rather than accept the court's decision, EPA initiated a revision to its Regional Consistency rule. Eliminating EPA's underlying "functional relationship" test would render the litigation moot.

III) E.O. 13777 Criteria

The "contiguous or adjacent" interpretation for stationary source determinations is a candidate for revision under E.O. 13777 as it: (1) is outdated, unnecessary, or ineffective and (2) imposes costs that exceed benefits. EPA should consider rescinding its prior guidance through formal rulemaking establishing a definition of "contiguous or adjacent" consistent with the Sixth Circuit's decision for purposes of stationary source determinations under the NSR and Title V operating permit programs.

Reactivation Policy under NSR and Title V operating permitting programs

I) Regulation(s)

The NSR permitting program requirements are found at 40 C.F.R §§51.165, 51.166, and 52.21. The Title V operating permit program requirements are found at 40 C.F.R. Part 70.

II) Problems with the Regulation(s)

Under EPA's "reactivation" policy, sources that shut down temporarily may be considered "new" upon reactivation (i.e., restart) and subject to regulatory requirements that apply to new sources. While EPA's policy historically focused on whether the shutdown was intended to be permanent (presumed if the source was shut down for two years or more), EPA's more recent positions (e.g., that taken in EPA, *In the Matter of Monroe Electric Generating Plant Entergy Louisiana, Inc.*) require a continuous demonstration of concrete plans to restart for purposes of rebutting the presumption of permanent shutdown. EPA has also imposed additional tests that could effectively require all reactivations to require permitting as a physical change or change in the method of operation (i.e., from a lengthy period of inactivity to fully operational status).

III) E.O. 13777 Criteria

The reactivation policy is a candidate for revision under E.O. 13777 as it: (1) is outdated, unnecessary, or ineffective and (2) imposes costs that exceed benefits. EPA should consider rescinding its prior guidance and positions through formal rulemaking that codifies a revised reactivation policy.

WATER

Steam Electric Power Generating Effluent Limitations Guidelines and Standards

I) Regulation

The Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category ("ELG Rule"), which was promulgated pursuant to a settlement agreement with environmental organizations and finalized in Nov. 2015, sets novel, stringent limits on wastewater discharges from power plants under the Clean Water Act. Specifically, the rule imposes new design criteria and numeric limits directly applicable to hundreds of existing coal-fired power generating facilities, as well as even more burdensome standards for new sources.

II) Problems with the Regulation

The ELG Rule imposes excessive compliance costs and regulatory burdens on utilities, which will have serious ramifications on both the utility and coal industries and the large and small businesses that rely on them. In promulgating the ELG Rule, the Environmental Protection Agency (EPA) relied on limited and obsolete data, and withheld much of the fundamental information upon which it relied. As a result, the ELG Rule imposes requirements under a "best available technology economically achievable" standard that are not, in fact, available, feasible or economically achievable. Furthermore, many of the assumptions made in the ELG Rule were based on EPA's Clean Power Plan (CPP) and Coal Combustion Residuals (CCR) Rule, both of which are likely to undergo significant changes which will undoubtedly impact many of the premises upon which the ELG Rule was based.

According to the utility industry, the ELG Rule will force plant closures and lead in many instances to compliance costs in the hundreds of millions of dollars *per effected company*. For example, Dynegy has estimated costs associated with the ELG Rule at $308 million, MRG anticipates costs of approximately $200 million, and AEP has projected costs ranging from $400-550 million through 2023. When combined with the CPP and CCR Rule, the cumulative impacts to coal-fired electric generation are staggering.

III) E.O. 13771 and E.O. 13777 Criteria

The ELG Rule is a strong candidate for revision under Executive Order 13771 of January 30, 2017 (Reducing Regulation and Controlling Regulatory Costs), and Executive Order 13777 of February 24, 2017 (Enforcing the Regulatory Reform Agenda). Specifically, the ELG Rule (1) eliminates jobs and inhibits job creation; (2)

imposes costs that exceed its benefits; (3) relies in part on data, information, and methods that are not publicly available or that are insufficiently transparent to meet the standard for reproducibility; (4) places undue burden on the development and use of domestic energy resources; and (5) offers opportunities for reduction in regulatory costs. Furthermore, review under the relevant E.O.s would allow the Administration the opportunity to comprehensively address the cumulative impacts of the ELG Rule, CPP, and CCR Rule to the coal mining and utility industries. The ELG Rule was based on unsound and, in many cases, undisclosed data, imposes overly stringent limitations not supported by scientific or economic realities, and will lead to excessive compliance costs and the closure of coal-fired power plants.

Draft Conductivity Methodology

I) Regulation

In late Dec. 2016, the U.S. Environmental Protection Agency (EPA) released its draft document, *Field-Based Methods for Developing Aquatic Life Criteria for Specific Conductivity*. The document is intended to provide guidance to states on developing numeric field-based conductivity criteria for flowing waters, and is based in large part on EPA's controversial work, *A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams*, which was the subject of a lawsuit brought against EPA by the National Mining Association and the states of Kentucky and West Virginia. Importantly, if finalized, states will have to consider the document in their triennial reviews of their water quality standards packages, and may be forced via EPA or outside lawsuits to adopt numeric criteria for conductivity that they do not believe are based on sound science. Additionally, environmental organizations have already pointed to the document upon which the methodology is based to force post-hoc, court-developed numeric conductivity limits which the state had specifically rejected into coal mining discharge permits.

II) Problems with the Regulation

EPA's draft conductivity methodology suffers from multiple fatal technical and scientific flaws which render the numeric limits it produces not scientifically valid. These flaws include issues associated with data collection and analysis, inappropriate application of extirpation methods and regression models, and the failure to consider multiple factors that could lead to the presence or absence of benthic invertebrates from sample streams. Additionally, the Clean Water Act (CWA) expressly provides for narrative water quality criteria, and it is up to the states to determine how to interpret such criteria – states should not be forced to develop numeric criteria that they do not feel is supported by science.

Importantly, while most coal and hardrock mining operations will have significant difficulty complying with the proposed numeric limits, those limits are so overly stringent that multiple other sectors of the economy – including, among others, agriculture, POTWs, and oil and gas operations – will have difficulty meeting them as well. Furthermore, where treatment is available to meet the proposed limits, significant costs are likely associated. Extremely low conductivity limits can often only be met through the installation of reverse osmosis (RO) technology, if at all. While the costs of RO treatment vary, an example of two municipal wastewater treatment facilities in the Indianapolis area shows that the capital costs for installation of RO technology was $700 million, and annual costs for implementation were projected at $40 million – resulting in overall annualized treatment costs of $116.9 million, assuming that capital

costs would be financed over 20 years. It should also be noted that in some instances treatment technologies might not be available to meet the proposed limits, resulting in lost job opportunities, decreased economic growth, and a failure to develop the U.S.'s vast mineral potential with no corresponding environmental benefit.

Finally, the Obama Administration announced its intention to revise the 1985 *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses.* Those guidelines provide the basis for deriving EPA's national water quality criteria, and EPA has in the past noted that field-based criteria – like the conductivity methodology – will likely be a focal point of its revisions. It is therefore incredibly important for EPA to review the conductivity methodology to ensure that any field-based methods supported by the agency are technically and scientifically sound.

III) E.O. 13771 and E.O. 13777 Criteria

EPA's draft conductivity methodology is a strong candidate for revision under Executive Order 13771 of January 30, 2017 (Reducing Regulation and Controlling Regulatory Costs), and Executive Order 13777 of February 24, 2017 (Enforcing the Regulatory Reform Agenda). Specifically, the methodology (1) eliminates jobs and inhibits job creation; (2) imposes costs that exceed its benefits; (3) places undue burden on the development and use of domestic energy resources; (4) offers opportunities for reduction in regulatory costs; and (5) intrudes upon the rights of states. The draft methodology will force state regulators to utilize disputed, unsound science and will impose significant, and at times infeasible, treatment requirements upon regulated entities without a corresponding environmental benefit. This will deter the development of U.S. mineral resources, impose substantial costs on existing operations, and infringe upon state primacy under the CWA.

Selenium Water Quality Criterion and Implementation Guidance

I) Regulation

In July 2016, the U.S. Environmental Protection Agency (EPA) updated its chronic selenium freshwater criterion to include, for the first time, fish tissue-based limits that better reflect the fact that selenium toxicity in aquatic life is driven by consumption of selenium-contaminated food rather than direct exposure to selenium dissolved in water. However, while NMA supports the fish tissue-based approach, at the urging of the U.S. Fish and Wildlife Service and environmental organizations, EPA also included overly stringent water column-based limits and, while acknowledging that the fish tissue limits are more scientifically accurate, nevertheless required the water column limits to be applied in a number of permitting situations. Importantly, these default national water column concentrations are below natural background concentrations for certain parts of the country.

Additionally, because of the novelty of a fish tissue-based criterion, EPA also developed four draft guidance documents in Oct. 2016 designed to assist states in adopting and implementing the final 2016 criterion. Like the underlying criterion itself, these documents contain a number of flaws, including an undue emphasis on the water column limits and lack of flexibility for states.

II) Problems with the Regulation

While EPA's final 2016 selenium criterion appropriately utilized a fish-tissue approach, it also includes overly stringent limitations for both fish tissue and water column concentrations that were based on questionable and limited data sets and unduly conservative calculation methods. Furthermore, while recognizing the fact that fish tissue concentrations provide more scientifically accurate measurements of selenium impacts, both the criterion itself and, to an even greater extent, EPA's implementation guidance documents nevertheless require application of the overly stringent water column concentrations in numerous situations. These documents also limit state flexibility in terms of such important issues as National Pollutant Discharge Elimination System (NPDES) permitting, Total Maximum Daily Load (TMDL) calculations, and impaired waters listings.

Significant costs are associated with wastewater treatment for selenium. Notably, stringent limits can often only be met through the installation of reverse osmosis (RO) technology, if at all. While the costs of RO treatment vary, an example of two municipal wastewater treatment facilities in the Indianapolis area shows that the capital costs for installation of RO technology was $700 million, and annual costs for implementation were projected at $40 million – resulting in overall annualized treatment costs of $116.9 million, assuming that capital costs would be financed over 20 years. Furthermore, in

some instances treatment technologies might not be available to meet EPA's stringent limitations, particularly where background concentrations are naturally elevated, resulting in lost job opportunities, decreased economic growth, and a failure to develop the U.S.'s vast mineral potential with no corresponding environmental benefit.

III) E.O. 13771 and E.O. 13777 Criteria

EPA's selenium criterion and draft implementation guidance documents are candidates for revision under Executive Order 13771 of January 30, 2017 (Reducing Regulation and Controlling Regulatory Costs), and Executive Order 13777 of February 24, 2017 (Enforcing the Regulatory Reform Agenda). Specifically, the criterion and implementation guidance (1) eliminate jobs and inhibit job creation; (2) impose costs that exceed their benefits; (3) place undue burden on the development and use of domestic energy resources; (4) offer opportunities for reduction in regulatory costs; and (5) intrude upon the rights of states. The final criterion and its implementation guidance documents utilize unsound science to impose enormous treatment costs upon regulated entities without a corresponding environmental benefit. This will deter the development of U.S. mineral resources and impose substantial costs on existing operations.

Clean Water Act Sec. 404 Guidance Documents

I) Regulations

Several administrative actions over time have fundamentally altered the careful balance between the U.S. Army Corps of Engineers (Corp), Environmental Protection Agency (EPA), and the states in Clean Water Act (CWA) Section 404 permitting. These actions have undermined the principle of cooperative federalism, ignored the Corps' experience in implementing the 404 program, and caused undue permitting delays and expenses that have had a negative impact on economic growth and job creation. Included in these actions are those guidance documents and memoranda related to:

i. CWA Section 401 water quality certifications: Regulatory Guidance Letter 90-04 – Water Quality Considerations, May 13, 1990; and Oct. 29, 2009 Memorandum from Steven L. Stockton, "Water Quality Certification"

ii. Jurisdictional determinations: 43 Opinion of the Attorney General 197, Sept. 5, 1979, "Civiletti Memorandum;" Jan. 19, 1989 "Memorandum of Agreement Between the Department of the Army and the Environmental Protection Agency Concerning the Determination of the Geographic Jurisdiction of the Section 404 Program and the Application of the Exemptions Under Section 404(f) of the Clean Water Act" and its Jan. 19, 1989 amendment; and Regulatory Guidance Letter 16-01 – "Jurisdictional Determinations," Oct. 2016

iii. Aquatic Resources of National Importance (ARNIs): "Clean Water Act Section 404(q) Memorandum of Agreement Between the Environmental Protection Agency and The Department of the Army," Aug. 11, 1992; Jan. 2002 Memorandum, "Designation of Aquatic Resources of National Importance Under Clean Water Act Section 404(q) Memorandum of Agreement with the Army Corps of Engineers;" Oct. 30, 2006 Memorandum for the Field, "U.S. Environmental Protection Agency (EPA) coordination between Regional offices and Headquarters on Clean Water Act (CWA) Section 404(q) actions;" and May 1, 2008 Memorandum, "Revised Coordination between EPA Regional Offices and Headquarters on Clean Water Act Section 404(q) Actions"

II) Problems with the Regulations

These administrative actions do not have a basis in the text of the CWA, have undermined the rights of states to protect their land and water resources, and have caused the 404 permitting process to become overly cumbersome and subject to undue bureaucratic delays. With respect to Sec. 401 water quality certifications, despite the fact that the CWA very clearly provides primacy states with the authority to develop and

determine compliance with state water quality standards, the aforementioned documents allow EPA to impermissibly override state decisions in the context of Sec. 404 permitting. Likewise, the listed actions related to jurisdictional determinations permit EPA to override Corps' jurisdictional determinations, even where neither the State nor the Corps believe federal jurisdiction exists. This authority is not found in the text or legislative history of the CWA, and ignores the Corps' primary role in issuing Sec. 404 permits. Additionally, under the guise of "minimizing duplication and delays," EPA created from whole cloth the "ARNI" designation, which permits EPA to "elevate" 404 permits on an ad hoc basis, delay their issuance, and demand additional extra-regulatory measures from permittees. All of these actions have led to permitting delays and red tape that has stifled economic growth and undermined the role of the states in the CWA.

III) E.O. 13771 and E.O. 13777 Criteria

The listed Sec. 404 administrative actions are candidates for revision under Executive Order 13771 of January 30, 2017 (Reducing Regulation and Controlling Regulatory Costs), and Executive Order 13777 of February 24, 2017 (Enforcing the Regulatory Reform Agenda). Specifically, the documents (1) eliminate jobs and inhibit job creation; (2) impose costs that exceed its benefits; (3) place undue burden on the development and use of domestic energy resources; and (4) infringe upon state primacy under the CWA.

Clean Water Act Sec. 402 Guidance Documents

I) Regulations

The Obama Administration undertook several executive actions that set up barriers to cooperation between the U.S. Environmental Protection Agency (EPA) and the states in the implementation of Clean Water Act (CWA) Sec. 402 – the National Pollutant Discharge Elimination System (NPDES) permitting program. These actions have violated both the text of the CWA and the principles of cooperative federalism established therein, weakened environmental protection, and undermined the relationship between state and federal partners. They include: (1) *Improving EPA Review of Appalachian Surface Coal Mining Operations Under the Clean Water Act, National Environmental Policy Act, and the Environmental Justice Executive Order* (July 21, 2011 memorandum); (2) Letter from EPA Administrator Lisa P. Jackson to Acting Assistant Secretary (Civil Works) Terrence Salt regarding the review of 110 pending permit applications in Appalachia (June 11, 2009); and (3) *Enhanced Surface Coal Mining Pending Permit Coordination Procedures* (July 11, 2009).

Additionally, EPA's policy documents on the scope of the permit shield provision found in CWA Sec. 402(k) are outdated and do not directly address situations where states include narrative (rather than numeric) limitations in NPDES permits. Those documents include the July 1, 1994 memorandum, *Policy Statement on the Scope of Discharge Authorization and Shield Associated with NPDES Permits*, as well as the memorandum from Robert Perciasepe, Steven A. Herman and Jeal C. Nelson, *Revised Policy Statement on Scope of Discharge Authorization Associated with NPDES Permits*. While the policies espoused in the documents remain sound, courts have inappropriately applied them, particularly in the context of narrative limits, to the detriment of permittees and the primacy of state CWA agencies.

II) Problems with the Regulations

The Obama Administration's guidance documents permit EPA to trample on the rights of states with primacy to administer the Sec. 402 program. Most notably, they espouse the position that EPA may effectuate a de facto change in a state water quality standard via its permit-specific objection authority under the guise of "interpreting" a state standard; attempt to substitute EPA's scientific judgment for the scientifically defensible judgment of the states; attempt to force states to determine when and how to conduct reasonable potential determinations; and inappropriately attempt to substitute a preferred approach to impaired waters listings and total maximum daily load development.

Furthermore, the permit shield documents should be updated to address recent situations, such as those involving the application of the permit shield to the application

of narrative water quality criteria. This lack of clarity has caused courts to limit the scope of the shield in a manner inconsistent with the text of the CWA, EPA's implementing regulations, and EPA's prior interpretations of the scope of the shield. By way of example, one court in West Virginia recently held that a coal company was liable for violating a non-existent "limit" in its permit because the permit generally alluded to narrative water quality standards, and the court – at the behest of environmental organizations – determined that the permit shield did not protect against the imposition of a post-hoc, judicially created numeric limit "interpreting" one such narrative standard that the state agency had expressly rejected during the permitting process. EPA should therefore update its permit shield policies to, among other things, provide for appropriate protections for dischargers in the context of narrative water quality criteria. In particular, EPA should clarify that dischargers can rely on a state's interpretation of what is required to meet both its numeric and narrative water quality standards – including a state's decision not to include any limit on a pollutant in an NPDES permit.

III) E.O. 13771 and E.O. 13777 Criteria

The Sec. 402 guidance and policy documents are candidates for revision under Executive Order 13771 of January 30, 2017 (Reducing Regulation and Controlling Regulatory Costs), and Executive Order 13777 of February 24, 2017 (Enforcing the Regulatory Reform Agenda). Specifically, the documents (1) eliminate jobs and inhibit job creation; (2) impose costs that exceed its benefits; (3) place undue burden on the development and use of domestic energy resources; and (4) infringe upon state primacy under the CWA.

Interpretation of CWA Sec. 404(c) Authority

I) Regulations

On Jan. 13, 2011, the U.S. Environmental Protection Agency (EPA) withdrew the use of certain waters as disposal sites for discharges of fill material that had been authorized under a 2007 Clean Water Act (CWA) Sec. 404 permit for the Spruce coal mine located in West Virginia. The permit had been issued after nearly a decade of environmental reviews conducted by EPA, the Army Corps of Engineers (Corps), and the state, and EPA's withdrawal – which was done over the objection of the state - amounted to the first ever retroactive veto of a CWA Sec. 404 permit. EPA's action effectively eliminated 88% of the Spruce operation. While the D.C. Circuit eventually upheld EPA's action, in a strongly worded dissent Judge Kavanaugh objected to the fact that EPA did not consider the economic costs of its revocation, and found that "EPA's utterly one-sided analysis did not come close to satisfying the agency's duty under the Administrative Procedure Act to consider and justify the costs of revoking [the Spruce permit]."

Then, in July, 2014, EPA again took an unprecedented step with respect to CWA Sec. 404(c), and issued a proposed determination effectively vetoing any mining activities at the Pebble copper, gold, and molybdenum deposit. Importantly, that veto was done prior to the submittal of any 404(c) permit application, and was based on a highly questionable hypothetical mine scenario created by EPA scientists without adequate input from Alaska, the Corps, or, perhaps most notably, mining engineers. This process bypassed the proper state and federal CWA channels for evaluating any given project, and ignored the extensive (8-year, $120 million) environmental studies conducted by the proponents of the Pebble Mine. By stopping mine development, the Obama Administration halted the creation of thousands of near-term construction jobs and 1,000 full-time jobs throughout the mine's first 25 years, and stranded over $700 million in investment in addition to 80.6 billion lbs. of copper, 5.6 billion lbs. of molybdenum, and 107.4 million oz. of gold.

II) Problems with the Regulations

EPA's application of 404(c) during the Obama Administration thwarted the concepts of due process and fundamental fairness, and had significant negative impacts on economic investment and job growth. Investors are unlikely to risk their capital if they know a permit is only as permanent as the current election cycle, nor are they likely to explore opportunities in a regulatory atmosphere that allows the federal government to veto projects before project proponents have even applied for a permit. As underscored by the plethora of amicus briefs filed in the Spruce case, these concerns span the entire spectrum of sectors in the U.S. economy. By allowing the Pebble permitting process to move forward, and by reevaluating the Spruce decision in light of its devastating

economic impacts and failure to properly consider the views of the state CWA agency, the new Administration has the opportunity to reinvigorate investment in U.S. industries and stimulate economic growth and job creation.

Furthermore, EPA should consider updating the regulations related to the use of CWA Sec. 404(c) to ensure that any proposed future use of 404(c) has taken into account economic considerations and is based on sound science.

III) 13771 and E.O. 13777 Criteria

EPA's CWA Sec. 404(c) vetoes of the Spruce and Pebble mines, and 404(c) regulations, are strong candidates for revision under Executive Order 13771 of January 30, 2017 (Reducing Regulation and Controlling Regulatory Costs), and Executive Order 13777 of February 24, 2017 (Enforcing the Regulatory Reform Agenda). Specifically, the regulatory actions (1) eliminate jobs and inhibit job creation; (2) impose costs that exceed their benefits; (3) place undue burden on the development and use of domestic energy resources; (4) offer opportunities for reduction in regulatory costs; and (5) intrude upon the rights of states.

NPDES Updates Rule

I) Regulation

The National Pollutant Discharge Elimination System (NPDES) Applications and Program Updates Rule (NPDES Rule), proposed in May 2016, includes proposed changes to NPDES permit application requirements, the U.S. Environmental Protection Agency's (EPA) ability to object to administratively continued NPDES permits, the general water quality-based permitting process, state documentation of permitting decisions and the Clean Water Act (CWA) Sec. 401 state certification process.

II) Problems with the Regulation

While the proposed rule contains numerous problematic provisions, the most grievous from the perspective of NPDES permit holders is the provision allowing EPA to designate certain administratively continued permits as "proposed permits" if EPA determines that states are not acting quickly enough on renewal applications. Pursuant to that provision, EPA could designate administratively continued "environmentally significant" permits (which would include, among many others, all mining-related NPDES permits which have been administratively continued for either two or five years) as "proposed," thereby effectively taking over the permitting authority of the state on an ad-hoc, permit-by-permit basis. Notably, often times states have not acted on renewals because they are looking at complex scientific, legal, or technical issues associated with the permit, and the proposal provides no evidence that EPA is in a better position to more quickly or efficiently resolve such issues.

The proposal also includes incorrect language with respect to anti-backsliding, as well as multiple other provisions that infringe upon the CWA authority of the states, such as requirements concerning data analysis and dilution.

III) E.O. 13771 and E.O. 13777 Criteria

EPA's final report, *Protecting Aquatic Life from Effects of Hydrologic Alteration*, is a candidate for revision under Executive Order 13771 of January 30, 2017 (Reducing Regulation and Controlling Regulatory Costs), and Executive Order 13777 of February 24, 2017 (Enforcing the Regulatory Reform Agenda). Specifically, the report (1) is unnecessary; (2) intrudes upon the rights of states; and (3) inhibits job creation.

Compensatory Mitigation for Losses of Aquatic Resources

I) Regulation

On Apr. 10, 2008, EPA and the U.S. Army Corps of Engineers jointly promulgated a rule establishing requirements for compensatory mitigation associated with Clean Water Act (CWA) Sec. 404 permits. Those requirements can be found at 40 CFR Part 230 and 33 CFR Parts 325 and 332.

II) Problems with the Regulation

The compensatory mitigation requirements contained in the 2008 rule have been subject to multiple interpretations and inconsistently applied at mining operations. This has resulted in constantly changing requirements and unjustified mitigation rations. The rule has also led to the imposition of requirements that are not practical or appropriate when applied in the context of mining operations, such as certain financial assurance, long-term management, conservation easement and advance mitigation requirements. The inconsistent and inappropriate application of the rule's requirements have imposed considerable costs on the mining industry.

III) E.O. 13777 Criteria

The 2008 compensatory mitigation rule is a candidate for revision under Executive Order 13777 of February 24, 2017 (Enforcing the Regulatory Reform Agenda) as it inhibits job growth and contains costs that exceed its benefits. Significant revisions to the rule are required to provided much-needed regulatory certainty with respect to mitigation requirements in the context of the 404 program.

Hydrologic Alteration Report

I) Regulation

In late Dec., 2016, the U.S. Environmental Protection Agency (EPA) and U.S. Geological Survey (USGS) finalized a technical report, *Protecting Aquatic Life from Effects of Hydrologic Alteration*. The report outlines the impacts hydrologic alteration, particularly stream flow modification, can have on aquatic life, and provides a framework states can use to develop numeric flow regime targets necessary to support the biological integrity of streams and protect aquatic ecosystems. While the document is purportedly non-prescriptive in nature, it remains to be seen whether states will have to consider the report in triennial reviews of their water quality standards packages, or how environmental organization may utilize the document in the context of Clean Water Act (CWA) citizen lawsuits. In particular, states that utilize narrative (non-numeric) flow criteria, and permittees that have narrative flow criteria limits, could be especially susceptible to outside lawsuits.

II) Problems with the Regulation

The final report is premised upon the incorrect assumption that any modification in natural stream flow results in a degradation of downstream aquatic life, and as such fails to acknowledge the potential benefits of flow alteration and the fact that numeric flow targets can conflict with CWA programs, state water rights, the Surface Mining Control and Reclamation Act (SMCRA), and other applicable federal and state laws. EPA and USGS also failed to consult with relevant state and federal agencies before finalizing the report, and as such the report fails to provide states that have adopted narrative flow criteria with information critical to implementing that criteria in a manner that best protects water quality goals.

Additionally, while the final report removed an inaccurate legal analysis contained in the draft version, it fails to acknowledge that the only federal case to look at the issue has held that, because flow is not a “pollutant,” it is not within EPA’s authority to regulate under the CWA. That failure could lead to outside organizations and courts misapplying the document, particularly in the context of CWA National Pollutant Discharge Elimination System (NPDES) permitting situations. This is particularly critical since mining – as well as many other activities such as water management, groundwater pumping, urban development, thermoelectric power generation, and agriculture – often require some form of hydrologic alteration.

III) E.O. 13771 and E.O. 13777 Criteria

EPA’s final report, *Protecting Aquatic Life from Effects of Hydrologic Alteration*, is a candidate for revision under Executive Order 13771 of January 30, 2017 (Reducing

Regulation and Controlling Regulatory Costs), and Executive Order 13777 of February 24, 2017 (Enforcing the Regulatory Reform Agenda). Specifically, the report (1) eliminates jobs and inhibits job creation; (2) imposes costs that exceed its benefits; (3) places undue burden on the development and use of domestic energy resources; (4) is unnecessary; and (5) intrudes upon the rights of states.

Water Quality Standards Regulatory Revisions

I) Regulation

On Aug. 21, 2015, EPA finalized changes to the federal regulations governing the Clean Water Act (CWA) water quality standards (WQS) program found at 40 CFR Part 131. Under the CWA, approved states and tribes are the primary administrators of the WQS program while EPA retains certain oversight authority. The rule updated several aspects of the WQS program in a manner that limited and infringed upon state authority, including the regulations governing designated uses, triennial reviews, antidegradation, and the use of variances and compliance schedules in National Pollutant Discharge Elimination System (NPDES) permitting.

I) Problems with the Regulation

The 2015 water quality standards revisions have infringed upon the primary role of the states in setting CWA WQS, and unnecessarily restrict the use of available CWA mechanisms necessary for the establishment of appropriate WQS and NPDES permit limits. Specifically, the rule: (1) inappropriately codified a "rebuttable presumption" that the uses specified in CWA Sec. 101(a)(2) – fishable/swimmable – are attainable unless a costly use attainability analysis is performed which justifies removing the use, leading to overly stringent and costly permitting requirements; (2) requires states to review any new or revised Sec. 304(a) criteria and explain any decision not to adopt such criteria; (3) established inappropriate stringent new requirements for identifying high quality waters, analyses of alternatives and antidegradation implementation methods; and (4) placed new burdens on the use by states of variances and compliance schedules in NPDES permitting.

EPA also assumed that the proposal would not have an economic impact on the regulated public. However, in doing so, EPA ignored the fact that the regulated community would be substantially impacted by the requirements contained in the rule, and must either directly undertake or pay for the procedures outlined in the rule to be completed when states are unable to fund them.

I) E.O. 13771 and 13777 Criteria

The 2015 water quality standards rule is a candidate for revision under Executive Order 13771 of January 30, 2017 (Reducing Regulation and Controlling Regulatory Costs), and Executive Order 13777 of February 24, 2017 (Enforcing the Regulatory Reform Agenda), as it (1) inhibits job growth, (2) is unnecessary, (3) contains costs that exceed its benefits, (4) places undue burden on the development and use of domestic energy resources, (5) offers opportunities for reduction in regulatory costs, and (6) intrudes upon the rights of states.

Drinking Water Standards for Beryllium

I) Regulation

EPA's six-year review of drinking water standards identified beryllium (and 9 other chemicals) as a candidate for an increase in its maximum contaminant level goal formerly established by EPA based on a new health assessment. 82 Fed. Reg. 3518, 3527 (Jan. 11, 2017). However, in its announcement EPA proposes not to pursue this revision of the beryllium drinking water standards because of its belief that there is not any meaningful opportunity for costs savings from an upward revision. 82 Fed. Reg. 3525.

II) Problems with the Regulation

EPA's position is incorrect. EPA failed to consider several ways in which public and private sector costs would be saved if EPA were to increase the drinking water standards for beryllium. There is no benefit to an overly protective beryllium drinking water standard, but it does impose significant cost penalties. The beryllium drinking water standard is used by numerous federal and state agencies in establishing surface water, groundwater and soil cleanup levels in a variety of programs. For example, EPA requires that remedial actions for contaminated groundwater at Superfund sites attain the agency's drinking water standards. OSWER Directive 9281.1-33 requires that aquifers be restored to drinking water standards wherever possible. EPA's Superfund Management System reports that beryllium was identified as a surface water or ground water as a constituent of concern requiring remediation at 212 National Priority List (NPL) sites. Similarly, EPA reports that beryllium was a contaminant of concern in soils, sediments or sludge at 222 NPL sites. The drinking water standard for beryllium is used to derive the cleanup levels for these media as well.

The beryllium drinking water standard is similarly used in other federal and state remediation programs. For example, remediation by the US Army Corps of Engineers under the Formerly Utilized Sites Remedial Action Program utilizes this standard in soil and water remediation. Developers of brownfield properties under the Ohio Voluntary Action Program are required to remediate groundwater to this standard. In all these programs, requiring cleanup to a standard that is lower than what is necessary to protect public health increases remediation and redevelopment costs and slows the return of properties to productive use and the jobs that result therefrom.

III) E.O. 13777 Criteria

The drinking water standards for beryllium are a candidate for revision under E.O. 13777 as it: (1) is outdated, unnecessary, and ineffective; (2) imposes costs that exceed benefits; and (3) is not based on sound science. As EPA recognizes, the beryllium

drinking water standard is outdated in light of new health assessment information; and to the degree that the current standard is overly stringent, it is ineffective in improving health results and imposes nationwide, adverse effects on remediation and redevelopment costs and jobs.

WASTE

Toxics Release Inventory (TRI) Reporting

I) Regulation

The Toxics Release Inventory (TRI) established under Section 313 of the Emergency Planning Community Right-to-Know Act (EPCRA) requires industrial facilities to report annually the "release" of certain toxic chemicals that meet threshold quantities for specified activities (*e.g.*, manufacture, process, or otherwise use) to the environment (*e.g.*, placed in some type of land disposal or emitted to the air or water). 42 U.S.C. § 11203. The purpose of the TRI is to: (1) inform the public about releases of toxic chemicals to the environment; (2) assist governmental agencies, researchers, and other persons in the conduct of research and data gathering; and (3) to aid in the development of appropriate regulations, guidelines, and standards. 42 U.S.C. § 11023(h). In 1997, EPA added the metal mining sector to the list of industries subject to TRI reporting. 62 Fed. Reg. 23,892 (May 1, 1997); 40 C.F.R. 372.22. The mining industry has been reporting under TRI since 1999 – 16 total years. EPA publishes annual reports on its website. The public can also access company reports.

II) Problems with the Regulation

The TRI was originally established for the manufacturing sector, in response to a series of chemical plant accidents, to support and promote emergency planning and provide information to the public on releases in their community. Today, EPA touts the TRI program as being a part of a "new approach to environmental protection" wherein information disclosure programs can be used to "create a strong incentive for companies to improve environmental performance." EPA emphasizes this aspect of the TRI program by highlighting a sector's pollution prevention (also known as P2) efforts in its annual reports.

Importantly, however, the application of the statutory terminology through regulation to mining has resulted in the requirement to report as "releases" on TRI reports the trace amounts of naturally occurring metal and metal compounds that are present in the rock and dirt that is moved and managed at a mine site. In fact, the vast majority of what the metal mining industry reports – from 85 to 99 percent – consists of the management of these naturally occurring substances in on-site land-based units. These units are engineered facilities permitted and regulated by exacting state and federal laws.

The sheer size of the mining industry's reported "release" numbers dwarfs TRI reporting by any other industry. Most recently, the metal mining sector remains the largest reporting sector at 37 percent, which is more than twice the chemical sector at 15 percent. As EPA acknowledged in the 2015 TRI National Analysis, "toxic chemical quantities reported by [the metal mining] sector are not especially amenable to source reduction, because they primarily reflect the natural composition of the ore and waste rock."

TRI release estimates reported under the TRI program are consistently misused by the public and EPA's program offices to irresponsibly paint an alarmist and inaccurate picture of the metal mining industry's potential for posing health and environmental risk. Most recently, EPA's Office of Land and Emergency Management relied in part on TRI data to target the metal mining industry as a "high risk" sector that warranted new financial assurance requirements under the Comprehensive Environmental Response, Compensation, and Liability Act. *See* 82 Fed. Reg. 3477 (Jan. 11, 2017). The TRI program, however, is strictly a volume-based reporting requirement, not an assessment of risk to public health or the environment.

III) E.O. 13777 Criteria

The TRI program is a candidate for revision under E.O. 13777 as it: (1) is outdated, unnecessary, and ineffective; and, (2) imposes costs that exceed benefits. Over 15 years ago, two successful cases brought by the mining industry produced court rulings that should have substantially reduced the scope of these reporting requirements. *NMA v. Browner*, 2001 U.S. Dist. LEXIS 915 (D. Colo. Jan. 16, 2001); *Barrick Goldstrike Mines v. Whitman*, 260 F. Supp. 2d 28 (D.D.C. Apr. 2, 2003). EPA has resisted full implementation of those rulings in a manner that would imbue the reporting requirements with more rational and less misleading information about the performance of the mining sector. This paperwork exercise burdens the mining industry with millions of dollars of compliance costs annually.

URANIUM

Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings and Uranium in Situ Leaching Processing Facilities

I) Regulation

The U.S. Environmental Protection Agency (EPA) has proposed revisions to "40 CFR 192, Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings and Uranium In Situ Leaching Processing Facilities." The proposal would create new groundwater data collection, monitoring and restoration standards for facilities that recovery uranium via *in situ* recovery (ISR) processes. The rulemaking is premised on the allegation that ISR activities may impact adjacent aquifers that either are now or could someday be sources of drinking water. Under the Atomic Energy Act (AEA) as amended by the Uranium Mill Tailings Radiation Control Act (UMTRCA), EPA does have a role in setting generally applicable environmental standards uranium recovery facilities. The U.S. Nuclear Regulatory Commission, however, is charged with implementation and enforcement of such standards. The proposed rule goes well beyond setting standards, a concern raised by the NRC's General Counsel.

II) Problems with the Regulation

The primary flaw with the rule is EPA's failure to properly assess the risks of ISR operations to groundwater. The agency provides no evidence in the rulemaking record that ISR facilities have ever adversely impacted an adjacent aquifer. Tellingly, EPA admits that the agency finds "it difficult to characterize the probability or magnitude of future contamination problems, or the costs inclined in remediating such future contamination." EPA's unrealistic assumptions about modeling groundwater contamination scenarios and associated cancer risk exposure pathways skewed its risk analysis to justify the rule's long-term groundwater monitoring provisions. Specifically, EPA modeled failure scenarios (catastrophic spills) that are not representative of groundwater incursion scenarios that long term monitoring requirements are designed to prevent and used a model that ignored existence of best management practices routinely used to ensure detection and remediation of leaks before they reach nearby receptors.

In addition, EPA minimizes the importance of studies that show adjacent aquifers have been adequately protected by existing federal and state programs, even their own. As an example, EPA's underground injection control (UIC) program under the Safe Drinking Water Act (SDWA) is designed to prevent endangerment of underground sources of drinking water (USDWs). EPA maintains that reliance on the requirements of the UIC program alone would not adequately address groundwater protection at ISR facilities, given there are not groundwater restoration requirements under the UIC program. EPA is correct that such restoration requirements do not exist but fails to note the lack of such requirements is due to the fact that ISR operations can only occur in exempted aquifers. In order for an ISR operation to proceed, a UIC permit is required and typically, an aquifer exemption is needed. In the case of ISR operations, the aquifer

exemption is granted either due to the mineralization or the poor natural quality of the water or both. The aquifer exemption effectively removes the aquifer from the protection of the SDWA due to the finding that it does not now currently serve as a source of drinking water and it cannot now and will not in the future serve as a source of drinking water. Additionally, EPA ignores the fact that both NRC and state regulatory authorities do require restoration of ISR operations under existing programs. A major flaw in EPA's proposed rule is the failure to adequately acknowledge the impact of existing federal and state programs in protecting adjacent aquifers from any potential risks of ISR operations.

EPA's cost benefit analysis for the rulemaking is also fatally flawed, particularly the calculations relating to social benefits. The analysis is Inconsistent with OMB Circular A-4 because it quantifies social benefits using avoided costs of remediating a hypothetical groundwater plume. EPA's own economic guidelines only allow use of replacement costs when: (1) damage to the asset is the only cost of the environmental deterioration; and (2) the least expensive way to achieve the level of satisfaction realized before the deterioration would be to replace the asset. Further, EPA's analysis ignores many of the costs related to the rule's long-term stability monitoring requirements including costs related to bonding; land rental/mineral rights; labor; utilities; regulatory compliance; transfer payments such as royalties to the Bureau of Land Management, NRC fees and taxes. With all costs and revenue impacts considered, several impacted companies determined that compliance costs per pound of uranium recovered would exceed the current per pound sales price.

III) E.O. 13777 Criteria

This rulemaking is a candidate for revision under E.O. 13777 as it: (1) eliminates jobs and inhibits job creation; (2) is unnecessary as EPA has not identified a risk to human health or the environment; (3) imposes costs that exceed benefits; and (4) creates a serious inconsistency with other federal and state programs.

National Emissions Standards for Radon Emissions from Operating Mill Tailings

I) Regulation

The U.S. Environmental Protection Agency (EPA) finalized its rulemaking, "40 CFR Part 61, Subpart W: Revision of National Emission Standard for Radon Emissions from Operating Mill Tailings" on Jan. 17, 2017. This rulemaking marks an expansion of EPA Clean Air Act (CAA) National Emissions Standards for Hazardous Air Pollutants (NESHAP) authority to include fluid retention impoundments such as evaporation ponds, storage ponds, and other similar ponds at uranium recovery facilities (non-conventional impoundments).

II) Problems with the Regulation

The rulemaking is an unnecessary and unlawful expansion of EPA's Subpart W CAA authority in a manner that undermines the jurisdictional limits placed on EPA in the Atomic Energy Act (as amended by the Uranium Mill Tailings Radiation Control Act). The rule contradicts 20 years of consistent interpretation that Subpart W is only applicable to uranium mill tailings impoundments. EPA's position is inconsistent with the language and the rulemaking history associated with Subpart W since Subpart W specifically references "uranium mills and their associated tailings." In addition, the preamble to the preexisting rule specifically states that the radon cover requirements in Subpart W's work practice standards are not intended to apply to such fluid retention impoundments.

EPA's decision to regulate these non-conventional impoundments means that uranium recovery licensees are now required to obtain an EPA construction permit for each impoundment and evaporation pond *as well as* a U.S. Nuclear Regulatory Commission (NRC) license for the same facilities. This duplicative regulation imposes new costs that are entirely unnecessary as EPA specifically acknowledged in the proposed rule's preamble that the scientific data shows that such impoundments pose little risk to human health and the environment. Recent science confirms EPA's earlier conclusions that risks are minimal. Despite any evidence of risk, non-conventional impoundments will be subject to the burdensome and onerous requirements including the requirements for daily inspections and weekly collection of photographic evidence to verify water levels in such impoundments.

III) E.O. 13777 Criteria

This rulemaking is a candidate for revision under E.O. 13777 as it: (1) is unnecessary as EPA has not identified a risk to human health or the environment; and (2) creates a serious inconsistency with other federal and state programs.

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To: Heidi McAuliffe[hmcauliffe@paint.org]
Cc: David Darling[ddarling@paint.org]; Andy Doyle[adoyle@paint.org]; Dravis, Samantha[dravis.samantha@epa.gov]
From: Bolen, Brittany
Sent: Wed 5/17/2017 6:14:17 PM
Subject: Re: ACA's Comment Letter on EPA Reg Reform

Thanks, Heidi. Yes, we're getting lots of help to sort through comments. Appreciate you sending them directly to us as well. Will let you know if we have follow-up questions.
Best,
Brittany

> On May 17, 2017, at 1:01 PM, Heidi McAuliffe <hmcauliffe@paint.org> wrote:
>
> Hi Brittany, I hope you are doing well and that you have a lot of help sifting through the 55,000 + submissions to the reg reform docket!!
>
> I am sharing ACA's comments with you directly as we discussed. Our comments stick to the format that we talked about so that you can discern the issue, impact, costs and suggested solution quickly. We would be happy to follow up with you and provide additional information on any of the issues that we have highlighted. In a recent coalition meeting, Samantha Dravis suggested that trade associations point out some of the smaller regulatory distractions that impede innovation and are burdensome. I believe that we have provided several examples of significant issues like the Ozone rule but also some of the smaller ones like the triennial reporting in the aerosol coatings regulation.
>
> Thank you for your willingness to take a look at our suggestions. I would like to follow up with you in the next few weeks to discuss any priority issues that catch your eye.
>
> Please let me know if you have any questions at all,
>
> Heidi
>
>
> Heidi K. McAuliffe ▪ American Coatings Association ▪ Vice President, Government Affairs
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> From: Bolen, Brittany [mailto:bolen.brittany@epa.gov]
> Sent: Wednesday, May 3, 2017 6:27 PM
> To: David Darling <ddarling@paint.org>
> Cc: Heidi McAuliffe <hmcauliffe@paint.org>
> Subject: RE: Once-in, Always-in rule
>
> Thanks, David. It was a pleasure meeting you, too.
>
> From: David Darling [mailto:ddarling@paint.org]
> Sent: Wednesday, May 3, 2017 8:50 AM

> To: Bolen, Brittany <bolen.brittany@epa.gov<mailto:bolen.brittany@epa.gov>>
> Cc: Heidi McAuliffe <hmcauliffe@paint.org<mailto:hmcauliffe@paint.org>>
> Subject: Once-in, Always-in rule
>
> Hi Brittany, it was a pleasure speaking with you yesterday, I wanted to follow-up with the 2007 proposed "once-in always in" policy rule - the citation is 72 Federal Register 69 (January 3, 2007) - docket number EPA-HQ-OAR-2004-0094- here is a link to the rule - https://www3.epa.gov/ttn/atw/gp/fr03ja07.pdf
>
> Best regards,
>
> David Darling
>
> Sent from my iPhone
> <Dravis Ltr. Reg Reform 5.15.17 final.pdf>

To: Dravis, Samantha[dravis.samantha@epa.gov]
From: Dana O'Brien
Sent: Wed 5/17/2017 11:46:39 AM
Subject: BIO Food and Agriculture Comments to the EPA Docket
BIO Comments on EPA Evaluation of Existing Regulations.pdf

Samantha – I want to ensure you have a copy of Bio Food and Agriculture's comments to the EPA docket. Let me know if you have any questions or would like to talk more with our regulatory gurus. Dana.

_____

Dana M O'Brien

Executive Vice President | Food & Agriculture

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Biotechnology Innovation Organization

May 15, 2017

Environmental Protection Agency
Office of Regulatory Policy and Management, Office of Policy (1803A)
1200 Pennsylvania Avenue NW
Washington, DC 20460

Submitted Electronically via Federal eRulemaking Portal (http://www.regulations.gov)

Re: Docket ID No. EPA-HQ-OA-2017-0190. Evaluation of Existing Regulations.

Dear Sir or Madam:

The Food and Agriculture Section of the Biotechnology Innovation Organization (BIO) is pleased to submit these comments in response to the U.S. Environmental Protection Agency's (EPA) request for public input to inform its "Evaluation of Existing Regulations," recently published in the Federal Register.[1] We focus our comments here on EPA regulations promulgated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetic Act (FFDCA) as applied to certain products of agricultural biotechnology.

BIO is the world's largest trade association representing roughly 1,000 biotechnology companies, academic institutions, state biotechnology centers and related organizations across the United States and in more than 30 other nations. BIO members are involved in the research and development of innovative healthcare, agricultural, industrial and environmental biotechnology products. BIO represents many of the agricultural biotechnology product developers in North America, including companies developing products subject to EPA oversight and the relevant regulations referenced herein.

Under the 1986 Coordinated Framework for Regulation of Biotechnology (Coordinated Framework),[2] three U.S. federal agencies review and authorize commercial agricultural biotechnology-derived products: EPA, the U.S. Department of Agriculture (USDA), and the U.S. Food and Drug Administration (FDA). Through the Coordinated Framework, biotechnology-derived plants have produced multiple benefits, including decreased production costs, increased crop yields due to reduced insect damage, and improved food safety.

Under the Coordinated Framework, EPA's role in the oversight of products of agricultural biotechnology is to regulate pesticide-like substances produced in biotechnology-derived plants. These substances, referred to as "plant-incorporated protectants" or "PIPs," are typically naturally occurring proteins that are harmful only to a narrow range of crop pests. In most cases the plants involved are the so-called "Bt" crops, which produce a protein derived from a common soil bacterium, Bacillus thuringiensis, to control certain insect pests that feed on the plant. As with conventional chemical pesticides, EPA regulates PIPs under FIFRA.[3] Additionally, as with conventional pesticide residues, EPA also regulates PIP residues in food or feed crops under Section 408 of the FFDCA.[4] EPA regulations defining regulatory requirements, criteria, and procedures for PIPs under FIFRA and FFDCA are codified in 40 CFR Part 174.

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[1] 82 FR 17793 (April 13, 2017).
[2] 51 FR 23302 (June 26, 1986).
[3] 7 U.S.C. 136 et seq.
[4] 21 U.S.C. 321 et seq.

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Crop varieties containing PIPs have been in widespread use in agriculture for the last 20 years and have a long history of safe use. Since 1995, EPA has approved 36 different PIPs for commercial use in several crops.[5,6] In 2016, Bt varieties of cotton and corn accounted for 84% and 79% of total U.S. production acreage, respectively.[7] A 2016 review of 20 years of safety data prepared by the National Academies of Sciences concluded that the widespread planting of PIP crops resulted in significant decreases in the use of chemical pesticides, decreased presence of pest insects, reduced yield losses due to pest damage, and increased biodiversity on farms using Bt crops relative to farms treated with synthetic insecticides.[8] PIPs are generally considered low risk pesticides as they are biodegradable, activity is specific to target pests, they do not accumulate in the soil, and serve EPA's goal of reducing chemical usage while providing effective means of targeted pest control. In many cases, the same proteins produced in PIP crop varieties are approved for use in organic agricultural production when applied externally to the plant.

Despite these products' long history of safety and documented environmental benefits, EPA has singled out PIP products for a disproportionate level of regulatory scrutiny, resulting in a negative impact on agricultural innovation and threatening America's leadership role in this field. EPA's regulatory performance with respect to ag-biotech products has declined over the years, as regulatory requirements and costs have increased significantly. Even though Congress enacted the Pesticide Registration Improvement Act (PRIA) to impose very specific time limits for reviews of new uses and registration of new PIPs in genetically engineered (GE) plants, the EPA's Office of Pesticide Programs (OPP) often extends the legally-mandated time limits for biotech products. Delays are frequently caused by unnecessary and redundant additional external reviews and lengthy discretionary comment periods that provide no additional risk assessment value. Further, EPA routinely grants only time-limited conditional registrations for PIPs.

The economic costs associated with EPA review and registration of pesticides are significant. In addition to establishing timeframes for regulatory reviews, PRIA defines the fees that EPA may collect to support its reviews. In Fiscal Year 2016, the EPA collected more than $48 million from registrants in PRIA registration and maintenance fees.[9] Costs incurred from registration fees are multiplied by a proliferation in the number of individual actions that require separate EPA review and registration. In addition to PRIA-associated fees, developers incur costs to conduct studies in support of EPA review, as well as ongoing costs to maintain compliance with registration requirements. Significant opportunity costs also result from lengthy delays in EPA review. Ultimately, these economic burdens can stifle innovation and delay or prevent the development and marketing of environmentally beneficial products.

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[5] https://www.epa.gov/ingredients-used-pesticide-products/current-and-previously-registered-section-3-plant-incorporated

[6] It should be noted that, to date, EPA has granted most, if not all, PIPs "tolerance exemptions," which means the PIP is considered so safe that the EPA does not establish a maximum level at which the substance may be found in foods.

[7] https://www.ers.usda.gov/data-products/adoption-of-genetically-engineered-crops-in-the-us/recent-trends-in-ge-adoption/

[8] National Academies of Sciences, Engineering, and Medicine (2016). Genetically Engineered Crops: Experiences and Prospects.

[9] This figure includes all PRIA categories, not just those associated with PIPs. EPA does not report fee data by PRIA category. https://www.epa.gov/sites/production/files/2017-02/documents/paying-fees-fy16.pdf, and https://www.epa.gov/sites/production/files/2017-02/documents/maintenance-fees-fy16.pdf

EPA's oversight should be based upon the best available science and narrowly focused on its statutory mandate to assess unreasonable adverse effects on the environment and reasonable certainty of no harm. As the U.S. government contemplates regulatory policy priorities for the EPA, it will be important to take into account the history of safe use and environmental benefits of biology-based agricultural solutions, the similarity of these products to those developed by conventional methods, and the impact of the agency's regulatory practices on modern agricultural innovation and farmer access to biology-based tools.

In what follows, we provide concrete examples of EPA regulations related to products of agricultural biotechnology that are either outdated, unnecessary, ineffective, or that impose costs exceeding their benefits— with suggested actions EPA could take to improve them.

Right-Sizing Regulatory Oversight

EPA should ensure that FIFRA is applied in a way that promotes agricultural innovation and reduces regulatory burdens

While it has always been EPA's stated intention to regulate the safety of the pesticidal substance itself and not the plant producing the substance, in practice this is not always the case. EPA requires separate reviews and registrations each time the PIP is added to a different plant, another registered PIP stack[10] combination, or when the PIP is deployed as a seed blend. Additionally, EPA requires separate reviews and registrations each time the active ingredient associated with a registered PIP is expressed in a different crop species, leading to a proliferation of separate reviews and registrations for what are identical pesticidal substances. This approach leads to unnecessarily redundant reviews, significantly increased registration costs, and is inconsistent with FDA's policy on food safety assessment of non-pesticidal proteins.[11] EPA should conduct its regulatory review of PIPs under FIFRA in a way that ensures that products meet the applicable safety standards, but that reduces unnecessary or duplicative data collection and submission and ensures that products reach market on an efficient and predictable timeline.

In addition, EPA should implement FIFRA's provisions, e.g., related to the registration of establishments, recordkeeping, reporting, inspection, and import-export requirements, in a manner that incentivizes the development and continued use of PIPs and other innovative agricultural technologies, recognizes the environmental benefits conferred by use of these products, and provides a regulatory environment that supports the United States' ability to compete in the global agricultural marketplace.

A companion change to the tolerance setting process under the FFDCA would also be beneficial. Specifically, by granting tolerance exemptions for all food crops, or broad crop groups, EPA would eliminate needless rulemaking proceedings where any PIP residues that might occur have already been determined to be safe by the Agency.

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[10] A "breeding stack" combines two or more PIPs into a single plant variety via conventional plant breeding. A "molecular stack" combines two or more PIPs into a single plant variety via recombinant DNA techniques.

[11] https://www.fda.gov/food/guidanceregulation/guidancedocumentsregulatoryinformation/biotechnology/ucm096156.htm

EPA regulations define a "PIP" as "a pesticidal substance that is intended to be produced and used in a living plant, or in the produce thereof, and the genetic material necessary for production of such a pesticidal substance" (emphasis added).[12] Because the genetic material itself (DNA) is not a pesticidal substance, EPA could remove this phase from its PIP definition. This would allow the agency to focus its risk assessment on the safety of the pesticidal substance itself— independent of the plant the genetic sequence is inserted into—and thereby significantly eliminate the many redundant reviews and registrations of the same pesticidal substance. Relatedly, EPA could revise its regulations to discontinue the practice of regulating harmless marker genes as "inert ingredients."

EPA should implement expedited "reduced risk" registration requests for PIPs under FIFRA Section 3(c)(10)

This section of FIFRA requires the Administrator to consider any registration application or a registration amendment for an expedited review if the pesticide can accomplish one of four possible objectives:

i. Reduce the risks of pesticides to human health.
ii. Reduce the risks of pesticides to non-target organisms.
iii. Reduce the potential for contamination of groundwater, surface water or other valued environmental resources.
iv. Broaden adoption of integrated pest management strategies or make such strategies more available or more effective.[13]

Experience has shown that all of the commercialized PIPs accomplish more than one of the above goals, making them eligible for expedited review.

EPA should exempt familiar PIPs from registration requirements as "minimum risk pesticides"

EPA regulations include a mechanism to identify certain substances as "minimum risk pesticides" and thus exempt from certain FIFRA requirements.[14] Most of the substances on the list are relatively safe, naturally-occurring substances used as pesticides. Bt proteins that EPA has previously reviewed, has had many years of experience with, and have been found to be safe should also be included on this list of exemptions. Similarly, EPA should finalize a rule[15] it proposed in 2007 that would have excluded from FIFRA requirements certain PIPs that provide resistance to viral diseases (this class of PIPs confer viral resistance without even producing a pesticidal protein).

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[12] 40 CFR 174.3
[13] FIFRA Sec 7(c)(10)(B)(i-iv)
[14] 40 CFR 152.25(f).
[15] 72 FR 19589-19640, 19640-19660 (April 18, 2007).

EPA should publish guidance on appropriate data for assessing human health and environmental risks of PIPs

EPA can provide greater transparency and predictability for developers by publishing guidance describing the core data that are generally sufficient and necessary for assessing the risks of PIPs and how those data are used in the risk assessments. EPA should also provide guidance on additional data that may be expected if specific risks require further evaluation based on indications or uncertainties in the core data. These data expectations should be based on the EPA's 25 years of experience in evaluating PIPs for unreasonable adverse effects on the environment and reasonable certainty of no harm to human health. Such guidance should 1) recognize the long-established safety of PIP products; 2) have a clear connection to specific protection goals and risk-assessment endpoints; 3) be limited to any potential risks of the PIP itself, and not the plant; and 4) not include data already extensively reviewed by other agencies. Additionally, EPA has a number of mechanisms at its disposal to reduce unnecessary data requirements, including agency determinations that certain data requirements are not applicable, as well as agency-driven or submitter-requested data waivers.

EPA should engage with industry on best practices regarding insect resistance management (IRM)

Preventing the evolution of pests resistant to PIPs is an issue of critical importance to our industry. We appreciate that the government, including EPA, has an important role to play in delaying the evolution of resistant pests. However, EPA IRM requirements have become increasingly onerous and proscriptive, inconsistent with resistance management for non-PIP conventional chemistries, and may push the boundaries of EPA statutory authority. We encourage EPA to work with industry to identify smart, flexible IRM best practices to help maintain the continued durability of our products.

EPA should eliminate redundant oversight of field trials overseen by USDA

USDA's Animal and Plant Health Inspection Service (APHIS) oversees field trials of certain genetically engineered plants. If the GE plant is producing a PIP, EPA will often require an experimental use permit (EUP) to oversee the same field trial, imposing near-duplicate (and sometimes contradictory) regulatory requirements. In those instances of jurisdictional overlap, EPA's redundant oversight is unnecessary.

EPA should eliminate the double-standard for herbicides applied to herbicide-tolerant crops

In addition to regulation of PIPs, EPA also oversees the safety of herbicides applied to crops genetically engineered to be resistant to the particular herbicide. In practice, EPA discriminates against herbicides associated with GE crops by routinely requesting additional data and studies, extending comment periods, using scientific advisory panels, and frequently extending PRIA-mandated timeframes. We believe there is no scientific basis for treating herbicides associated with herbicide-tolerant crops, as a class, differently than any other herbicides. EPA should ensure that this double-standard is eliminated from its safety reviews.

Right-sizing Regulatory Scope

Over the last few years, EPA has made several attempts to expand the scope of its regulation by broadening its interpretation of what it considers to be a PIP. Our comments above focused on existing EPA regulations appropriate for repeal, replacement, or modification, but we also strongly discourage EPA from broadening its scope of regulation into new areas without a clear justification that the costs of expanded regulation would not outweigh the impacts on innovation of low-risk and environmentally beneficial products.

EPA should not stretch its FIFRA authority to regulate non-pesticidal biotech traits or substances

We believe that EPA should limit its regulation of PIPs to those pesticidal substances that mitigate the adverse effects of a pest through a mode of action directly toxic to a pest. FIFIRA includes in its definition of a pesticide plant regulators. The term "plant regulator" means "any substance or mixture of substances intended, through physiological action, for accelerating or retarding the rate of growth or rate of maturation, or for otherwise altering the behavior of plants or the product thereof."[16] Plant growth regulators are chemicals applied to plants in a variety of agricultural and horticultural contexts to alter the timing of certain stages of plant growth, for example, to change the timing of flowering. We strongly oppose interpreting genetic changes that alter plant growth to be a plant regulator-like pesticide as defined by FIFRA. This represents an implausible stretch of FIFRA, far beyond its original intent to regulate the safety of toxic chemical substances in the environment. Expansion of EPA oversight into new areas will only come at a cost of significant impact on innovation with little benefit to human health and the environment.[17]

EPA should not regulate products of plant breeding innovation that can be created via traditional plant breeding methods

Increasingly, breeders are developing enhanced plant varieties using the latest plant breeding methods, such as genome editing. In many (if not most) instances, these plants would not produce any pesticidal substance, and therefore should not be considered a PIP and subject to FIFRA regulation. Further, because many products of plant breeding innovation will be similar to or indistinguishable from varieties that could be produced through more conventional plant breeding techniques, there is no justification to impose additional pre-market oversight on such products. EPA recognized the safety record of plant breeding in the United States and that plant breeders have provided a safe food supply and have standards of practice to maintain this safety record. Based on this safety record, EPA exempted PIPs derived through conventional breeding from sexually compatible plants from almost all regulatory oversight, except the post market reporting of adverse effects. EPA stated that it did not want to

[16] FIFRA Sec 7(136)(v)

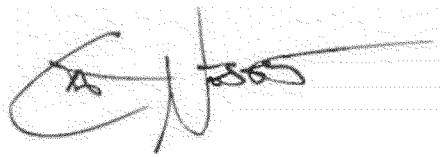
[17] In 2008, EPA determined that a GE cantaloupe, which had been engineered to ripen more slowly— and thus prevent food waste— contained a PIP, because it was engineered to have reduced levels of a naturally-occurring plant growth regulator (ethylene). Similarly, in 2010, EPA determined that a plum tree engineered to be resistant to plum pox virus, a devastating disease of plums and other stone fruit species, produced a PIP because it conferred resistance to a pest— despite the fact that the trees didn't produce any new substance that could be identified as pesticide-like. Following EPA's rulings, neither product was ever brought to market.

unnecessarily supplant the self-regulating aspects of plant breeding.[18] Recognizing the long safety record of plant breeding in the United States, EPA has exempted PIPs derived from conventional plant breeding from FIFRA regulation. Some PIPs developed through certain genome editing applications meet the definitions under the EPA's existing exemption for conventional breeding and EPA should explicitly confirm this interpretation.

In summary, given high regulatory costs and long history of safety and environmental benefits associated with PIPs, we strongly encourage EPA to use this opportunity to reexamine the regulatory burdens imposed on developers of plants producing PIPs and the adverse impacts those burdens have on agricultural innovation. As we have documented here, EPA has a number of methods by which the agency could right-size its regulatory system, while still achieving its important mission of protecting human health and the environment.

Thank you for the opportunity to provide comments on EPA's regulatory review process. Please feel free to contact me directly if you have any questions about our comments.

Sincerely,



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[18] 66 FR 33783

To: Dravis, Samantha[dravis.samantha@epa.gov]
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Sent: Tue 5/16/2017 3:51:49 PM
Subject: EER
RegReformComments.pdf
RegMaze.pdf
NADA Fed Regulatory Report FINAL May 22 2014.pdf
Critique of EPA Revised SNAP Regulations for Refrigerants.docx

AA Dravis and Director Rees:

Please find attached a copy of the comments NADA filed yesterday, w/attachments. I am also attaching a document on a related topic produced by the Caesar Rodney Institute. When and as appropriate, NADA will provide EPA with additional constructive suggestions for reducing regulatory costs and burdens without compromising the Agency's core missions.

Thank you for the opportunity.

Doug

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NADA

The Impact of Federal Regulations on Franchised Automobile Dealerships

For the National Automobile Dealers Association

May 2014

All statements, findings, and conclusions in this report are those of the authors and do not necessarily reflect those of the National Automobile Dealers Association.

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Acknowledgements

The Center for Automotive Research (CAR) would like to thank the owners, managers, and other staff at the dealerships that participated in the research for their time, patience, and assistance in collecting and validating the data inputs used in this study. These individuals provided valuable insights into the procedures for complying with federal mandates, as well as estimates of the costs federal regulatory compliance at U.S. light vehicle dealerships.

This study is the result of a group effort. The authors would like to thank Sean McAlinden, CAR's Executive Vice President of Research and Chief Economist, for his mentorship and important contributions to the economic analyses; Diana Douglass, who contributed greatly to the coordination of the project and the production of this document; and Lisa Hart, for her editorial assistance.

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About CAR

The Center for Automotive Research is a non-profit organization based in Ann Arbor, Michigan. Its mission is to conduct research on significant issues related to the future direction of the global automotive industry, organize and conduct forums of value to the automotive community, and foster industry relationships.

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Executive Summary

At the request of the National Automobile Dealers Association (NADA), the Center for Automotive Research (CAR) conducted this study on the economic costs of U.S. light vehicle dealerships' federal regulatory compliance. Cost estimates are for 2012 and are based on interviews that took place in 2013 and 2014.

According to the analysis in this study, in 2012 the average dealership incurred $182,754 annually in federal regulatory compliance costs for regulations pertaining to employment, business operations, vehicle financing, sales, marketing, and vehicle repair and maintenance. These regulatory costs comprised 21.7 percent of the average dealership's 2012 before-tax net profits, or nearly $2,400 per dealership employee. Regulations pertaining to employment, accounting, and vehicle financing made up more than 63 percent of the estimated federal regulatory compliance costs.

Though estimating the cost of compliance with federal regulations is challenging, it is clear these costs are present and impactful at all levels of a dealership organization; indeed, the average dealership needed to sell 106 vehicles in 2012 just to recoup their regulatory compliance costs.

The $3.2 billion spent on regulatory compliance in 2012 was passed on to consumers in the form of higher prices; resulting in an estimated economic cost (total of lost sales revenues and lost consumer plus producer surplus) to light vehicle dealerships of $7.7 billion, and a 10,550 reduction in direct dealership employment. The overall impact on the U.S. economy—including direct, indirect, and expenditure-induced effects—is estimated at $10.5 billion in lost economic output and more than 75,000 fewer jobs in 2012. Every $1 increase in a dealership's regulatory compliance costs results in $3.28 in lost output in the U.S. economy and a net loss to the U.S. Treasury of $0.44.

U.S. light vehicle dealers must comply with a wide range of federal, state, and local regulations, which take time and add to the costs of doing business. As suggested above, these costs are passed along to vehicle purchasers in the form of higher prices, resulting in lower vehicle sales and reduced U.S. employment.

This study examines only the costs incurred by U.S. light vehicle dealerships to comply with a group of some 60 federal regulations; a mere subset of the full catalogue of federal regulations with which light vehicle dealerships must comply. Absent from this subset are "upstream" product regulations, such as federal fuel economy mandates imposed on vehicle manufacturers. The federal government itself estimates that vehicle regulations governing safety and emissions alone comprised 21.5 percent of the $25,517 average cost of a new light-duty vehicle in 2012. Also absent from the subset of Federal regulations examined by this study are state and local mandates which cover other areas of concern or which layer on top of federal regulations, increasing the burden on dealership.

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Introduction

U.S. light vehicle dealerships must comply with a myriad of federal, state, and local regulations, and that compliance takes time and adds to the costs of doing business. These costs are passed along to automotive consumers in the form of higher prices, which result in overall lower vehicle sales. This study looks at U.S. light vehicle dealerships' aggregate cost of compliance with a set of selected federal regulations in the United States. The researchers then estimate the proportion of these costs that are passed on to consumers, the resulting reduction in sales volume, and the economic loss associated with light vehicle dealerships' federal regulatory compliance. The costs of compliance with federal product regulations and state and local mandates are excluded from this study. The U.S . Department of Commerce Bureau of Economic Analysis estimates that federal product regulations regarding safety and emissions comprised 21.5 percent of the $25,517 average cost of a new vehicle in 2012.[1]

Light vehicle dealerships[2] are located throughout the country, and are substantial contributors to local, state, and U.S. economies. In 2012, there were over 17,500 firms engaged in the business of retailing cars and light trucks in the United States, with direct employment of more than 963,000 and annual payroll of over $51 billion. [3] New vehicle dealership revenues of $613 billion in 2011 represented 14.8% of all U.S. retail sales revenue,[4] and CAR estimates that automobile dealers generated over $31 billion in sales, business, and employee personal income taxes to local and state governments, and over $12.6 billion in federal employee personal income tax revenues in 2010.[5]

Dealers are subject to federal regulations that pertain only to those engaged in automotive and commercial truck retail, maintenance, and repair, but they also must comply with regulations that apply more broadly to all employers, all small businesses, all finance organizations, all advertisers, and all retailers. Automotive dealer-specific regulations cover a broad range of issues—including environmental concerns, tax and finance rules, and various consumer protections. Within this subset of regulations, there are some that are mandatory, where fines are levied for non -compliance; some that are required only to receive a benefit (such as a loan or tax credit); and some that are voluntary. There is a range of effort required to comply with each regulation —from very low efforts (refraining from prohibited practices), to very costly process burdens (capital expenditures, documentation, and filing evidence of compliance with government agencies).

---

[1] U.S. Department of Commerce, Bureau of Economic Analysis. (2013).

[2] Defined as establishments in NAICS classification 441110 New Car Dealers—This industry comprises establishments primarily engaged in retailing new automobiles and light trucks, such as sport utility vehicles, and passenger and cargo vans, or retailing these new vehicles in combination with activities, such as repair services, retailing used cars, and selling replacement parts and accessories.

[3] NADA Data: State of the Industry Report. (2013).

[4] U.S. Census, Statistics of U.S. Businesses. (2011).

[5] Hill, Kim, Debbie Menk and Joshua Cregger. "Assessment of Tax Revenue Generated by the Automotive Sector." Center for Automotive Research. (April 2012).

17cv1906 Sierra Club v. EPA - 6/22 Production ED_001523_00008295-00008

Methodology

This study involved an exhaustive review of existing government regulatory compliance analyses, a thorough literature review, primary data collection, estimation of the cost of dealership compliance with the set of selected federal regulations, and a comprehensive economic analysis to estimate the magnitude of the economic losses (higher vehicle prices and lower sales volumes) associated with federal regulatory compliance.

A catalog of major federal regulations that apply to automobile dealers entitled, "The Regulatory Maze: NADA's Annual Update on Federal Regulations," served as the starting point in developing a collection of relevant federal regulations for this analysis. The full listing of the regulations included can be found in Appendix A. The 61 regulations selected for inclusion in this research pertain to employee relations, employee benefits, facilities, business administration, accounting, emergency planning, vehicle financing, sales, marketing, and environmental and employee health regulations relating to service and body shops. Costs of compliance with regulations required only to receive a benefit—such as paperwork associated with the Small Business Administration's Dealership Floor Plan Financing Program; new regulations for which the cost of compliance may not yet be known—such as the Affordable Care Act; or *de minimis* regulations—such as tax exemption procedures for diplomats' vehicle purchases; were excluded from this research. In addition, federal product regulations—such as safety or fuel economy mandates that apply to vehicle manufacturers—were also excluded from this research, as were any state or local regulations pertaining to light vehicle dealerships.

Accounting for the cost of regulatory compliance for automotive dealerships, and the economic consequences of this cost burden is a significant challenge. The U.S. government publishes estimates of time and/or cost required to comply with every regulation subject to the Paperwork Reduction Act of 1995 (PRA) at reginfo.gov, the regulatory portal of the Office of Management and Budget's (OMB) Office for Information and Regulatory Affairs (OIRA). OIRA reviews and publishes data and reports on the information collection activities for all federal government agencies. All federal agencies must estimate the burden of public information collection activities in service of regulatory compliance.

At the outset, researchers knew that supplemental data collection (through dealership surveys) would be necessary to fill in the blanks where government estimates were not available. As it turned out, CAR researchers found the available government regulatory compliance cost data proved to be inadequate for the purposes of estimating the regulatory cost burden borne by a single industry. In addition, government estimates were available for only about 20 percent of the subset of federal regulations included in this study. The study relies almost exclusively on the analysis of primary regulatory cost data collected from comprehensive case study interviews with light vehicle dealerships. Data were gathered through in-person and phone interviews using a structured interview protocol.

CAR researchers used the cost estimates gathered from structured interviews to feed into an economic analysis to determine the proportion of federal regulatory compliance costs that are passed along to consumers in the form of higher vehicle prices, and the loss of total sales volume attributed to these higher prices.

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Review of Existing Data and Research

While data collected by federal agencies on the burden imposed by many regulations, the quality of information on the regulatory compliance burden varies considerably by federal agency —despite concerted efforts to improve quality and achieve greater standardization [6]. There is often considerable uncertainty on the costs of regulatory compliance at the time a new rule is promulgated. As rules change or are amended or reauthorized over time, the government's cost and time burden estimates are revised to be more in line with actual hours and costs. Thus, government estimates tend to be more reliable for regulations that have been on the books for some time. For many rules, the government's estimate of the regulatory burden is available in terms of cost or hours, but not both measures.[7]

OIRA's parent agency, OMB, publishes a summary assessment of regulatory costs and benefits in an annual Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities. In addition, the U.S. Government Accounting Office (GAO) has issued reports on several of the individual regulatory actions or rules that were included in the final list of 61 rules included in this study. GAO's reviews assess the effectiveness of rulemaking, including the economic impact of the regulations they review, and suggest ways in which the regulation itself or the regulatory processes may be improved.

Challenges to the Utilization of Government Regulatory Cost Estimates

CAR's review of the federal regulatory burden on light vehicle dealerships began with an examination of available government regulatory evaluations. Sources reviewed included—but were not limited to: regulations.gov, government agency and program websites, the Federal Register, and OMB-OIRA's annual *Report to Congress* publication series. The text of regulations, regulatory preambles, and the contents of regulatory dockets were explored to review Regulatory Impact Analyses (RIAs), Regulatory Flexibility Analyses (RFAs), and general economic impact estimates. The authors also reviewed non-governmental analyses of regulatory compliance costs found in scholarly reports and journals. Upon completing this review, researchers determined that due to numerous challenges in acquiring and normalizing the government's cost estimates to current dollars and a relevant unit of analysis, the proposed research could not rely on federal government regulatory cost estimates.

At the most basic level, regulatory estimates do not exist for all regulations that impact automobile dealerships. Of the 61 explored rules and regulations, regulatory cost estimates could only be obtained for a third. Other obstacles were the inaccessibility of evaluations, vintage, incomplete data, non-comparable methodologies, and the accuracy of the evaluations. These challenges are acknowledged by OIRA itself: "Individual regulatory impact analyses vary in rigor and rely on different assumptions,

[6] There is some evidence that indicates an overall improvement in quality in regulatory cost assessments conducted after 1993 (post issuance of Executive Orders 12866 and 13563), but standardization has not yet been achieved.

[7] For instance, the Federal Trade Commission's Consumer Product Warranty Rule Information Collection Review (ICR) is only provided in terms of hours, but the ICR for the National Highway Traffic Safety Commission's American Automobile Labeling Act (AALA) states the regulatory burden in terms of both hours and dollars.

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including baseline scenarios, methods, and data, thus summing across estimates involves the aggregation of analytical results that are not strictly comparable."[8]

Inaccessibility of Data

A primary constraint on the use of governmental regulatory cost estimates is that the data were frequently inaccessible. Evaluations prior to 1995 can only be retrieved through acquisition of physical, archival copies. Accessing these records was too time-consuming and inefficient for the scope of this study. Also, existing regulatory information is not always publicly available, and reviews of certain data sources proved circular.[9] Other references within the OIRA reports were to the *Regulatory Information Service Center & Office of Information and Regulatory Affairs Combined Information System* (ROCIS), which is not publicly accessible.

Age of Evaluation

The age of the regulations and their corresponding compliance cost evaluations present a series of challenges to any wide-ranging regulatory cost study. The age of an estimate may be problematic if it directly relates to the economic condition of the time. Differing data vintages can complicate the comparison, let alone the summation of cost estimates. The regulations examined as part of this study have widely ranging dates of promulgation. Even within a single regulation or rule, summing the initial cost estimate and the estimates of incremental cost associated with regulatory amendments may not be appropriate due to changes in underlying economic structures, and potential methodological differences between earlier and later estimates.[10] OIRA provides a salient quote:

> "As discussed in previous Reports, OMB has chosen a ten-year period for aggregation because pre-regulation estimates prepared for rules adopted more than ten years ago are of questionable relevance today."[11]

Methodological Incompatibility

Methodological differences, whether resulting from agency-specific philosophies, constraints imposed by lack of data, or other factors, present challenges to the comparability of regulatory cost estimates arrived at separately. There is a great disparity in the quality, content, and methods of regulatory evaluations.[12] Where one evaluation may describe anticipated compliance costs as annualized costs

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[8] Office of Information and Regulatory Affairs. "2008 Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities." 5.

[9] One such example is the OIRA Report to Congress annual publication series, which provided total annualized cost estimates for some of the rules and regulations selected for this research. In a few cases, the OIRA report identified source documents as previous OIRA reports.

[10] In other words, as regulatory evaluations age, the underlying assumptions are likely to lose relevance. What was an accurate or reasonable assessment at the time the evaluation was published may be wholly inapplicable today. For example, the incidence of a workplace hazard—such as asbestos—may be lower in the present day as a result of the regulation itself. In addition, new, and perhaps more cost-effective technologies to achieve compliance or mitigate risk may have proliferated; new and superior compliance procedures may have been developed; or general business practices may have changed so as to render the regulation near irrelevant. A routine governmental review of federal regulatory cost estimates could greatly improve the quality of the data that is available.

[11] Office of Information and Regulatory Affairs. "2008 Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities." 5.

[12] Office of Information and Regulatory Affairs. "2013 Draft Report to Congress on the Benefits and Costs of Federal Regulations and Agency Compliance with the Unfunded Mandates Reform Act." 8-9.

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imposed upon various industries, others may instead state the anticipated total cost to the private sector. Other complications arise from the fact that some cost estimates are detailed at an industry level, but there is inconsistency as to which industries are included.[13] Rarely do two regulatory evaluations consider the same selection of industries, and the majority of regulations identified by NADA do not discuss compliance costs to be incurred by the automotive dealer industry alone—or even its parent sector, retail trade. Researchers did not expect that regulatory cost estimates would be available at the industry level of light vehicle dealerships for every regulation included in this analysis, but given the varying granularity of the industry categories, it proved difficult to disaggregate published cost estimates to a standard unit of analysis for purposes of this study.

Regulatory Cost Estimate Accuracy

The accuracy of the published estimates is closely related to concerns already identified regarding methodological inconsistencies. A body of literature exists on the accuracy of governmental regulatory cost estimates, but most of this literature exists as *ex ante*, or studies performed prior to the adoption of regulations. These studies are often developed parallel to governmental RIAs, but may rely on different assumptions. Examinations of the accuracy of *ex ante* estimates vis-à-vis realized costs is limited by a relative dearth of post-regulation adoption, or *ex post*, evaluations of compliance costs. Where comparison studies of *ex ante* and *ex post* estimates have been possible, the studies have found that RIAs are substantially more likely to *overestimate* compliance costs than they are to *underestimate* the costs of regulatory compliance.[14] [15]

Several factors contribute to the frequency of overestimation, ranging from particularities of the implemented methodologies, lack of requisite data, and other uncertainties. As RIAs are performed *ex ante*, various assumptions typically based on current business practices and available technologies must be made regarding likely compliance paths. Across the literature on the *ex ante* / *ex post* gap, the most frequently cited reason for *ex ante* overestimation is the unanticipated use of existing technologies or

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[13] For example, the 2012 Hazard Communication Final Rule describes anticipated costs to industries at the 3-digit NAICS level, while the 1991 Bloodborne Pathogens rule only discusses a handful of selected industries, primarily within the healthcare, education and protection (police, fire, etc.) industry groups. (U.S. Department of Labor, Occupational Safety and Health Administration. Hazard Communication. Occupational Exposure to Bloodborne Pathogens, Section 7-VII.)

[14] Bailey et al. "Mind the gap! Comparing *ex ante* and *ex post* assessments of the costs of complying with environmental regulation."
Hammitt, James. "Are The Costs of Proposed Environmental Regulations Overestimated? Evidence from the CFC Phaseout."
Eisenberry, Ross and Shapiro, Isaac. "Deconstructing Crain and Crain: Estimated cost of OSHA regulations is way off base."
Harrington et al. "On the Accuracy of Regulatory Cost Estimates."
Thompson et al. "Validating Benefit and Cost Estimates: The Case of Airbag Regulation."

[15] Harrington et al. (2000) evaluate the accuracy of the *ex ante* regulatory compliance cost estimates presented in RIAs by comparing them to available private and academic ex post compliance cost estimates. The Harrington study includes 21 U.S. federal regulations, thirteen of which are from the U.S. Environmental Protection Agency (EPA), and eight are from the Occupational Safety and Health Administration (OSHA). The Harrington study considers the *ex ante* estimates of compliance costs to be accurate if the ex post figure falls within the range presented by the RIA. Where only a point estimate is presented in the *ex ante* study, they instead consider the *ex ante* estimates accurate if the ex post figures are within a range of ± 25 percent of the *ex ante* point estimate. Results of this analysis showed seven of the thirteen EPA regulations overestimated compliance costs, and two EPA regulations underestimated the cost. For the eight OSHA regulations, six overestimated compliance costs and one underestimated costs. (Harrington, et al. "On the Accuracy of Regulatory Cost Estimates." 306-307.)

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the development of new technologies. [16] Common methodological sources of over-estimation include alteration of the rule prior to its promulgation yet after RIA completion, and the proclivity of agencies to estimate the expected maximum compliance cost rather than the expected actual cost. Uncertainty in the estimation of baselines encourages overestimation of the number of firms or workers which will be impacted by the regulation. [17] More general data limitations, such as a lack of data on the costs of relevant equipment or technologies, further contribute to the inaccuracy of compliance cost estimates.[18]

Primary Data Collection

The concerns outlined in the previous section prevented use of official government regulatory cost figures in ascertaining the aggregated cost burden of federal regulations on light vehicle dealerships. Due to these concerns, the researchers proceeded to gather cost estimate data directly through case studies of a select group of dealerships.

The breadth and complexity of the selected regulations made the data gathering process better-suited for in-person interviews as opposed to web-based surveys. Dealership-relevant regulations were organized into categories, with descriptions of the specific dealership activities related to each category. For example, the employee relations category encompassed regulations such as the Americans with Disabilities Act, Equal Pay Act, Employment Verification Rules, and Federal Wage-Hour and Child Labor Laws, among others. Other categories included employee benefits, facilities, business administration, accounting, emergency planning, vehicle financing, sales, marketing, and environmental and employee health regulations relating to service and body shops. The costs associated with these categories were also organized by category, including costs for employee compensation, third-party contractors, capital equipment, and supplies. The regulations associated with each category were then used to create a structured interview framework for use during the interviews. A full description of the included regulations is found in Appendix A, and the interview framework document is in Appendix B.

Cost Impact Assessment

The purpose of this paper is to assess the economic impact of Federal regulatory costs on motor vehicle dealerships. To do so, CAR researchers assumed that these costs are passed on to customers in terms of higher prices paid for new and used vehicles and vehicle maintenance and services. It was also assumed that higher prices would reduce dealership business from all departments, and result in lower economic contribution created by the motor vehicle retail sector. Because regulations increase dealership prices and reduce consumer's demand for dealership services, the loss of dealership economic contribution is deemed economic net loss, or so called "dead weight loss." In other words, CAR's model estimates: 1) the loss of consumer demand for the motor vehicle retail sector; 2) the loss of dealership economic contribution (which is consumer plus producer surplus lost, also "dead weight loss"); and 3) the

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[16] Bailey et al. "Mind the gap! Comparing ex ante and ex post assessments of the costs of complying with environmental regulation." 253-254.
Hammitt, James. "Are The Costs of Proposed Environmental Regulations Overestimated? Evidence from the CFC Phaseout."
Eisenberry, Ross and Shapiro, Isaac. "Deconstructing Crain and Crain: Estimated cost of OSHA regulations is way off base." 2-3.
Harrington et al. "On the Accuracy of Regulatory Cost Estimates." 300, 309, 310.
[17] Ibid. 310-312.
[18] Thompson et al. "Validating Benefit and Cost Estimates: The Case of Airbag Regulation." 804, 809-810.

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equivalent loss of U.S. employment from above losses due to an higher prices created by the Federal government's regulation of motor vehicle dealerships.

To estimate motor vehicle dealership revenue loss due to an artificially higher price, one must first carefully define dealership producer price. The producer price index (PPI) differs from the consumer price index (CPI) because PPI measures changes over time in producers selling price, and CPI measures the changes in consumer's purchase price. In addition, PPI does not include sales and excise taxes, which are included in CPI. However, PPI includes other costs and expenditures to producers, which may or may not be passed on to consumers; these include distribution costs, and costs of regulatory compliance. According to the U.S. Bureau of Labor Statistics (BLS), the method to calculate PPI and CPI is a modified Laspeyres index, which includes the targeted commodity's quantity and price. Therefore, PPI can be treated as a revenue deflator for producers, and CPI as an expenditure deflator for consumers. For the purpose of this model, a motor vehicle dealership PPI is required. Unfortunately, BLS only publishes a motor vehicle dealership industry PPI series beginning in 2004 and for years thereafter. With assistance from NADA, CAR researchers were able to construct our own motor vehicle dealership industry PPI from 1978 to 2012, which consists of commodity PPI's of new motor vehicles, used motor vehicles, and automotive maintenance and repair services.

CAR's estimation model is as follows:

Where:

R = *total dealership revenues*

DP = *producer price index of motor vehicle dealerships*

VP = *consumer price index of new motor vehicles*

V = *new motor vehicle sales, in units*

U = *U.S. unemployment rate*

= *the marginal impact of dealership prices on total dealership revenue (R)*

The model also incorporates CPI-new vehicle as an explanatory variable. CPI-new vehicle measures consumer's purchase price of new motor vehicles. During the period of 1978-2012, an average of 60 percent of total dealership revenue was generated by new vehicle sales. Inclusion of CPI-new motor vehicle increases the explanatory power of the model, and allows for a more reliable estimate of dealership PPI elasticity.

In addition to being sensitive to PPI and CPI, dealership revenues are also affected by an array of factors that are not associated with price—such as interest rates and the general economic environment. Many macroeconomic indicators were considered and tested (see Appendix C), but only a few were finally

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selected for inclusion in the model due to statistical problems such as multi-collinearity and autocorrelation. The final non-price explanatory variables included in the model are the unemployment rate and new vehicle sales volumes. The unemployment rate is a proxy for the general economic environment, and new vehicle sales volumes reflect the overall health of the automotive market. Both of these variables are crucial factors in the determination of dealership revenues.

Findings

The results of the data collection interviews and model estimation are summarized and discussed below.

Interview Results

CAR researchers then used a structured interview framework to guide the discussion with principals, general managers, comptrollers, and other staff of eight light vehicle dealerships to estimate cost of compliance with the selected federal regulations. These data were supplemented with data from a larger, multi-dealership conglomerate. The selected dealerships represented NADA's membership, including two that were part of a larger franchise (Dealers C and H), and four single-rooftops (Dealers A, B, D, and E), a range of domestic, Asian, and European brands sold; and a variety of price points, including economy, mid-range, and luxury vehicles. Additionally, two of the dealerships had a body shop (Dealers A and G), as certain regulations pertain only to those dealerships with body shop operations. The dealerships primarily were located in mid-Michigan, southeastern Michigan (Dealers A, B, C, D, and E) and northern Ohio (Dealers F and G), with one in Maryland (Dealer H). During the interviews, the order of topics was randomized to prevent any biases, and interviewees were encouraged to substantiate cost estimates, where appropriate. Interviewees were asked to use 2012 costs in their estimates.

Dealership Statistics

Table 1 summarizes the basic descriptive statistics for each dealership in the study.

Table 1: Individual Dealership Profiles

	Dealer A	Dealer B	Dealer C	Dealer D	Dealer E	Dealer F	Dealer G	Dealer H
Annual Revenue ($MM)	$44.5	$43.2	$32.6	$45.8	$57.0	$24.6	$142.2	$44.75
Employees (FTEs)	73	39	33	64	58	50	200	76
New Car Sales	844	599	233	1,318	1,230	347	2,972	1,011
Total Car Sales	1,644	1,860	725	1,624	1,516	820	4,812	1,625

The mean revenue among the group was $54.33 million dollars, and ranged from $24.6 (Dealer F) to $142.2 million dollars (Dealer G). Employment per dealership included in the case studies had a mean value of 74, and a range of 33 (Dealer C) to 200 full time equivalent employees (Dealer G). The average number of vehicles sold at the case study dealerships was 1,828, with the average for new vehicles sales being 1,069. The range of total vehicles sold was 725 (Dealer C) to 4,812 (Dealer G), and the number of new cars sold ranged from 233 (Dealer C) to 2,972 (Dealer G). Table 2 outlines the case study dealerships corresponding descriptive statistics.

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Table 2: Case Study Dealership Profile

	Mean	Minimum Value	Maximum Value
Annual Revenue ($MM)	54.33	24.6	142.2
Employees (FTEs)	74	33	200
Total Vehicle Sales	1,828	725	4,812
New Vehicle Sales	1,069	233	2,972

The average NADA member had annual revenues of $38.4 million in 2012, which is just over 40 percent lower than the average case study dealership. Dealerships in this study sold an average of 1,828 total new and used vehicles, while the average NADA member's annual sales volume was 1,791 vehicles. The average NADA dealer employed 55 employees (FTEs) in 2012, compared to average employment of 74 for the case study dealerships. Single rooftop dealers comprised 33 percent of NADA's membership in 2012, and 37.5 percent of the dealers in this study; dealership groups with more than 2, but fewer than 10 stores make up 50 percent of NADA members vs. 37.5 percent of dealers in this study; and dealership groups with more than 10 stores represent 17 percent of NADA membership vs. 25 percent of the case study dealers.[19]

Cost of Regulatory Compliance

The volume-weighted average total cost of dealership compliance was found to be $182,754 annually for calendar year 2012. These regulat ory costs comprised 21.7 percent of the 2012 before -tax net profits, or nearly $2,400 per dealership employee. When considering both new and used vehicle sales, the me an cost per vehicle is $100. While this figure does not seem very large, the average dealership would have needed to sell 106 new and used vehicles in 2012 to recoup its regulatory compliance costs.[20]

Analysis of the mean values of compliance costs in Table 3 shows that the dealership financial burden is greatest for the regulations included in the vehicle financing category (which includes items such as Equal Credit Opportunity, Fair Credit Reporting, and Truth in Lending rules), and second greates t for those shown in the vehicle general category (which includes regulations covering government employment, payroll taxes, and wage and hour rules) . Regulations in the sales, service and body shop, and marketing categories imposed lower degrees of compliance cost burden on dealers , respectively. A disproportionate share of the costs are clustered in the vehicle financing and general categories, with nearly two-thirds of the total mean cost of regulatory compliance represented by these two categories. This information is conveyed in Table 3 —outlining the arithmetic mean costs [21] by category and subcategory, as well as the total mean cost of regulator y compliance found among the dealerships included in this study . Detailed descriptions of the regulations included in each of the categories and subcategories can be found in Appendices A and B.

[19] Membership data provided by NADA Research Department.
[20] The average dealership sold 819 new and 975 used cars in 2012. Estimate does not include otherprofit centers.
[21] Not weighted by dealership sales volumes.

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Table 3: Average Federal Regulatory Compliance Cost by Category

Category/Subcategory	Estimated Costs	Percent of Costs
Vehicle Financing	$69,388	37%
Administrative	49,438	
Customer Finance Notices	19,949	
General	$48,848	26%
Accounting	17,648	
Business Administration	13,139	
Emergency Planning	368	
Employee Benefits	3,691	
Employee Relations	13,523	
Facilities	480	
Sales	$29,588	16%
Customer Product Notices	29,588	
Service and Body Shop	$24,653	13%
Employee Health and Safety	13,379	
Environmental	11,273	
Vehicle Safety	-	
Marketing	$14,526	8%
Advertising	1,423	
Customer Communication	13,104	
Grand Total	***$187,002***	***100%***

Additional analysis shows that over 71 percent of the mean vehicle financing category of federal regulatory costs, which compose over 26 percent of the total mean dealer compliance costs, are within the administrative subcategory of vehicle financing. The remaining 29 percent of this category comprises the third greatest burden by subcategory within the total mean regulatory cost , and imposes nearly 11 percent of said cost . These subcategories represent costs dealers bear in complying with regulations such as the Equal Credit Opportunity Act and the Gramm-Leach Bliley Act. Costs are accrued by dealers on an internal basis, as well as through use of external contractors to assist in mandatory compliance.

The general categor y cost breakdown reveals that 36 percent of the mean costs in this category are attributed to the accounting subcategory, which is also more than 9 percent and the fourth largest cost subcategory of the observed total mean cost of compliance . The costs within this category primarily relate to general corporate and payroll tax compliance issues. The balance of costs in the general category is attributed to compliance with regulations such as the Americans with Disabilities Act, Family and Medical Leave Act, and rules on record-keeping and retention.

Two of the dealers included in this study are part of a larger dealer group (Dealers C and H). Interviewees at one of these dealerships (Dealer C) were unable to identify some, and possibly a large share, of its regulatory compliance costs. Possibly due to th is dealership's more centralized business

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operations, the managerial staff was less knowledgeable about reg ulatory compliance costs than other interviewees. Researchers made a good faith effort to speak with corporate level management at the group to gain further insight into the dealerships costs, though these efforts were ultimately unsuccessful. In light of this fact, descriptive statistics of the case study group may be slightly lower overall than would otherwise be true if additional information had been gained about this dealership's regulatory cost profile. Overall, however, the integrity of the data remains robust even in light of this likely underreporting.

For the second dealer that was part of a larger group (Dealer H) , CAR researchers disaggregated composite data for the group and brought it to a single -rooftop level. In this case, CAR worked with the dealer group to assess costs at a group level for the sake of efficiency and thoroughness. This method, as opposed to the method referenced in the preceding paragraph, allowed the researchers to account for a greater portion of actual costs than would otherwise had been possible. T he findings were then scaled using the number of group dealerships as a divisor. Therefore, descriptive statistics for this dealer profile are the mean findings for the larger enterprise.

It can be challenging for dealers to identify all costs associated with federal regulatory compliance. Some activities are spread am ong many facets of the business and accounting conventions do no t support simple cost analysis. Other cost centers represent activities the dealers themselves admit they would do even if not regulated to do so. However, the data are clear that federal regulatory compliance costs are present and meaningful at all levels of the dealerships' organizations.

Economic Model Results

A multivariable linear regression was performed using the ordinary least square estimation method. The results are shown below, with t-statistics in parentheses. The coefficients are significant at the 5 percent level of confidence, and the model does not suffer from serial correlation (Durbin-Watson = 2.37).

(——) (——) (——) (——)

(-3.90) (2.02) (3.82) (14.58) (-2.18) R-Square = 0.90

The regression results indicate that U.S. vehicle demand (V) has the strongest impact on dealership revenue, with one percent increase in market demand resulting in a 0.72 percent increase in dealership revenue. This result indicates that dealership revenue is strongly reliant on overall market demand. The result confirms our data observations, and confirms CAR researchers' expectations.

The marginal impact of new vehicle price (VP) in the model ranks second, with a revenue elasticity of 0.61. This result implies that the relationship between dealership revenue and new vehicle prices is positive, but slightly inelastic. The result is expected , because the average dealership generated 40 percent of its revenue from used vehicle sales and services of all type s. Especially d uring market downturns, the share of revenue that comes from items other than new car sales becomes more critical for dealers, which is confirmed in the model results. Higher vehicle prices not only generate higher new vehicle sales revenue, but also result s in higher used vehicle residual value , and maintenance and service income for dealerships.

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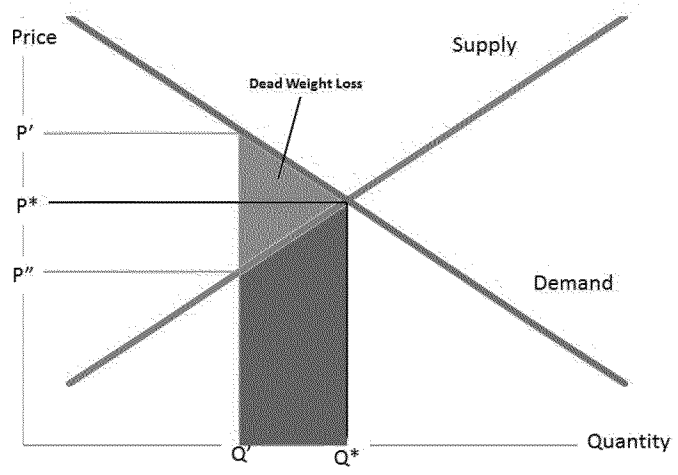
The producer price elasticity is moderate , and is estimated at 0.47. This result implies that dealership revenue is only marginally affected by dea lership producer prices. For every 1 percent increase in dealership producer price (or cost), dealership revenue increases only 0.47 percent. On the other hand, this result implies that the price elasticity for quantity demand is -0.53. The price elasticit y for quantity demand is rather important to the study, because it will be used for calculating both loss of sales and dead weight loss due to higher price, which is illustrated in Figure 1 below.

Figure 1: Dead Weight Loss and Quantity Reduction Due to Higher Prices



In this figure, P* and Q* represent an equilibrium price and quantity had the Federal regulations not existed. P' and Q' represent the price paid by the consumer and market demand with Federal regulations in effect . P'' represents the unit price received by dealers after regulatory costs are subtracted from the revenue. The difference between P' and P'' is the Federal regulatory compliance cost per unit, and the difference between Q* and Q' represents the demand loss due to higher price. The red area represents the loss of dealership business, and the orange area in the center is the economic dead weight loss due to higher prices as a result of Federal regulatory compliance costs that are passed through to the consumer.

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The sensitivity of dealership price to dealership expense increase

Dealership prices are very sensitive to dealership expenses, largely due to the dealerships' cost structure and net profits. The relationship between dealership expense and dealership gr oss sales can be described by the following equation:

Where:

If gross sales remain constant, every dollar in increased expense causes the same amount of decrease in profit. In terms of percentage, one percent increase in expense will result in – percent decrease in profit. If a dealer would like to maintain its net profit when expenses increase by one percent, the dealer would need to increase its price by —— .

According to NADA' s financial data, the average U.S. dealership gross margin was 13.7 percent from 2000 to 2012, the total selling, general, and administrative expenses was 12 percent, and net profit margin was 1.7 percent. NADA's financial data indicates for every percenta ge point increase in dealership expense, dealership net profit will decrease by seven percent, *ceteris paribus* . A dealer seeking to maintain its profit would have to increase prices by .88 percent.

Federal regulatory compliance cost, and its impact on the U.S. economy

CAR's field interviews with dealers indicate that in 2012, the average de alership's f ederal regulatory compliance cost s were $182,754 per rooftop (weighted average) , or $100 per new and used vehicle sold, or $2,371 per dealership employee. These regulatory compliance cost s accounted for 3.7 percent of total sales, general, and administrative expenses.

Dealerships' regulatory compliance costs were relatively small given that the average general expense was $4.7 million and annual revenue s were $56.7 million per rooftop for the dealers included in this study. Assum ing they had the same profit margin as the national average, a 3.7 percent increase in expenses equates to a 26 percent net profit decrease for the dealerships interviewed. If the deale rs were to make up for that lost profit by raising prices, prices would need to increase 3.2 percent, *ceteris paribus*. Although CAR researchers were not able to surve y or observe to what extent expenses were passed on to consumers, it is reasonable to believe that dealerships increase price s to make up lost profit rather than take a financial hit to their bottom line. For the purpose of this study, the assumption is that the entire cost of federal regulatory compliance is passed on to consumers.

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Higher vehicle prices lead to a dead weight loss of both consumer and dealer surplus. The dead weight loss equation is as follows:

This basic equation can be transformed into the following expression[22] using price elasticity for demand and supply:

(—) ———

Where:

(—) *= percent change of dealership price due to regulatory compliance = 3.2%*

= Price elasticity for supply = 1.0

= Price elasticity for demand -0.53

= 2012 per dealership revenue at equilibrium = $38 million

= 2012 dealership producer price index = 159.8

= dealership equilibrium producer price index = 156.5

= price index received by dealers = 154.7

The price elasticity for demand is estimated to be -0.53 in the regression, and the price elasticity for supply is assumed to be 1.0 for the purposes of this study. The loss of dealership business and the economic dead weight loss per dealership are calculated as follows:

(——)

The estimates above indicate each dealership (rooftop) lost $441,332 worth of net business and economic activity in 2012 due to dealership price inflation related to federal regulatory compliance costs. For the entire U.S. light vehicle dealership industry (17,540 dealers in 2012[23]), the direct economic loss is estimated to have bee n $7.7 billion and 10,550 fewer direct dealership jobs in the U.S. economy.[24]

For the regulatory impact on U.S. employment, CAR utilized a specially constructed regional econo mic impact model, and customized the analysis applying the total loss of $7.7 billion across personal

[22] Nicholson, Walter, *Microeconomic Theory, Basic Principles and Extensions, Ninth Ed.* P.324.
[23] NADA Data, op. cit.
[24] Inclusive of the $7.7 billion direct economic cost and 10,550 direct jobs.

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consumption expenditures on new vehicles, used vehicles, motor vehicle parts, and motor vehicle repair and maintenance services. The analysis also took into account regulatory compliance spending of $3.2 billion ($182,754 multiplied by 17,540 dealers) and applied it to non-residential investment. The result shows that the cost burdens of the subset of Federal regulations assessed in this study that are borne by the U.S. light vehicle dealers cost the U.S. economy 75,865 jobs [25], more than $10.5 billion in lost economic output, $3.6 billion in personal income, and $655 million in proprietors' income. The cost of dealership compliance with the selected federal regulations assessed in this study ultimately cost the federal government nearly $1.4 billion in lost social insurance contributions, lost personal tax revenues, and higher transfer payments to individuals.[26]

Table 4: Economic Results of U.S. Light Vehicle Dealerships' Compliance Costs with Select Federal Regulations

Category	2012 Result
GDP	-$6.0 billion
Economic Output	-$10.5 billion
Personal Income	-$3.6 billion
Proprietors' Income	-$655 million
Net Impact on Federal Government Revenues	-$1.4 billion
Social Insurance Contributions	*-$389 million*
Personal Tax Receipts	*-$544 million*
Current Transfer Payments	*+$438 million*
Total Employment Impact	-75,865
Direct Light Vehicle Dealership Employment	*-10,550*
Indirect (Supplier) Employment	*-21,844*
Expenditure-Induced (Spin-off) Employment	*-43,471*

Of the nearly 76,000 fewer jobs in the economy in 2012 as a result of federal regulatory compliance, the retail trade sector suffers most with more than 23,000 jobs lost (10,550 direct jobs at light vehicle dealerships). Job losses in the other services sector (except public administration) rank second, with 14,000 fewer workers. The only sector that shows a job gain is the construction sector, where 3,076 jobs were created by private non-residential investment. Table 5 details the industry sectors affected by the regulatory compliance spending and the loss of dealership business due to higher dealership price.[27]

[25] In addition to the direct employment consequences for light vehicle dealerships (-10,550 jobs), there were losses in other sectors of the economy including indirect employment effects (21,844 fewer jobs at businesses that supplier the light vehicle retailers, including vehicle and parts manufacturers), and expenditure -induced effects (43,471 fewer jobs in the overall economy due to the lower levels of total personal income spent on goods and services).

[26] Transfer payments to individuals include federal unemployment insurance and other public assistance expenditures.

[27] Some argue that federal regulatory compliance also generates economic activity and employment. For example, there are businesses formed to provide training or training materials to educate dealers' employees on how to comply with the regulations. Motor vehicle dealerships in the United States spend roughly $3.2 billion per year in payments to third parties to comply with federal regulations. The economic impact analysis addresses this argument by investing $3.2 billion in private non-residential sector. However, the negative impact of federal regulatory compliance on dealership business outweighs this spending effect by as much as 2.4-to-1.

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Table 5: Employment Impact of Higher Vehicle Prices and Lower Vehicle Sales Volumes due to U.S. Light Vehicle Dealerships' Federal Regulatory Compliance Costs

Employment Impact U.S. Total - 2012 Estimates	
Total U.S. Job Loss	(75,865)
Retail Trade	(23,730)
Direct New Car Dealers (subset of Retail Trade)	(10,550)
Other Services, except Public Administration	(14,314)
Wholesale Trade	(8,079)
Manufacturing	(7,416)
Administrative and Waste Management Services	(4,253)
Health Care and Social Assistance	(3,963)
Professional, Scientific, and Technical Services	(3,878)
Finance and Insurance	(3,070)
Transportation and Warehousing	(2,676)
Accommodation and Food Services	(2,190)
Real Estate and Rental and Leasing	(1,586)
Arts, Entertainment, and Recreation	(1,242)
Information	(1,079)
Management of Companies and Enterprises	(886)
Educational Services	(646)
Utilities	(142)
Construction	3,076
Others	209

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Summary of Results

The economic analyses in this study indicate that, for a typical U.S. franchised light vehicle dealership with 2012 revenue of $38 million; the average federal regulatory compliance annual expenditure was $182,754 per rooftop. These regulatory costs comprised 21.7 percent of the 2012 before-tax net profits, nearly $2,400 per dealership employee, and a total of $3.2 billion in compliance costs across all U.S. light vehicle dealerships.

The resulting higher costs due to the potential loss of business revenue plus economic dead weight loss totaled $441,332 per rooftop—equating to $7.7 billion in direct losses to U.S. light vehicle dealerships and 10,550 fewer direct U.S. dealership jobs. This translates to $245 for every new and used vehicle sold, or nearly $8,035 for every dealership employee.

Accounting for the direct, indirect (suppliers to dealerships), and expenditure-induced (spin-off) effects of federal regulatory compliance costs results in a total loss of $10.5 billion to the U.S. economy, and a net employment impact of nearly 76,000 fewer jobs across all sectors. This translates to $334 for every new and used vehicle sold, or nearly $10,925 for every direct dealership employee.

The net impact of federal regulatory compliance costs borne by U.S. light vehicle retailers on the federal government itself is $1.4 billion in lower tax and social insurance revenues and higher unemployment and public assistance expenditures. Every $1 increase in a dealership's federal regulatory compliance costs results in $3.28 in lost output in the U.S. economy, and a net loss to the U.S. Treasury of $0.44.

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Appendix A: List and Description of Federal Regulations

The following describe which regulations the dealerships considered when providing a cost estimate for each regulatory category.

GENERAL

- **EMPLOYEE RELATIONS**
  - **Americans with Disabilities Act (ADA):** Dealerships with 15 or more employees must reasonably accommodate disabled workers and job applicants.
  - **Employee Discrimination:**
    - **Age Discrimination in Employment Act:** Protects older individuals against age-based employment discrimination.
    - **Equal Pay Act:** Prohibits wage discrimination on basis of sex.
    - **Federal Civil Rights Act:** Bars employment discrimination on the basis of race, sex, color, religion, or national origin. Prevents employers from asking job applicants certain questions (such as age, marital status, or childbearing plans). Prohibits workspace sexual harassment, including behavior that creates a hostile work environment.
    - **Genetic Information Nondiscrimination Act:** Prohibits discrimination based on health-related employee DNA information.
  - **Employment Verification Rules:** Dealerships must verify the employment eligibility of prospective new employees using the I-9 form and proper support documentation. Use of E-verify is optional.
  - **Federal Wage-Hour and Child Labor Laws:** Addresses minimum-wage and overtime pay standards and exemptions as well as standards for employing minors, including teen driving restrictions. Federal minimum wage is $7.25 per hour; state minimum wage rates may be higher.
  - **IRS/DOL Worker Classification:** The IRS has launched a Voluntary Classification Settlement Program (VCSP) aimed at encouraging employers to admit to past worker misclassifications. When making worker classification decisions, dealerships should be careful, conservative, and prepared to document their decisions. The IRS and the Department of Labor use multi-factory legal standards and tests to evaluate whether workers are "employers" or "independent contractors." Of greatest importance: the level of control employers exercise over workers as measured by the means and manner of the work performed.
  - **National Labor Relations Board (NLRB) unionization rules:** Governs unionization activities, including employee rights, election rules, postings, unfair labor practices, and others.
- **EMPLOYEE BENEFITS**
  - **Affordable Care Act:** Extensive health-care reforms enacted in 2010 affect dealerships and their health-care plans. For example, large dealerships (with more than 50 full-time employees) must decide by January 1, 2014, whether they will offer health coverage that meets the federal requirements or pay a penalty. Many other reporting, record-keeping, and other duties will apply to dealerships and other businesses. For more information, visit www.healthreform.gov.

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- **Consolidated Omnibus Budget Reconciliation Act (COBRA):** Requires dealerships with 20 or more employees to continue health-care coverage for ex-employees and their families for 18 to 36 months, depending on circumstances.
- **Employee Retirement Income Security Act (ERISA):** Dealers offering retirement or health plans must, among other things, provide employees with plan information, keep records, abide by fiduciary responsibilities, and set up a grievance process.
- **Family and Medical Leave Act (FMLA):** Dealerships must post a notice informing employees of their right to take limited, unpaid leave for personal and family medical emergencies and must comply with appropriate requests for such leave. Special provisions apply to leave related to military service.
- **Health Insurance Portability and Accountability Act:** Generally prohibits health insurers from denying coverage to workers who lose or change jobs and bars insurers from excluding coverage for preexisting conditions for more than a year.
- **Uniformed Services Employment and Reemployment Rights Act (USERRA):** Governs the employment and reemployment rights of members of the U.S. uniformed services.

- **FACILITIES**
  - **Americans with Disabilities Act (ADA):** Dealerships with 15 or more employees must reasonably accommodate disabled workers and job applicants.
- **BUSINESS ADMINISTRATION**
  - **Electronic Records Retention:** Revenue Procedure 98-25 explains the IRS requirements for retaining computerized accounting records.
  - **FTC Safeguards Rule:** Dealers must develop, implement, and maintain—and regularly audit—a comprehensive, written security program to protect customer information.
  - **IRS Cash-Reporting Rule:** Dealers receiving more than $10,000 in cash in one transaction or in two or more related transactions must file IRS/FinCEN Form 8300 with the IRS within 15 calendar days and must provide written notice that the report was filed to the person named on the report by January 31 of the following year. "Cash" includes certain cashier's checks, traveler's checks, money orders, and bank drafts.
  - **Mandatory Workplace Posters:** Notices, such as "Your Rights Under the FMLA," "Equal Employment Opportunity Is the Law," "Federal Minimum Wage," and "Notice: Employee Polygraph Protection Act," must be conspicuously displayed.
  - **Miscellaneous record-keeping requirements:** A multitude of requirements govern the length of time records must be maintained. Examples: personal and corporate income tax records must be kept at least three years; notification forms for underground storage tanks must be kept indefinitely; and copies of Form 8300 cash reports must be kept for five years.
  - **Office of Foreign Assets Control (OFAC) restrictions:** Dealerships may not enter into transactions with certain sanctioned countries, governments, and specially designated organizations and individuals, including those appearing on an electronic list maintained by OFAC.
- **ACCOUNTING**
  - **FTC Repossession Rule:** Requires formal accounting of money collected for repossessed vehicles.
  - **General Corporate and Payroll Tax Compliance:** Transactional cost burden associated with the recordkeeping, calculation and filing of dealership Federal corporate and payroll taxes.
  - **Federal child-support enforcement regulations:** Requires states to govern liens put on personal property—including vehicles—for overdue child support. Dealerships should

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check that child-support liens don't exist on used cars, and must place liens on wages of employees who are delinquent on child-support payments.

- **EMERGENCY PLANNING**
  - **OSHA Blood-Borne Pathogens Rule:** Dealerships more than four minutes from an emergency health facility must have a program to respond to employees who suffer cuts. All dealerships should have proper first-aid kits.
  - **Emergency-response planning:** Federal, state and local laws require dealers to have emergency-response plans.

SERVICE & BODY SHOP

- **ENVIRONMENTAL**
  - **Clean Air Act:** Dealerships may not tamper with, replace, or remove emissions-control equipment, such as catalytic converters. CFC recycling regulations require dealership air-conditioning technicians to obtain certification and to use certified recycling and recovery equipment to capture spent refrigerant, including HFC-134a and other non-ozone-depleting refrigerants. The act also regulates any fuels dealers store and dispense, as well as the alternative fuels motorists use, including gasohol. It restricts emissions from solvents and chemicals.
  - **Clean Water Act:** Sets standards for regulation of waste-water and storm water at dealerships and also sets comprehensive rules governing above ground oil storage tanks.
  - **Resource Conservation and Recovery Act (RCRA):** Comprehensive environmental law regulating many dealership functions, including underground storage tanks and the storage, management, and disposal of used oil, antifreeze, mercury products, and hazardous wastes. Underground tanks must be monitored, tested, and insured against leaks; leaks and spills must be reported to federal and local authorities and cleaned up. The law also regulates new-tank installations. Dealers must obtain EPA ID numbers if they generate more than 220 lb. per month (about half of a 55-gallon drum) of certain substances and must use EPA-certified haulers to remove the waste from the site; dealers must keep records of the shipments. Used oil should be burned in space heaters or hauled off-site for recycling. Used oil filters must be punctured and drained for 24 hours before disposal.
  - **Superfund (Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA]):** As waste generators, dealerships may be subject to Superfund liability. Frequently, dealers contract with other companies to haul waste off-site. Dealers can deduct the cost of cleaning up contaminated soil and water in the year in which it is done. Dealers may qualify for an exemption from liability at sites involving used oil managed after 1993. The service station dealer exemption application (SSDE) requires dealers to properly manage their oil and to accept oil from do-it-yourselfers.
- **EMPLOYEE HEALTH AND SAFETY**
  - **Department of Transportation (DOT) hazardous-materials-handling procedures:** Requires parts employees who load, unload, and package hazardous products, such as airbags, batteries, and brake fluid, to be trained in safe handling practices.
  - **OSHA (Occupational Safety and Health Administration) asbestos standards:** Dealerships must use certain procedures during brake and clutch inspections and repairs to minimize workplace exposure. Water, aerosol cleaners, or brake washers may be used to comply with the standard.

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- **OSHA Hazard Communication Standard (right-to-know laws):** Dealers must inform employees about chemical hazards they may be exposed to in the workplace, keep chemical product information sheets on-site and accessible, and train staffers to properly handle the hazardous materials they work with. Recent revisions require retraining employees by December 1, 2013. Also, EPA's community right-to-know rules require dealers to list annually with state and local authorities tanks holding more than 1,600 gallons.
- **OSHA lock-out/tag-out procedures:** Explains what service departments must do to ensure machines, including vehicles, are safely disengaged before being serviced.
- **OSHA Respiratory Protection Standard:** Requires written programs describing how to select, fit, and maintain respirators to protect body shop workers from hazardous chemicals.
- **OSHA workplace health and safety standards**: Extensive regulations cover a multitude of workplace issues and practices, from hydraulic lift operation to the number of toilets required. Example: Dealerships must determine if workplace hazards warrant personal protective equipment and, if so, to train employees on its use. Verbal reports must be made within eight hours of any incident involving hospitalization of three or more workers or any death.

- **VEHICLE SAFETY**
  - **National Highway Traffic Safety Administration (NHTSA) alteration and tire-placarding rules:** Significantly altered new vehicles must have labels affixed identifying the alterations and stating that they meet federal safety and theft standards. Tire-placarding and relabeling rules require a new tire information placard/label whenever parts or equipment are added that may reduce a vehicle's cargo-carrying capacity, or when replacement tires differ in size or inflation pressure from those referred to on the original.
  - **NHTSA tampering rules:** Prohibits dealerships from rendering inoperative safety equipment installed on vehicles in compliance with federal law.
  - **NHTSA tire regulations:** Rule requires proper replacement or modification of the tire-information label when replacing tires or adding weight before first sale or lease. Also, consumers must be given registration cards when buying new tires or tires must be registered electronically. Other rules govern handling and disposal of recalled new and used tires.
  - **NHTSA safety belt/airbag deactivation:** Dealerships may install airbag switches for consumers with NHTSA authorization. Dealerships must be responsive to consumer requests for rear-seat lap/shoulder safety belt retrofits in older vehicles.

VEHICLE FINANCING

- **ADMINISTRATIVE**
  - **Dodd-Frank Financial Reform Law:** Comprehensive legislation enacted in July 2010 created a new, independent Consumer Financial Protection Bureau and granted it unprecedented authority to regulate financial products and services. Dealers engaged in three-party financing are excluded from the authority of the new bureau and remain subject to regulation by the Federal Reserve Board, the Federal Trade Commission (which has been given streamlined authority to declare dealer practices as unfair or deceptive), and state consumer protection agencies. Finance sources, including dealers who engage in "buy here, pay here" financing, are subject to the bureau's jurisdiction. The Dodd-Frank law also created several new obligations for creditors, including new

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disclosure requirements for risk-based pricing and adverse-action notices under the Fair Credit Reporting Act (Section-1100F) that took effect July 21, 2011. It also contains a requirement to collect, report to the federal government, retain, and make available to the public upon request certain data collected in credit applications from small, women-owned, and minority-owned businesses. Dealers are temporarily exempt from this requirement pending promulgation of specific regulations.

  - **Equal Credit Opportunity Act (ECOA):** Regulation B prohibits discrimination in credit transactions based on race, sex, color, marital status, religion, national origin, age, and public-assistance status. The dealer/creditor is required both to notify applicants in a timely fashion of actions taken on—and reasons for denying—applications, and to retain certain records. (See also "Dodd-Frank Financial Reform Law" for a description of new small-business loan data collection requirements.)
  - **Fair Credit Reporting Act (FCRA):** Dealers are restricted in their use of credit reports for consumers, job applicants, and employees. Credit reports generally may be obtained only pursuant to consumers' written instructions or if consumers initiate a business transaction (not if they merely talk with salespeople). Dealers must give job applicants and employees a separate document informing them that a credit report may be obtained and must obtain prior, written authorization to access the report. Dealers may not share credit information with affiliates unless they give consumers notice and the opportunity to opt out. If dealers take adverse action based on the report, they must notify consumers and follow additional procedures with job applicants and employees.

- **CUSTOMER NOTICES**
  - **Equal Credit Opportunity Act (ECOA):** Regulation B prohibits discrimination in credit transactions based on race, sex, color, marital status, religion, national origin, age, and public-assistance status. The dealer/creditor is required both to notify applicants in a timely fashion of actions taken on—and reasons for denying—applications, and to retain certain records. (See also "Dodd-Frank Financial Reform Law," for a description of new small-business loan data collection requirements.)
  - **Fair Credit Reporting Act (FCRA):** Dealers are restricted in their use of credit reports for consumers, job applicants, and employees. Credit reports generally may be obtained only pursuant to consumers' written instructions or if consumers initiate a business transaction (not if they merely talk with salespeople). Dealers must give job applicants and employees a separate document informing them that a credit report may be obtained and must obtain prior, written authorization to access the report. Dealers may not share credit information with affiliates unless they give consumers notice and the opportunity to opt out. If dealers take adverse action based on the report, they must notify consumers and follow additional procedures with job applicants and employees.
  - **FTC (Federal Trade Commission) Credit Practices Rule:** Dealers are required to provide a written disclosure statement to a cosigner before the cosigner signs an installment sales contract. Dealers cannot "pyramid" late charges (that is, add a late charge onto a payment made in full and on time when the only delinquency was a late charge on a previous installment).
  - **FTC Privacy Rule:** Dealers must issue notices of their privacy policies to their finance and lease customers and, in some cases, when the dealer discloses nonpublic information about consumers to third parties. The rule also restricts disclosures of nonpublic personal information. Dealers who correctly use a FTC model privacy notice receive safe harbor protection for the language used to describe their privacy policy.

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- **FTC prohibition against deceptive and unfair trade practices:** Prohibits unfair and deceptive trade practices. For example, the FTC has found certain advertising practices to be deceptive, including recent claims that the dealer will "pay off" what consumers owe on a trade-in vehicle.
- **NHTSA (National Highway Traffic Safety Administration) odometer rule:** Prohibits odometer removal or tampering and misrepresentation of odometer readings. Requires record keeping to create a "paper trail," and odometer disclosures on titles. Vehicles with a greater than 16,000-lb. gross vehicle weight rating and those 10 model years old or older are exempt.
- **Truth in Lending and Consumer Leasing Acts:** Regulations Z and M cover consumer credit and consumer leasing transactions, respectively, specifying information to be disclosed to a consumer before completing the transaction, and information to be disclosed when advertising consumer credit transactions or leases. For example, dealers who advertise a lease down payment or monthly payment amount must disclose in lease ads that the advertised deal is a lease; the total amount due at lease signing; number, amount, and period (for example, monthly) of payments; and whether a security deposit is required.

SALES

- **CUSTOMER NOTICES**
  - **DOE/EPA gas-mileage guide:** Dealers must make this guide available to prospective new vehicle buyers upon request. The guide is available to download from www.fueleconomy.gov, as is the NADA brochure *Green Checkup: Maintenance Tips to Help You Save Gas* from www.nada.org.
  - **EPA emissions certification:** Dealers must provide a form to new-vehicle customers certifying a vehicle's compliance with emissions standards.
  - **FTC Used Car Rule:** "Buyer's Guides" are required on used vehicle side windows, disclosing make, model, year, vehicle identification number (VIN), whether offered "as is" or with a warranty (and, if so, what kind of warranty), and service contract availability. Guides must warn that all promises should be in writing. For sales conducted in Spanish, the "Buyer's Guide" and the required cross-reference in the sales contract must be in Spanish.
  - **FTC Written Warranty Rule:** Dealers must display warranties near products or post signs in prominent places telling consumers that copies of the warranties are available for review.
  - **Magnuson-Moss Act:** Dealers must give consumers certain required information on warranties and limited warranties.

MARKETING

- **ADVERTISING**
  - **FTC prohibition against deceptive and unfair trade practices:** Prohibits unfair and deceptive trade practices. For example, the FTC has found certain advertising practices to be deceptive, including recent claims that the dealer will "pay off" what consumers owe on a trade-in vehicle.
  - **FTC guidelines for fuel-mileage advertising and alternative-fuel-vehicle advertising and labeling:** Dealer and manufacturer fuel-economy advertisements must state that the numbers are estimates and come from EPA; alternative-fuel vehicles must be properly labeled.

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- **Truth in Lending and Consumer Leasing Acts:** Regulations Z and M cover consumer credit and consumer leasing transactions, respectively, specifying information to be disclosed to a consumer before completing the transaction, and information to be disclosed when advertising consumer credit transactions or leases. For example, dealers who advertise a lease down payment or monthly payment amount must disclose in lease ads that the advertised deal is a lease; the total amount due at lease signing; number, amount, and period (for example, monthly) of payments; and whether a security deposit is required.

- **CUSTOMER COMMUNICATION**
  - **CAN-SPAM (Controlling the Assault of Non-Solicited Pornography and Marketing) Act:** E-mailers must identify a commercial message as an advertisement or solicitation and provide their postal addresses and a mechanism to opt out of future commercial e-mails. If recipients opt out, senders must stop sending them commercial e-mail within 10 business days. The disclosure requirements don't apply to e-mails that relate to transactions or relationships, such as for warranty or recall-repair issues or the completion of transactions requested by the consumer. No one may send commercial e-mails to wireless devices unless recipients provide express prior authorization to receive them. So that senders can recognize wireless addresses, the FCC maintains a list of wireless domain names at http://transition.fcc.gov/cgb/policy/DomainNameDownload.html. Commercial e-mailers must check the list monthly. (Additional provisions prohibit deceptive headers, misleading subject lines, and other spam tactics). A text message may also be considered an e-mail and therefore subject to the CAN-SPAM Act if it is sent to an e-mail address—that is, if it has an Internet domain name after the "@" symbol (whether the e-mail address is displayed or not). This means that no commercial text message (deemed to be an e-mail), may be sent to a wireless device without "express prior authorization." Merely having an "established business relationship" with the recipient is not enough.
  - **FTC Door-to-Door Sales Rule:** Gives consumers a three-day "cooling off" period for sales not consummated at the dealership. Does not apply to auctions, tent sales, or other temporary places of business if the seller has a permanent place of business.
  - **FTC Privacy Rule (Gramm-Leach-Bliley Act):** Dealers must issue notices of their privacy policies to their finance and lease customers and, in some cases, when the dealer discloses nonpublic information about consumers to third parties. The rule also restricts disclosures of nonpublic personal information. Dealers who correctly use a FTC model privacy notice receive safe harbor protection for the language used to describe their privacy policy.
  - **FTC prohibition against deceptive and unfair trade practices:** Prohibits unfair and deceptive trade practices. For example, the FTC has found certain advertising practices to be deceptive, including recent claims that the dealer will "pay off" what consumers owe on a trade-in vehicle.
  - **FTC Telemarketing Sales Rule (TSR):** Imposes many of the Telephone Consumer Protection Act (TCPA) restrictions (see below) on dealers who telemarket across state lines. Requires dealers who sell, or obtain payment authorization for, goods or services during interstate phone calls to abide by the prohibition against numerous deceptive and abusive acts and to maintain certain records for 24 months. An amendment to the rule prohibits prerecorded telemarketing calls without a consumer's express written agreement, requires such calls to provide a key-press or voice-activated opt-out

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mechanism at the outset of the calls, and requires the calls to ring for 15 seconds or four rings before disconnecting.

- **Junk Fax Prevention Act:** Makes revisions to the TCPA by requiring the fax sender to have an established business relationship (EBR) with a fax recipient and must have the recipient provide the fax number voluntarily. These revisions make it illegal to send unsolicited advertisements via fax without the recipient's consent but allows for fax advertisements to be sent to a recipient under an EBR as long the fax number is voluntarily provided by the recipient.
- **Telephone Consumer Protection Act (TCPA):** Imposes numerous restrictions on telemarketing, including the national and company-specific do-not-call (DNC) rules, calling-time restrictions, caller ID requirements, fax advertising rules, and restrictions on the use of auto-dialers and prerecorded messages. Fax ads may be sent only to authorized recipients and must include a phone number, fax number, and toll-free opt-out mechanism (each available 24/7) on the first page of the fax ad. The FCC considers text messages to be "phone calls" under the TCPA. This means a text message "solicitation" cannot be sent to a phone number on either the national DNC list (subject to the "established business relationship" and "prior express permission" exemptions to the national DNC rules) or a company-specific DNC list (to which there are no exemptions); and no text message whatsoever can be sent to a cellular telephone number—solicitation or not, whether the number is on a DNC list or not—using an "automated dialer system" unless the called consumer's "prior express written consent" has been given.

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Appendix B: Interview Framework Document

NADA INTERVIEW FRAMEWORK				
Profile				
Dealership Name				
Full Time Employee Equivalent (2012)				
Annual Total Gross Sales (2012)				
No. of Franchises/Makes At Location				
Other rooftops/franchises owned?				
No. of New and Used Units Sold (2012)				
Regulatory Category	**General Description**	**Cost Category Description**	**Cost Estimate**	**Specific Mandates Falling Within Each Category**
General - HR Manager, General Manager, Owner/Principal				
Employee Relations	Rules on relationship between dealership and employees (e.g., proper hiring, non-discrimination policies and procedures, employment eligibility (I-9 form), minimum-wage, overtime, and equal pay compliance, posting of Federal notices (Wage-Hour, ADA, EEOC, FLSA, etc.) unionizing activities, and disabled employee accommodations.	**Compensation** -Human resources, departmental and business office time devoted to compliance. -Manager and employee compliance training. -Drafting/maintenance of compliance policies and procedures. -Record-keeping for payroll, training, and other required documents and for obtaining and maintaining postings.		**Americans with Disability Act:** protections and accommodations for employees with disabilities. **Employee Discrimination:** protections against discrimination based on age, sex, race, ethnicity and other protected classes. **Employment Eligibility Verification**: Pre-hiring determination of employment eligibility of candidates. **Wage/Hour:** rules governing minimum wage, overtime, equal pay, recordkeeping, employment of minors, Worker classification. **National Labor Relations Act**: Rules governing unionization.
		Contractors -Payments to third-party trainers, fees paid for off-site classes, etc. -Payments made to lawyers and consultants to understand and comply with mandates.		
		Capital Asset Investments -Equipment purchased to accommodate employees with physical disabilities or limitations (e.g., ergonomic chairs, desks, and office equipment, amplified telephones, etc.)		

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Regulatory Category	General Description	Cost Category Description	Cost Estimate	Specific Mandates Falling Within Each Category
General - HR Manager, General Manager, Owner/Principal				
Employee Benefits	Rules on employee benefits, such as family, medical, and military service leave, health insurance, and retirement.	**Compensation** -Human resources, departmental, and business office time devoted to determining eligibility for mandated benefits and for compliance. -Manager and employee compliance training. -Drafting/maintenance of compliance policies and procedures. -Record-keeping activities -Obtaining/displaying informational posters		**Consolidated Omnibus Budget Reconciliation Act (COBRA):** Health coverage continuation for certain terminated workers. **Family and Medical Leave Act (FMLA):** Up to 12 weeks unpaid, job-protected family, medical or military-related leave. **Employee Retirement Income Security Act (ERISA):** Must provide employees with certain information about retirement plans, keep records, and follow policies and procedures. **Health Insurance Portability and Accountability Act (HIPAA):** May not discriminate based on pre-existing conditions. **Uniformed Services Employment and Reemployment Rights Act (USERRA):** Service member leave and reemployment rights.
		Contractors -Payments to consultants, lawyers, etc. to assist in determining/meeting compliance.		
Facilities	Americans with Disabilities Act rules on public-accessibility and employee accommodation.	**Contractors** -Payments to consultants, lawyers, etc. to assist in determining/meeting compliance.		**Americans with Disability Act:** Rules on public-accessibility and employee accommodation.
		Capital Equipment -Building, modifying and maintaining workplace accessibility (e.g., ramps, restrooms, etc.)		

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Regulatory Category	General Description	Cost Category Description	Cost Estimate	Specific Mandates Falling Within Each Category
General - HR Manager, General Manager, Owner/Principal				
Business Administration	Rules related to record-retention, workplace posters, customer information protection, cash reporting, and OFAC sales prohibitions.	**Compensation**-Business office time devoted to record retention and related costs (i.e., digitizing., record query, etc.), establishing procedures, training, complying with identify theft prevention, cash transaction reporting, and OFAC customer eligibility.		**Mandatory Workplace Posters:** Array of federal regulations mandating posters in the workplace. **Miscellaneous record-keeping requirements**: Variety of mandates to create, retain, and sometimes report records.**Electronic Records Retention:** Specific federal procedures for keeping records electronically. **FTC Safeguards Rule (Gramm-Leach-Bliley Act):** Must develop, implement, maintain, and regularly audit a comprehensive customer information security program. **IRS Cash Reporting Rule:** Use of form 8300 to report receipt of cash and equivalents in excess of $10,000 per transaction or in two or more related transactions. **Office of Foreign Assets Control (OFAC) restrictions:** Monitor list of specially designated organizations and individuals to avoid entering into prohibited transactions.
		Contractors **Payments to:** **-**Third-party trainers or class fees. -Third-party record retainer or destruction firms. -Consultants advise on proper procedures -Third-party vendors to verify customer eligibility to purchase goods and services.		
		Capital Equipment -Investments in equipment for in-house record retention (hard drives, computers).		
Accounting	Rules related to account for corporate and payroll taxes, and for other mandates such as for repossessions and child support liens.	**Compensation** -Primarily controller and general business office time spent on accounting.		**General Corporate and Payroll Tax Compliance:** Rules governing corporate taxes and collection and remittance of payroll taxes. **Federal child-support:** Monitor and comply with child support liens. **FTC Repo Rule:** Accounting for proceeds from repossession dispositions.
		Contractors -Payments to external accounting services for assistance on compliance with corporate and payroll tax mandates and other accounting issues.		
Emergency Planning	Rules on emergency planning and responding to employee injuries and other emergencies.	**Compensation** **Time Spent:** **-**Developing an emergency response plan. -Training employee(s) on first aid.		**OSHA Blood-Borne Pathogens Rule**: Preparation/distribution of exposure control plan if more than four minutes from emergency care. Training of employees on first aid rule. **Emergency-Response Planning:** Develop plan to address response strategies during emergency situations.
		Contractors -Payments to third-party trainers, for outside class fees, and for consultants used to develop an emergency response plan.		

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Regulatory Category	General Description	Cost Category Description	Cost Estimate	Specific Mandates Falling Within Each Category
Service & Body Shop: Service/Body Shop Manager, General Manager, Owner/Principal				
Environmental	Rules governing management of emissions and wastes to protect air, land and water resources.	**Compensation** **Time spent:** -Training and certifying use of environmentally-safer products and procedures. -Acquiring necessary permits. -Establishing proper environmental management policies and procedures.		**Clean Air Act:** Rules on fueling, auto refinishing, solvent cleaning, vehicle emissions inspection and maintenance, fuels and fuel additives, mobile air conditioning, and emissions tampering. **Clean Water Act:** Rules on waste water storage and disposal (e.g., floor drain management, sewage discharge pre-treatment, storm water management, possible class V well permits). **Resource Conservation and Recovery Act (RCRA):** Rules on proper management of hazardous and non-hazardous wastes (e.g., used oils, antifreeze, spray booth filters, solvents, wipes and rags, oil water separator sludge, anti-freeze, tires, batteries). Proper management of underground and above-ground storages tanks and containers. **Superfund:** Rules governing liability for wastes sent off site. Possible community right-to-know reporting.
		Contractors Payments to: -Third-party trainers or class fees -Off site waste management companies. -On site environmental services companies.		
		Capital Equipment: **Investments in:** -Environmental compliance equipment (e.g., HVLP guns, enclosed gun cleaners, used oil space heaters, enhanced paint booths, oil water separators, refrigerant recyclers, storage tank improvements, etc.).		
		Supplies -Spill and leak clean up materials -Storage drums -Shipping Papers -Labels -Environmentally friendly solvents and paints		

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Regulatory Category	General Description	Cost Category Description	Cost Estimate	Specific Mandates Falling Within Each Category
Service & Body Shop: Service/Body Shop Manager, General Manager, Owner/Principal				
Employee Health and Safety	Rules to promote employee health and safety and proper hazardous materials management.	**Compensation:** -Management and employee time spent training on health and safety policies and procedures. -Employee time spent implementing health and safety compliance strategies. -Management time spent compiling necessary OSHA records.		**DOT Hazardous Materials Handling**: Educate employees on proper packaging, handling, storage, and shipping of hazardous materials. **Asbestos Standards:** Procedures to minimize employee exposure to asbestos and other air borne dusts. **Hazard Communications Standard:** Develop written hazardous communication plan, inventory chemicals, collect/maintain safety data sheets, ensure proper labeling, and train employees on hazardous chemicals. **Lock-out/Tag-out procedures:** Develop/implement LOTO plan, train employees, inspect machinery for possible LOTO risks. **Respiratory Protection Standard**: Develop/implement written program on how to select, use and maintain appropriate respiratory protection. **Other workplace health and safety standards:** Vast array of other employee health and safety standards.
		Contractors Payments for: -Third-party trainers or class fees. -Health and safety consultants.		
		Capital Equipment -Health and safety equipment including: eye-washes, fireproof cabinets, non-slip surfaces, railings, body/service department ventilation, adequate lighting, fire suppression, dust control.		
		Supplies -Personal and respiratory protective equipment. -Lock out tag out supplies. -Filters. -Anti-sparking drop lights. -Compliant packaging of hazardous materials. -Fireproof-cabinets. -Etc.		
Vehicle Safety	Restrictions on safety system alterations and tampering and labeling/reporting mandates.	**Compensation** **Time spent:** -Training service employees to recognize signs of tampering. -Ensuring compliance with labeling requirements -Properly managing recalled parts		**NHTSA Alteration Rule**: Affix labels upon installation of non-readily attachable components on new vehicles. **NHTSA Safety Belt/Air Bag Deactivation**: Rules governing air bag deactivation/switch installation and seat belt replacement. **NHTSA Tampering Rules**: Vehicle service and repair should be conducted so as to preserve the performance of applicable federal motor vehicle safety standards. **NHTSA Tire Regulations**: Rules governing sales of defective tires, recalled tires management, tire placards, etc.
		Supplies: -Obtain and use labels as necessary.		

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Regulatory Category	General Description	Cost Category Description	Cost Estimate	Specific Mandates Falling Within Each Category
Sales: Sales Manager, General Manager, Owner/Principal				
Customer Notices	Vehicle sales rules governing customer notices, written warranties, mileage guides, emissions certifications, used vehicle buyer's guides, etc.	**Compensation** **Time spent:** -Affixing used car buyers' guides. -Providing fuel economy guides on request. -Posting warranty availability notice and providing warranty information upon request. -Training employees on compliance strategies -Providing the EPA emissions certification.		**DOE/EPA Fuel Economy Guide:** Download, print, and provide fuel economy guide upon request. **EPA emissions certification:** Provide EPA emissions certification with each light-duty sale. **FTC Used Car Rule (Buyer Guides):** Post buyers guides on all light-duty used vehicles and include warranty terms in sales contracts. **Magnuson-Moss Act and Written Warranty Rule:** Governs terms of warranties and service contracts given and the availability of warranty information prior to purchase.
		Supplies -Printing or purchasing used car buyer guides and copies of written warranties -Print or purchase copies of EPA emissions certification.		
Regulatory Category	**General Description**	**Cost Category Description**	**Cost Estimate**	**Specific Mandates Falling Within Each Category**
Vehicle Financing: Finance Manager, General Manager, Owner/Principal				
Administrative	Protections against credit discrimination, identity theft, and credit report misuse.	**Compensation** **Time spent:** -Training employees on proper finance related policies and procedures. -Ensuring compliance with retention and disposal of credit applications and reports. -Developing, implementing and maintaining a program to protect customer information security.		**Equal Credit Opportunity Act:** Prohibitions against credit applicant discrimination and rules on gathering, evaluating and retaining credit information. **Fair Credit Reporting Act:** Restricts the use of credit reports, the furnishing of information to consumer reporting agencies, and the sharing of information with affiliates. **Red Flags Rule:** Requires dealers to develop and implement a written identity theft prevention program containing procedures to identify, detect, and respond to identity theft "red flags." **Other FACT Act:** Consumer fraud alerts, address discrepancy notices, credit card truncation, etc. **Safeguards Rule (Gramm-Leach-Bliley)**: Must develop, implement, and maintain a program to protect the security of customer information.
		Contractors **Payments to:** -Vendors for accessing credit reports. -Third-parties for training or classes. -Vendors for physical or electronic record storage and destruction. -Vendors for assistance with customer information security program.		

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Regulatory Category	General Description	Cost Category Description	Cost Estimate	Specific Mandates Falling Within Each Category
Vehicle Financing: Finance Manager, General Manager, Owner/Principal				
Customer Notices	Vehicle financing rules mandating customer notices for a variety of information on transactions, credit reports, odometer readings, and privacy.	**Compensation** **Time spent:** -Issuing Adverse Action Notices. -Explaining to customers why credit applications are denied. -Issuing credit score disclosure exception notices. -Providing point-of-sale lending disclosures. -Completing/providing required privacy notices. -Obtaining and providing used vehicle odometer disclosures using federally compliant forms and time spent retaining disclosure documents. -Ensuring proper language in credit/lease documents and advertisements.		**Equal Credit Opportunity Act:** Requirement that written notices be provided to credit applicants explaining credit denials. **Fair Credit Reporting Act**: Notices to consumers, job applicants, and employees for adverse actions based on credit reports. **FTC Credit Practices Rule:** Written disclosures to co-signers and prohibitions on unfair credit/co-signer practices and the pyramiding of late charges. **FTC Privacy Rule (Gramm-Leach-Bliley):** Must issue privacy notices to finance and lease customers if disclosures of non-public consumer information to third parties. Rules encourage use of model FTC privacy notice. **FTC Prohibition against deceptive/unfair trade practices:** Wide array of restrictions on unfair and/or deceptive activities. **NHTSA Odometer Rules:** Requirement that most vehicle transfers be accompanied by an odometer disclosure. **Truth in Lending and Consumer Leasing Act:** Regulations Z and M specify information to be disclosed to consumers prior to completing credit or lease transactions. **Dodd-Frank Financial Reform:** Disclosure rules for risk-based pricing and adverse actions notices.
		Contractors **Payments to:** -Vendors for adverse action notices. -Third parties for training class fees.		
		Supplies -Printing or purchasing required customer notices.		

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Regulatory Category	General Description	Cost Category Description	Cost Estimate	Specific Mandates Falling Within Each Category
Marketing: Sales Manager, General Manager, Owner/Principal				
Advertising	Rules prohibiting advertising and marketing of deceptive information.	**Compensation** **Time spent:** -Ensuring advertisements contain required disclosures and meet federal Unfair and Deceptive Acts and Practice (UDAP) standards.		**FTC prohibition against deceptive/unfair trade practices:** Restrictions on a wide array of unfair and deception advertising practices. **FTC Guidelines for Fuel Economy Advertising:** Fuel economy ads must state that mileage numbers are EPA-based estimates. **Truth in Lending and Consumer Leasing Act:** Mandatory guidelines for ensuring proper lease and credit sales disclosure guidelines.
		Contractors **Payments to:** -Consultants to vet ads for "trigger terms" and other compliance concerns.		
Customer Communication	Restricted dealer-customer communications.	**Compensation** **Time spent:** -Providing consumers with communication opt-out opportunities. -Verifying wireless devices receive communications only after obtaining express written consents. -Training employees on various communications and marketing restrictions. -Maintaining company-specific Do Not Call lists and complying with the national list.		**CAN-SPAM:** Restrictions on commercial email messages to wireless and non-wireless devices. **FTC Privacy Rule (Gramm-Leach-Bliley Act):** Must issue privacy notices to finance and lease customers if dealer discloses non-public consumer information to third parties (rules encourage use of model FTC privacy notice). **FTC Telemarketing Sales Rule**: Rules govern array of deceptive and abusive acts involving interstate marketing phone calls. Prohibits pre-recorded telemarketing phone calls without consent. **Junk Fax Prevention Act:** Preserves established business relationship basis for sending faxes to businesses and consumers, imposes opt-out notice requirement, and requires that faxes only be sent to numbers voluntarily provided. **Telephone Consumer Protection Act:** Numerous telemarketing (calls and texts) rules including national do-not-call rules, calling time restrictions, caller ID requirements, and restrictions on use of auto-dialers and prerecorded messages.
		Contractors **Payments to:** -IT consultants and vendors to set up and track opt-outs and firewalls between business units and third-parties. -Third-parties for accessing Do Not Call lists and verifying potential contacts not on the list. -Third-parties for scrubbing phone contact lists of mobile phones.		

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Appendix C: Model Output

Regression Output

Dependent Variable: REV/REV(-1)

Method: Least Squares

Sample (adjusted): 1979 2012

Included observations: 34 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
VPRICE/VPRICE(-1)	0.605652	0.158460	3.822118	0.0006
(DPRICE)/DPRICE(-1)	0.469819	0.233027	2.016158	0.0531
(VEH)/VEH(-1)	0.715271	0.049068	14.57701	0.0000
UNEMP	-0.006698	0.003075	-2.178370	0.0377
C	-0.740157	0.190004	-3.895469	0.0005

R-squared	0.900085	Mean dependent var	1.050480
Adjusted R-squared	0.886303	S.D. dependent var	0.074949
S.E. of regression	0.025272	Akaike info criterion	-4.383195
Sum squared resid	0.018521	Schwarz criterion	-4.158730
Log likelihood	79.51432	Hannan-Quinn criter.	-4.306646
F-statistic	65.31147	Durbin-Watson stat	2.373179
Prob(F-statistic)	0.000000		

The variables the research team tested but did not include in the final model due to multi -collinearity and autocorrelation include: real motor vehicle output, BAA corporate bond yield, CPI-all item, dealership expenses, real GDP growth rate, personal income excluding transfer receipts, dealership net profit, household net worth, and average new vehicles sold per dealership. Figure 2 shows the actual and fitted data, as well as the residuals.

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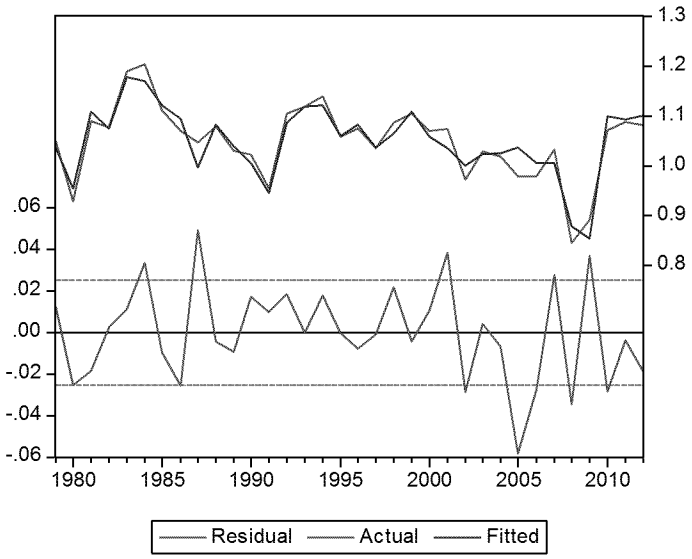
Figure 2: Model Estimation—Actual and Fitted Data and Residuals



Appendix D: Government Studies Summary

Regulation	Description of Regulation Applicable to Automobile Dealers	Regulatory Evaluation Cost Estimate	Cost Estimate in 2009 Dollars[1]	Cost Estimate Specification
Affordable Care Act	Extensive health-care reforms enacted in 2010 affect dealerships and their health-care plans. For example, large dealerships (with more than 50 full-time employees) must decide by January 1, 2014, whether they will offer health coverage that meets the federal requirements or pay a penalty. Many other reporting, record keeping, and other duties will apply to dealerships and other business. For more information, visit www.healthreform.gov.			
Air Contaminant Standards	Provide protective permissible exposure limits regulated by OSHA.	✓	$21	Estimated annual incremental costs of 1989 amendments to automotive dealers and service stations industries.
Americans With Disabilities Act[2]	Title III Prohibits discrimination against the physically handicapped in areas of public accommodation. Must make reasonable accommodations to facilities, such as installing ramps and accessible parking spaces, drinking fountains, public toilets and doors. Dealerships with 15 or more employees must reasonably accommodate disabled workers and job applicants.	✓	$411.3	Estimated net present value (negative) from cost/benefit analysis of incremental costs of 2008 amendments, using 1991 rules as a baseline, to single level stores. Single level stores category includes retail establishments assumed to be inclusive of automobile dealerships.
CAN-SPAM Act	E-mailers must identify a commercial message as an advertisement or solicitation and provide their postal addresses and a mechanism to opt out of future commercial e-mails. If recipients opt out, senders must stop sending them commercial e-mail within 10 business days. No one may send commercial e-mails to wireless devices unless recipients provide express prior authorization to receive them.			

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Regulation	Description of Regulation Applicable to Automobile Dealers	Regulatory Evaluation Cost Estimate	Cost Estimate in 2009 Dollars[1]	Cost Estimate Specification
Clean Air Act	National paint and hazardous air-pollution rules require reformulated, environmentally safer paints and finishes, special handling procedures, and record keeping.	✓	$5,473	Estimated annual cost in 2010. Inclusive of laws in place as of 2005. 1/5 emission source categories estimated in study - non-electricity generating units, industrial point sources. This category includes sources such as boilers, cement kilns, process heaters, and turbines.
Clean Water Act	Sets standards for regulation of wastewater and storm water at dealerships and comprehensive rules governing aboveground oil storage tanks.	✓	$18,063	Estimated total annual costs to economy as of 1994, projected to 1997 using a 3% discount rate.
COBRA (Consolidated Omnibus Budget Reconciliation Act)	Requires dealerships with 20 or more employees to continue health-care coverage for ex-employees and their families for 18 to 36 months, depending on circumstances.			
Comprehensive Environmental Response, Compensation, and Liability Act	Dealers must closely monitor waste disposal to avoid liability, requirement to accept waste oil from do-it-yourselfers.			
Dodd-Frank Financial Reform Law	Dealers who engage in BHPH financing, are subject to the newly created Consumer Financial Protection Bureau. The Dodd-Frank law also created several new obligations for creditors, including new disclosure requirements for risk-based pricing and adverse-action notices under the Fair Credit Reporting Act. .			
DOE/EPA gas-mileage guide	Dealers must make this guide available to prospective new vehicle buyers upon request free of charge in either electronic or paper form.			
DOT hazardous-materials-handling procedures	Require parts employees who load, unload, and package hazardous products, such as airbags, batteries, and brake fluid, to be trained in safe handling practices.			
Electronic records retention	Revenue Procedure 98-25 explains the IRS requirements for retaining computerized accounting records			

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Regulation	Description of Regulation Applicable to Automobile Dealers	Regulatory Evaluation Cost Estimate	Cost Estimate in 2009 Dollars[1]	Cost Estimate Specification
Emergency-response planning	Federal laws require dealers to have emergency-response plans.			
Employee Discrimination Rules	Bars employment discrimination on the basis of race, sex, color, religion, or national origin. Prevents employers from asking job applicants certain questions (such as age, marital status, or childbearing plans). Prohibits workplace sexual harassment, including behavior that creates a hostile work environment.			
Employee Verification Rules	Dealerships must verify the employment eligibility of prospective new employees using I-9 form and proper support documentation.			
Employment Retirement Income Security Act	Dealers offering retirement or health plans must, among other things, provide employees with plan information, keep records, abide by fiduciary responsibilities, and establish a grievance and appeals process.			
EPA emissions certification	Dealers must provide a form to new vehicle customers certifying a vehicle's compliance with emissions standards.			
EPA hazardous-waste rules, Resource Conservation and Recovery Act (RCRA)	Comprehensive environmental law regulating many dealership functions, including underground storage tanks and the storage, management, and disposal of used oil, antifreeze, mercury products, and hazardous wastes.	✓	$5,362	Estimated annual costs to economy. Not inclusive of Clean Water Act, initial capital costs, and considers rules promulgated between 1986 and 2003.

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Regulation	Description of Regulation Applicable to Automobile Dealers	Regulatory Evaluation Cost Estimate	Cost Estimate in 2009 Dollars[1]	Cost Estimate Specification
Equal Credit Opportunity Act	Regulation B prohibits discrimination in credit transactions based on race, gender, color, marital status, religion, national origin, age, and public-assistance status. The dealer/creditor is required both to notify applicants in a timely fashion of actions taken on, and reasons for, denying applications, and to retain certain records.			
FACT Act of 2003	Amendment to the Fair Credit Reporting Act. Significantly increased dealer responsibilities to customers engaging in credit transactions. Also increased dealer responsibilities to help combat identity theft.			
Fair Credit Reporting Act	Restrictions on credit report access and information sharing. Dealer requirements if adverse action is taken based on customer credit.			
Family and Medical Leave Act	Dealerships must post a notice informing employees of their right to take up to 12 weeks of unpaid, job protected leave per year for personal and family related medical emergencies, and must comply with appropriate requests for such leave. Special provisions apply to leave related to military service.			
Federal child-support enforcement regulations	Requires states to govern liens on personal property - including vehicles - for overdue child support. Dealerships should check that child-support liens don't exist on used cars, and must place liens on wages of employees who are delinquent on child support programs.			

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Regulation	Description of Regulation Applicable to Automobile Dealers	Regulatory Evaluation Cost Estimate	Cost Estimate in 2009 Dollars[1]	Cost Estimate Specification
Federal wage-hour and child labor laws	Addresses minimum wage and overtime pay standards and exemptions, as well as standards for employing minors, including teen driving restrictions.			
FTC Credit Practices Rule	Dealers are required to provide a written disclosure statement to a cosigner before the cosigner signs an installment sales contract. Dealers cannot "pyramid" late charges (that is, add a late charge onto a payment made in full and on time when the only delinquency was a late charge on a previous installment).			
FTC Door-to-Door Sales Rule	Gives Consumers a three day "cooling off" period for sales not consummated at the dealership. Does not apply to auctions, tent sales, or other temporary places of business if the seller has a permanent place of business.			
FTC guidelines for fuel-mileage advertising and alternative- fueled vehicle advertising and labeling	Dealer and manufacturer fuel-economy advertisements must state that the numbers are estimates and come from EPA; alternative-fueled vehicles must be properly labeled.			
FTC Privacy Rule[3]	Dealers must issue notices of their privacy policies to their finance and lease customers and, in some cases, when the dealer discloses nonpublic information about consumers to third parties. The rule also restricts disclosures of nonpublic personal information.	✓	$106.6	Estimated annual costs to all financial institutions subject to the Federal Trade Commission's jurisdiction. Financial institutions defined uniquely to include various entities with access to customer information.
FTC prohibition against deceptive and unfair trade practices	Prohibits dealers from engaging in deceptive and unfair trade practices.			
FTC Repossession Rule	Requires formal accounting of money collected for repossessed vehicles.			

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Regulation	Description of Regulation Applicable to Automobile Dealers	Regulatory Evaluation Cost Estimate	Cost Estimate in 2009 Dollars[1]	Cost Estimate Specification
FTC Safeguards Rule	Dealers must develop, implement, maintain, and regularly audit, a comprehensive, written security program to protect customer information.			
FTC Telemarketing Sales Rule	Requires dealers who sell, or obtain payment authorization for, goods or services during interstate phone calls to abide by the prohibition against numerous deceptive and abusive acts and to maintain certain records for 24 months. Prohibits prerecorded telemarketing calls without a consumer's express written agreement, requires such calls to provide opt-out mechanism at the outset of the calls, and requires minimum call length before hang up.			
FTC Used Car Rule	"Buyer's Guides" are required on used-vehicle side windows, disclosing make, model, year, VIN, whether offered "as is" or with a warranty (and, if so, what kind of warranty), and service contract availability. Guides must warn all promises should be in writing. For sales conducted in Spanish, the "Buyer's Guide and the required cross-references in the sales contract must be in Spanish.			
FTC Used Parts Guide	Prohibits misrepresentation that a part is new or about the condition, extent of previous use, reconstruction, or repair of a part. Previously used parts must be clearly and conspicuously identified as such in advertising and packaging, and, if the part appears new, on the part itself.			

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Regulation	Description of Regulation Applicable to Automobile Dealers	Regulatory Evaluation Cost Estimate	Cost Estimate in 2009 Dollars[1]	Cost Estimate Specification
FTC Written Warranty Rule	Dealers must display warranties near products or post signs in prominent places telling consumers that copies of the warranties are available for review.			
General Corporate and Payroll Tax Compliance	Transactional cost burden associated with the recordkeeping, calculation, and filing of dealership Federal corporate and payroll taxes			
Gramm-Leach-Bliley Act	Protects customer information from foreseeable threats in security and data integrity. Governs the collection, disclosure, and protection of customers nonpublic personal information.			
Health Insurance Portability and Accountability Act	Generally prohibits health insurers from denying coverage to workers who lose or change jobs and bars insurers from excluding coverage for preexisting conditions for more than a year. Dealerships cannot discriminate based on pre-existing conditions or current health status and must allow employees to enroll in new plans, given they meet certain requirements.	✓	$797	Estimated annual cost to health care insurers.
IRS Cash-Reporting Rule	Dealers receiving more than $10,000 in cash in one transaction or in two or more related transactions must file IRS/FinCEN Form 8300 with the IRS within 15 calendar days and must provide written notice that the report was filed to the person named on the report by January 31 of the following year. "Cash" includes certain cashier's checks, traveler's checks, money orders, and bank drafts.			

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Regulation	Description of Regulation Applicable to Automobile Dealers	Regulatory Evaluation Cost Estimate	Cost Estimate in 2009 Dollars[1]	Cost Estimate Specification
IRS/DOL worker classification	When making decisions about worker classification dealers must carefully assess whether the worker is an employee or independent contractor.			
Magnuson-Moss Act	Dealers must give consumers certain required information on warranties and limited warranties.			
Mandatory workplace posters	Requirement to inform employees of certain employment-related rights.			
Miscellaneous record-keeping requirements	A multitude of requirements govern the length of time records must be maintained.			
NHTSA alteration and tire-placarding rules	Labeling and registration rules. Rules for handling and disposal of recalled new and used tires.			
NHTSA odometer rule	Prohibits odometer removal or tampering and misrepresentation of odometer readings. Requires record keeping to create a "paper trail", and odometer disclosures on titles. Vehicles with a greater than 16,000-lb. gross vehicle weight rating and those 10 model years old or older are exempt.			
NHTSA safety belt/airbag deactivation	Dealerships may install airbag switches for consumers with NHTSA authorization. Dealerships must be responsive to consumer requests for rear-seat lap/shoulder safety belt retrofits in older vehicles.			
NHTSA tampering rules	Prohibits dealerships from rendering inoperative safety equipment installed on vehicles in compliance with federal law.			

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Regulation	Description of Regulation Applicable to Automobile Dealers	Regulatory Evaluation Cost Estimate	Cost Estimate in 2009 Dollars[1]	Cost Estimate Specification
NHTSA tire regulations	Rule requires proper replacement or modification of the tire-information label when replacing tires or adding weight before first sale or lease. Also, consumers must be given registration cards when buying new tires or tires must be registered electronically. Other rules govern handling and disposal.			
NLRB Regulations	National Labor Relations Board rules governing unionization activities, including employee rights, election rules, postings, unfair labor practices, and others.			
OFAC restrictions	Dealerships may not enter into transactions with certain sanctioned countries, governments, and specially designated organizations and individuals, including those appearing on and electronic list maintained by OFAC.			
OSHA asbestos standards	Dealerships must use certain procedures during brake and clutch inspections and repairs to minimize workplace exposure. Water, aerosol cleaners, or brake washers may be used to comply with the standard.	✓	$23.6	$8,212,701 in estimated annual incremental costs to automotive remanufacturing and auto repair industry for 1986 amendments to revise standards, $15,437,858 in estimated annual incremental costs to automotive repair industry for 1994 amendments to revise 1986 standards.
OSHA Blood-Borne Pathogens Rule	Dealerships more than four minutes from an emergency health facility must have a program to respond to employees who suffer cuts. All dealerships should have proper first-aid kits.	✓	$1,190	$1,150,421,211 total costs for 1991 rule and $40,461,109 incremental annual costs for 2001 standards revision. Costs applicable to healthcare, education, correctional and waste management industries.

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Regulation	Description of Regulation Applicable to Automobile Dealers	Regulatory Evaluation Cost Estimate	Cost Estimate in 2009 Dollars[1]	Cost Estimate Specification
OSHA Hazard Communication Standard	Dealers must inform employees about chemical hazards they may be exposed to in the workplace, keep chemical product information sheets on-site and accessible, and train staffers to properly handle the hazardous materials they work with. Recent revisions require retraining employees by December 1, 2013.	✓	$32.6	Incremental costs of 2012 amendments. $8,307,813 in annual costs and $24,339,072 annually during 4 year phase in ending 6/1/16. Costs applicable to vehicle and parts dealers, repair and maintenance, automotive body, paint, and interior repair and maintenance industries.
OSHA lock-out/tag-out procedures	Procedures for service departments to ensure machines, including vehicles, are safely disengaged before being serviced.			
OSHA Respiratory Protection Standard	Development and implementation of a written program addressing how to select, properly apply, and maintain respirators, to protect body shop workers from hazardous chemicals.			
OSHA workplace health and safety standards	Extensive regulations covers multitude of workplace issues and practices, from hydraulic lift operation to the number of toilets required.	✓	$45,627	Total cost estimate for economy.
Powered Industrial Truck Operator Training	Regulation intended to reduce the number of injuries and deaths that occur as a result of inadequate operator training. Applies to all industries in which the trucks are being used, except agricultural operations.	✓	$0.07	Annual incremental costs of 1998 amendments. Automotive dealers and service stations industries.
Resource Conservation and Recovery Act (RCRA)	Comprehensive environmental law regulating many dealership functions, including underground storage tanks and the storage, management, and disposal of used oil, antifreeze, mercury products, and hazardous wastes.	✓	$100.80	Annual incremental costs to economy of 1984 amendments.

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Regulation	Description of Regulation Applicable to Automobile Dealers	Regulatory Evaluation Cost Estimate	Cost Estimate in 2009 Dollars[1]	Cost Estimate Specification
Telephone Consumer Protection Act	Imposes numerous restrictions on telemarketing, including the national and company-specific do-not-call (DNC) rules, calling-time restrictions, caller ID requirements, fax advertising rules, and restrictions on the use of auto dialers and prerecorded messages.			
Truth in Lending and Consumer Leasing Acts	Regulations Z and M cover consumer credit and consumer leasing transactions, respectively, specifying information to be disclosed to a consumer before completing the transaction, and information to be disclosed when advertising consumer credit transactions or leases.			
Uniformed Services Employment and Reemployment Rights Act (USERRA)	Protects service members' reemployment rights when returning from a period of service in the uniformed services, including those called up from the reserves or National Guard, and prohibits employer discrimination based on military service or obligation.			

1. Cost estimates converted to 2009 dollars using Bureau of Economic Analysis implicit price deflator for gross domestic product. In millions of dollars.
2. Employee discrimination rules applicable in this category, but not included costs.
3. Gramm-Leach-Bliley applicable in this category, but not included in costs.

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Appendix E: Bibliography

Bailey et al. "Mind the gap! Comparing *ex ante* and *ex post* assessments of the costs of complying with environmental regulation." *Environmental Policy and Governance* 12, no. 5 (Sept/Oct 2002). pp. 245-256.

Eisenberry, Ross and Shapiro, Isaac. "Deconstructing Crain and Crain: Estimated cost of OSHA regulations is way off base." *Economic Policy Institute Issue Brief* no. 312 (22 Aug 2011).

Hahn, Robert, and Dudley Patrick. "How Well Does the U.S. Government Do Benefit-Cost Analysis?" *Review of Environmental Economics and Policy*. no. 2 (2007). pp. 192-211.

Hammitt, James. "Are The Costs of Proposed Environmental Regulations Overestimated? Evidence from the CFC Phaseout." *Environmental and Resource Economics* 16, no. 3 (July 2000). pp. 281-302.

Harvey S. James Jr., "Estimating OSHA Compliance Costs," *Policy Sciences* 31, (1998). pp. 321-341.

Harrington et al. "On the Accuracy of Regulatory Cost Estimates." *Journal of Policy Analysis and Management* 19, no. 2 (2000). pp. 297-322.

"Hazard Communication, Final Rule," 77 *Federal Register* 58 (26 March 2012). pp. 17574-17896.

Hill, Kim, Debbie Maranger Menk and Joshua Cregger. "Assessment of Tax Revenue Generated by the Automotive Sector." Center for Automotive Research. (April 2012).

National Automobile Dealers Association. "NADA Data: State of the Industry Report." (2013).

National Automobile Dealers Association. "The Regulatory Maze: NADA's Annual Update on Federal Regulations." (2012)

"Occupational Exposure to Bloodborne Pathogens; Needlestick and Other Sharps Injuries; Final Rule," 66 *Federal Register* 12 (18 January 2001). pp. 5318-5325.

Office of Information and Regulatory Affairs. "2008 Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities." (January 2009).

Office of Information and Regulatory Affairs. "2013 Draft Report to Congress on the Benefits and Costs of Federal Regulations and Agency Compliance with the Unfunded Mandates Reform Act." (April 2013).

Robert S. Raucher and John Cromwell, "Safe Drinking Water Act: Costs of Compliance," Working Paper. Mercatus Center, George Mason University. Working Paper 35.

"Standards of Privacy of Individually Identifiable Health Information, Final Rule," 65 *Federal Register* 250 (28 December 2000). pp. 82462-82829.

17cv1906 Sierra Club v. EPA - 6/22 Production ED_001523_00008295-00054

Thompson et al. "Validating Benefit and Cost Estimates: The Case of Airbag Regulation." Risk Analysis 22, no.4 (4 Oct 2002). pp. 803-811.

U.S. Department of Justice, Disability Rights Section of the Civil Rights Division . *Final Regulatory Impact Analysis of the Final Revised Regulations Implementing T itles II and II I of the ADA, Including Revised ADA Standards for Accessible Design.* (23 July 2010).

U.S. Department of Labor, Occupational Safety and Health Administration. Air Contaminants, Section 7 – VII. Feasibility and Regulatory Analyses. 54 *Federal Register* (5 July 1989). pp. 28154.

U.S. Department of Labor, Occupational Safety and Health Administra tion. Hazard Communication. 77 *Federal* Register (25 May 2012). pp. 17573-17896.

U.S. Department of Labor, Occupational Safety and Health Administration . Occupational Exposure to Asbestos, Section 4 – IV. Final Regulatory Impact and Regulatory Flexibility Analysis . 60 *Federal Register* (29 June 1995). pp. 33973.

U.S. Department of Labor, Occupational Safety and Health Administration . Occupational Exposure to Asbestos, Tremolite, Anthrolphyllite, and Actinolite, Section 3 – III. Regulatory Analysis . 53 *Federal Register* (14 September 1988). pp. 35609.

U.S. Department of Labor, Occupational Safety and Health Administration . Occupational Exposure to Bloodborne Pathogens, Section 7 – VII. Regulatory Impact and Regulatory Flexibility Analysis. 57 *Federal Register* (6 December 1991). pp. 64004.

U.S. Department of Labor, Occupational Safety and Health Administration . Powered Industrial Truck Operator Training, Section 1 0 – X. Summary of the Final Economic Analysis, Including the Regulatory Flexibility Analysis. 63 *Federal Register* (1 December 1998). pp. 66237.

U.S. Environmental Protection Agency, Office of Air and Radiation . *The Benefits and Costs of the Clean Air Act from 1990 to 2020, Final Report – Rev. A.* (April 2011).

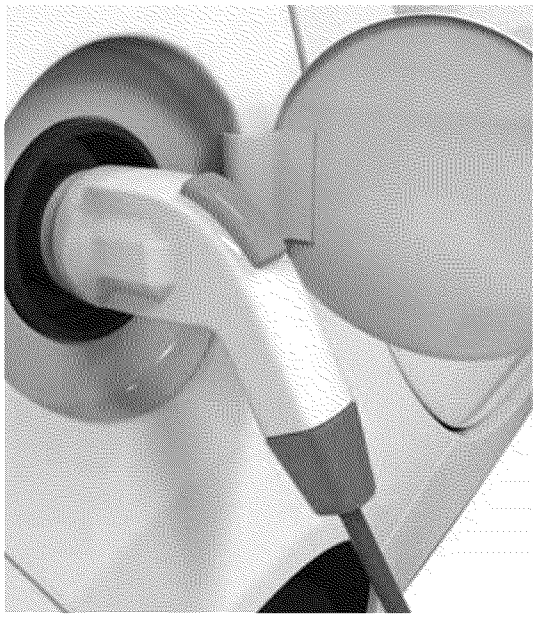
U.S. Environmental Protection Agency, Office of Solid Waste . *Economic Analysis of Resource Conservation and Recovery Act Regulations for Small Quantity Generators.* (June 1985).

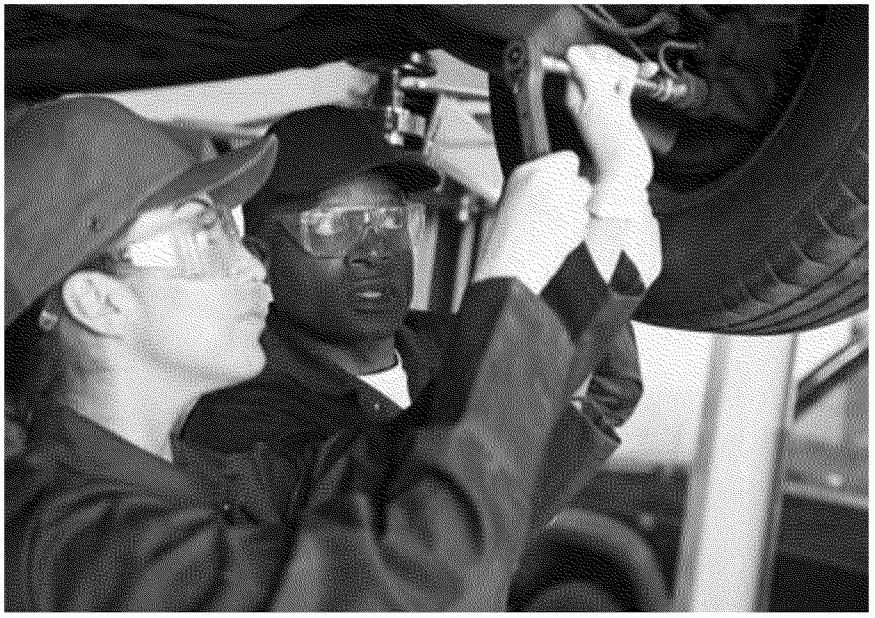
U.S. Environmental Protection Agency, Office of Water, Office of Policy, Economics, and Innovation. *A Retrospective Assessment of the Costs of the Clean Water Act: 1972 to 1997.* (October 2000).

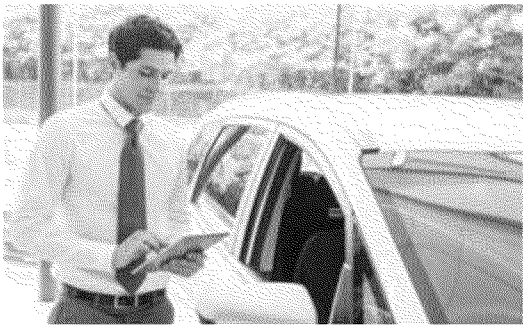
17cv1906 Sierra Club v. EPA - 6/22 Production ED_001523_00008295-00055

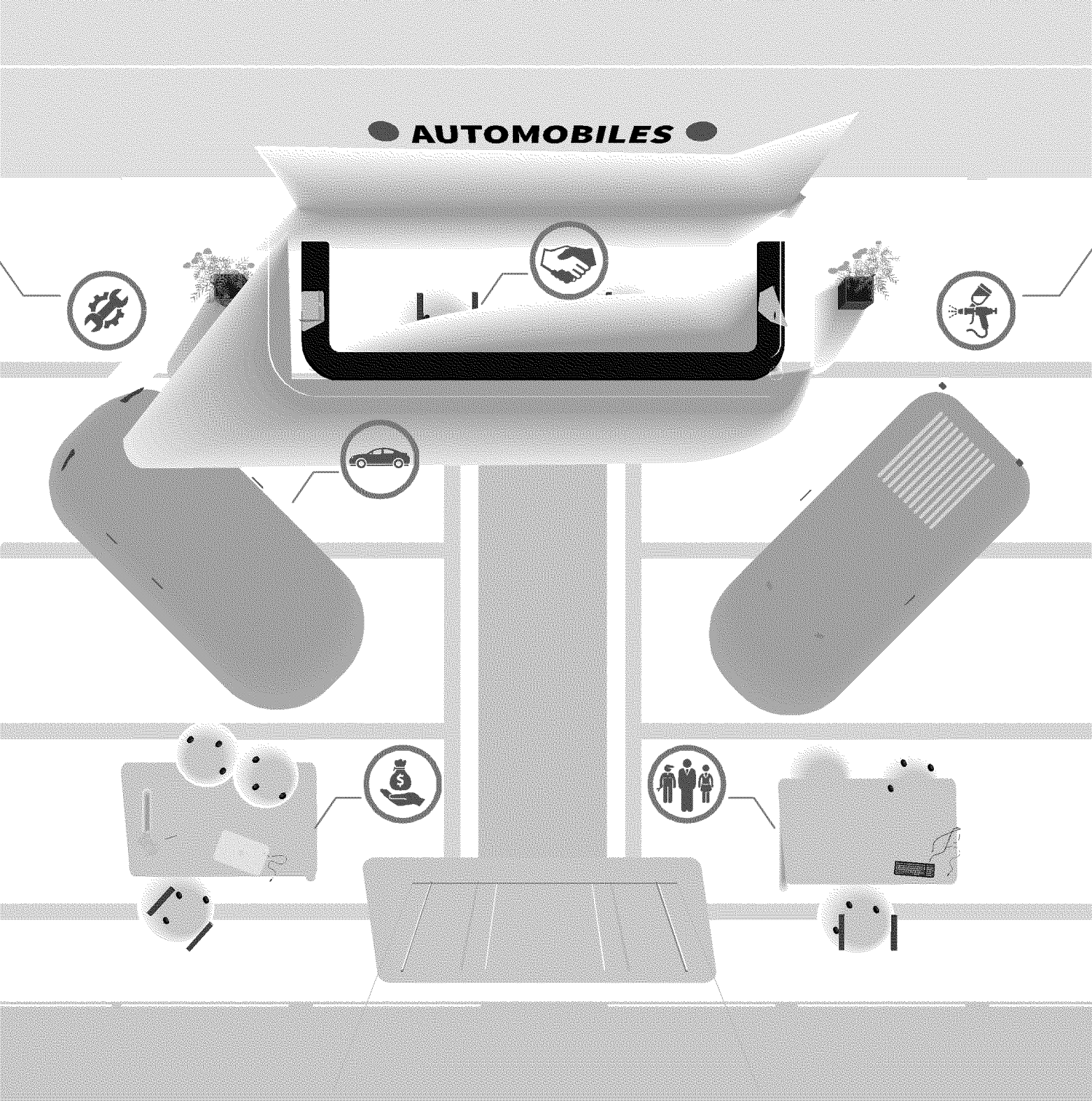
THE REGULATORY MAZE

NADA's Annual Update on Federal Regulations









THE REGULATORY MAZE

Our annual list of major federal regulations; state and local laws also apply and sometimes include additional requirements.

All Departments (General Management/Personnel)

- [illegible] Acquirements

All Departments (Customer)

- Americans With Disabilities Act
- CAN-SPAM Act
- Driver's Privacy Protection Act
- Electronic Funds Transfer Act
- FTC Privacy Rule
- FTC prohibition against deceptive and unfair trade practices
- FTC Safeguards Rule
- FTC Telemarketing Sales Rule
- FTC Warranty Rules
- IRS Cash-Reporting Rule
- Magnuson-Moss Act
- OFAC restrictions
- Telephone Consumer Protection Act
- USA PATRIOT Act

Body Shop

- Clean Air Act
- EPA hazardous-waste rules
- OSHA Hazard Communication Standard
- OSHA Respiratory Protection Standard
- OSHA workplace health and safety standards
- UNICAP
- VIN and parts marking

F&I Department

- Dodd-Frank Financial Reform Law
- Equal Credit Opportunity Act
- Fair Credit Reporting Act
- FACT Act of 2003
- FTC Credit Practices Rule
- FTC Holder-in-Due-Course Rule
- Gramm-Leach-Bliley Act
- Producer-Owned Reinsurance Companies
- Truth in Lending and Consumer Leasing Acts

New- and Used-Vehicle Sales Departments

- American Automobile Labeling Act
- CAFE and GHGs Rules
- Diplomat vehicle purchases
- DOE/EPA gas-mileage guide
- Federal bankruptcy law
- FTC Door-to-Door Sales Rule
- FTC guidelines for fuel-mileage advertising and alternative-fueled-vehicle advertising and labeling
- FTC Used Car Rule
- Gray-market vehicles
- IRS treatment of salesperson incentives
- LIFO inventory accounting method
- Heavy-highway-vehicle excise tax
- Motor vehicle tax credits
- Monroney sticker (Price Labeling Law)
- NHTSA alteration and tire-placarding rules
- NHTSA odometer rule
- NHTSA recall regulations
- NHTSA safety belt/airbag deactivation
- NHTSA tire regulations
- School van sales
- UNICAP

Service and Parts Department

- Clean Air Act
- Clean Water Act
- DOT hazardous-materials-handling procedures
- FTC Used Parts Guide
- IRS Core Inventory Valuation
- LIFO/FIFO inventory accounting method
- NHTSA tampering rules
- NHTSA tire rules
- OSHA asbestos standards
- OSHA Hazard Communication Standard
- OSHA lock-out/tag-out procedures
- OSHA workplace health and safety standards
- RCRA
- Safe Drinking Water Act
- Superfund
- UNICAP

IN ADDITION TO THIS LIST OF FEDERAL LAWS AND REGULATIONS, be sure to consult nada.org/regulatoryaffairs for more details.

All Departments (General Management/Personnel)

- Affordable Care Act: Extensive health-care reforms enacted in 2010 affect dealerships and their health-care plans. For example, most large dealerships (with more than 50 full-time employees) must have decided by January 1, 2015, whether they will offer health coverage that meets the federal requirements or pay a penalty. Many additional reporting, record-keeping and other duties apply to dealerships and other businesses. For more information, visit healthcare.gov.
- Age Discrimination in Employment Act: Protects older individuals against age-based employment discrimination.
- Americans With Disabilities Act (ADA): Dealerships with 15 or more employees must reasonably accommodate disabled workers and job applicants.
- Consolidated Omnibus Budget Reconciliation Act (COBRA): Requires dealerships with 20 or more employees to continue health-care coverage for ex-employees and their families for 18 to 36 months, depending on circumstances.
- Electronic deposit of taxes: Dealerships having more than a de minimis amount of aggregate depository taxes generally must deposit through the Electronic Federal Tax Payment System.
- Electronic records retention: Revenue Procedure 98-25 explains the IRS requirements for retaining computerized accounting records.
- Emergency-response planning: Federal, state and local laws require dealers to have emergency-response plans.
- Employee drug testing: Unionized dealerships must bargain with unions before implementing employer drug policies (not necessary for pre-employment drug testing). The ADA prohibits employers from discriminating against employees or applicants who have completed or are currently undergoing a drug treatment program, as long as they aren't currently abusing drugs.
- Employee Polygraph Protection Act: Prohibits dealerships from using polygraphs in pre-employment screening; allows use in limited cases where an employee is reasonably suspected of a workplace incident involving economic loss to the employer.
- Employee Retirement Income Security Act (ERISA): Dealers offering retirement or health plans must, among other things, provide employees with plan information, keep records, and abide by fiduciary responsibilities and other obligations.
- Employment Verification Rules: Dealerships must verify the employment eligibility of prospective new employees using I-9 form and proper support documentation. Use of E-verify is optional.
- Equal Pay Act: Prohibits wage discrimination on basis of sex.
- Estate tax: The top rate was 40 percent on amounts over 5.45 million (for individuals) in 2016, and increased to $5.49 million in 2017.
- Family and Medical Leave Act: Dealerships must post a notice informing employees of their right to take limited, unpaid leave for personal and family medical emergencies and must comply with appropriate requests for such leave. Special provisions apply to leave related to military service. Dealerships must display the revised Family and Medical Leave Act poster from February 2013.
- Federal child-support enforcement regulations: Requires states to govern liens put on personal property—including vehicles—for overdue child support. Dealerships should check that child-support liens don't exist on used cars, and must place liens on wages of employees who are delinquent on child-support payments.
- Federal Civil Rights Act: Bars employment discrimination on the basis of race, sex, color, religion or national origin. Prevents employers from asking job applicants certain questions (such as age, marital status or childbearing plans). Prohibits workplace sexual harassment, including behavior that creates a hostile work environment.
- FTC Repossession Rule: Requires formal accounting of money collected for repossessed vehicles.
- Federal wage-hour and child labor laws: Address minimum-wage and overtime pay standards and exemptions as well as standards for employing minors, including teen driving restrictions. Federal minimum wage is $7.25 per hour; state minimum wage rates may be higher.
- Genetic Information Nondiscrimination Act: Prohibits discrimination based on health-related employee DNA information.
- Health Insurance Portability and Accountability Act: Generally prohibits health insurers from denying coverage to workers who lose or change jobs and bars insurers from excluding coverage for pre-existing conditions for more than a year.
- IRS/DOL worker classification: Dealers must determine whether their workers are employees or independent contractors. The IRS and the Department of Labor use multi-factor legal standards and tests to evaluate this question. When making worker classification decisions, dealerships should be careful, conser-

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vative and prepared to document their decisions. Of greatest importance: the level of control employers exercise over workers as measured by the means and manner of the work performed. The IRS Voluntary Classification Settlement Program is aimed at encouraging employers to admit past worker misclassifications.

- IRS treatment of demo vehicles: Revenue Procedure 2001-56 offers dealers alternative methods for determining the value of demo use by qualified salespeople and other dealership employees. It defines what constitutes limited personal use and streamlines record-keeping requirements.

- IRS treatment of tool plans: Tool and equipment plans for service technicians and other employees must comply with the IRS's requirements for business connection, substantiation and return of excess payment.

- Mandatory workplace posters: Notices, such as "Your Rights Under the FMLA," "Equal Employment Opportunity Is the Law," "Federal Minimum Wage" and "Notice: Employee Polygraph Protection Act," must be conspicuously displayed. Dealerships must display the revised Federal Minimum Wage and the Employee Polygraph Protection Act (EPPA) posters from August 2016.

- Mental Health Parity Act: Requires insurers and health plans to offer mental illness coverage comparable to that for physical illness. Group health plans may not set dollar limits on mental health care lower than limits for general medical and surgical services. Nothing requires dealerships to provide mental health coverage, and certain exemptions apply.

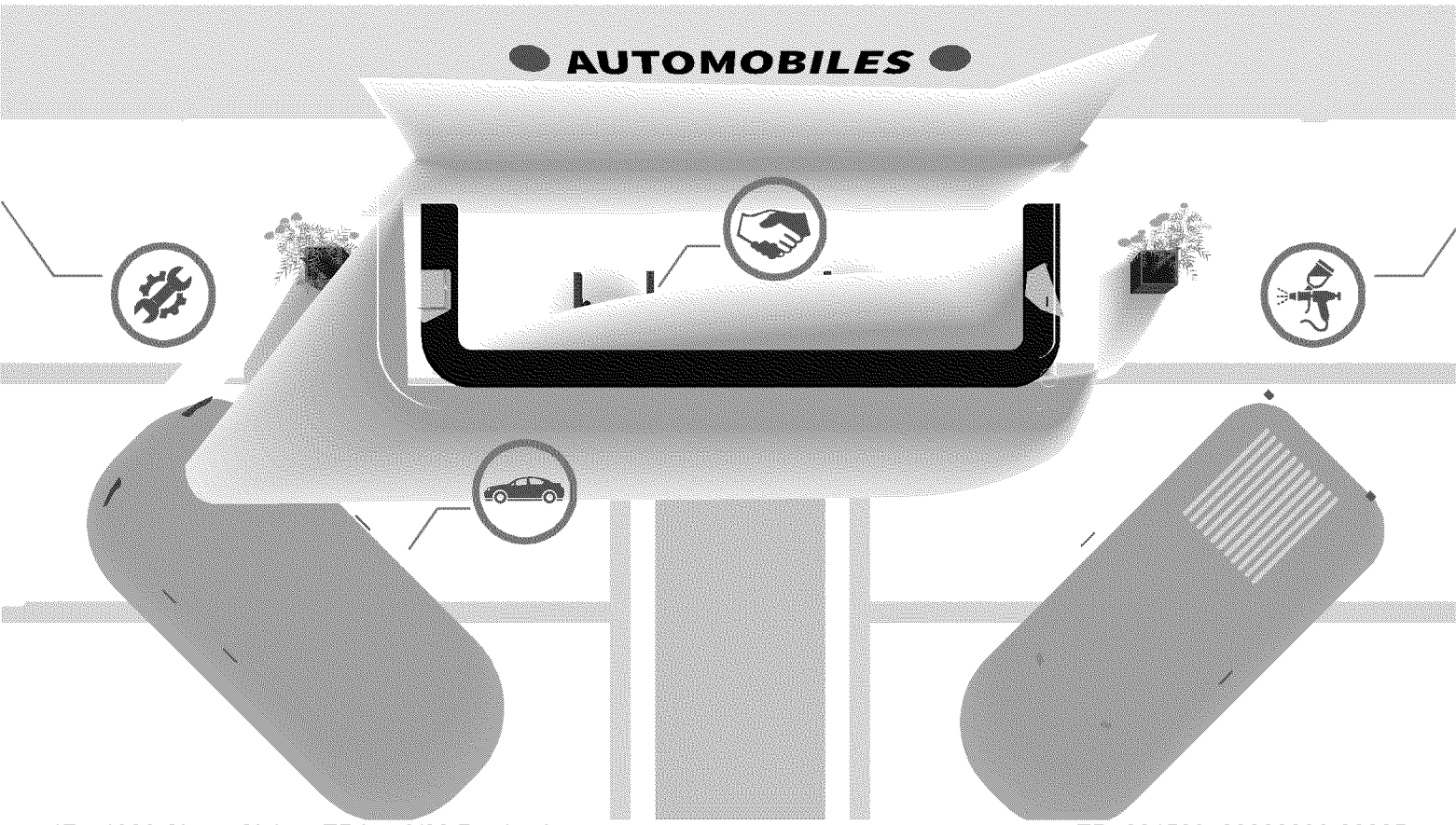
- Miscellaneous record-keeping requirements: A multitude of requirements govern the length of time records must be maintained. Examples: Personal and corporate income tax records must be kept at least three years; notification forms for underground storage tanks must be kept indefinitely; and copies of Form 8300 cash reports must be kept for five years.

- Newborns' and Mothers' Health Protection Act: Employers and insurers must provide minimum hospital-stay benefits.

- National Labor Relations Board (NLRB) unionization rules: Govern unionization activities, including employee rights, election rules, postings, unfair labor practices and others.

- OSHA Blood-Borne Pathogens Rule: Dealerships more than four minutes from an emergency health facility must have a program to respond to employees who suffer cuts. All dealerships must have adequate first-aid kits.

- OSHA injury and illness recording and reporting requirements: Dealers with 10 or more employees are required to maintain a yearly log of work-related injuries and illnesses on OSHA Form 300. Dealers must also complete a report on each workplace injury or illness that occurs using OSHA Form 301. Even if no injuries or illnesses have occurred in a calendar year, all dealers with more than 10 employees must fill out and post an annual summary of work-related injuries and illnesses on OSHA Form 300A. Dealers must also report the following events to OSHA: all work-related fatalities; all work-related inpatient hospitalization of one or more employees; all work-related amputations; and all work-related



losses of an eye. Starting in 2017, heavy-duty truck dealerships with 20 to 249 employees per establishment must electronically submit to OSHA, OSHA Form 300A. Both heavy-duty truck and light-duty car dealerships with more than 250 employees per establishment must electronically submit to OSHA, OSHA Form 300, OSHA Form 300A and OSHA Form 301 starting in 2017.

- Section 89 of the Tax Reform Act: Dealerships are prohibited from discriminating against lower-paid employees in their employee benefits packages.

- Section 179 expensing: Generally, businesses can expense qualified Section 179 property, subject to phaseout. Until further notice, the total Section 179 deduction limitation is $500,000. The bonus depreciation provisions are extended to 2019, with a 50 percent level for 2016 and 2017, 40 percent for 2018 and 30 percent for 2019.

- Uniformed Services Employment and Reemployment Rights Act (USERRA): Governs the employment and reemployment rights of members of the U.S. uniformed services.

- Worker Adjustment and Retraining Notification Act (WARN): Dealerships must give 60 days' notice to workers before termination or store closings under certain circumstances.

All Departments (Customer)

- Americans With Disabilities Act (ADA): Prohibits discrimination against the physically handicapped in areas of public accommodation. Must make reasonable accommodations to facilities, such as by installing ramps and accessible parking spaces, drinking fountains, public toilets and doors.

- CAN-SPAM (Controlling the Assault of Non-Solicited Pornography and Marketing) Act: E-mailers must identify a commercial message as an advertisement or solicitation and provide their physical postal addresses and a mechanism to opt out of future commercial e-mails. If recipients opt out, senders must stop sending them commercial e-mail within 10 business days. The disclosure requirements don't apply to e-mails that relate to transactions or relationships, such as those containing exclusively warranty information or recall-repair messages, or messages related to the completion of transactions requested by the consumer. No one may send commercial e-mails to wireless devices unless recipients provide express prior authorization to receive them. So that senders can recognize wireless addresses, the FCC maintains a list of wireless domain names at transition.fcc.gov/cgb/policy/DomainNameDownload.html. Commercial e-mailers must check the list monthly. (Additional provisions prohibit deceptive headers, misleading subject lines and other spam tactics.)

A text message may also be considered an e-mail and therefore subject to the CAN-SPAM Act if it is sent to an e-mail address—that is, if it has an Internet domain name after the "@" symbol (whether the e-mail address is displayed or not). This means that no commercial text message (deemed to be an e-mail), may be sent to a wireless device without "express prior authorization." Merely having an "established business relationship" with the recipient is not enough.

- Driver's Privacy Protection Act: Denies access to personal information in state motor vehicle records except for limited purposes, such as driver safety, theft and recalls. Also restricts the release or use of personal info for marketing.

- Electronic Funds Transfer Act (EFTA): EFTA and its implementing "Regulation E" govern a variety of electronic transactions. Certain provisions of Regulation E apply directly to any "person" that engages in certain activities or transactions, regardless of whether the person is a financial institution. Examples of such transactions include: issuing access devices (such as debit cards, personal identification numbers [PINs] or payroll cards); issuing or selling gift cards; initiating electronic check conversions; preauthorizing electronic fund transfers; or operating ATMs.

- FTC Privacy Rule: Dealers must issue notices of their privacy policies to their finance and lease customers and, in some cases, to consumers when the dealer discloses nonpublic information about consumers to third parties. The rule also restricts disclosures of nonpublic personal information and requires dealers to contractually limit their service providers' access to and use of that information. Dealers who correctly use a FTC model privacy notice receive safe-harbor protection for the language used to describe their privacy policy.

- FTC prohibition against deceptive and unfair trade practices: Section 5 of the FTC Act prohibits unfair and deceptive trade practices. For example, the FTC has found certain advertising practices to be deceptive, including recent safety inspection claims related to used vehicles that are subject to open safety recalls.

- FTC Safeguards Rule: Dealers must develop, implement and maintain—and regularly audit—a comprehensive, written security program to protect customer information and must ensure that their service providers provide similar safeguards.

- FTC Telemarketing Sales Rule (TSR): Imposes many of the TCPA restrictions (below) on dealers who telemarket across state lines. Requires dealers who sell, or obtain payment authorization

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for, goods or services during interstate phone calls to abide by the prohibition against numerous deceptive and abusive acts and to maintain certain records. Prohibits prerecorded telemarketing calls without a consumer's express written agreement, requires such calls to provide a key-press or voice-activated opt-out mechanism at the outset of the calls, and requires the calls to ring for 15 seconds or four rings before disconnecting.

- FTC Warranty Rules: Pursuant to Mag-Moss, the FTC has issued two rules governing written warranties. The "Disclosure Rule" provides disclosure requirements for written warranties, specifies language for certain disclosures and requires simple language in a single document. The "Pre-Sale Availability Rule" details the methods by which warrantors and sellers must provide warranty terms before a sale. The recently passed E-Warranty Act allows warrantors to comply by posting warranty terms to an Internet website, as long as the warrantor also provides consumers with a non-Internet-based method to obtain warranty terms, and allows sellers to use electronic methods to provide consumers with warranty terms pre-sale.

- IRS Cash-Reporting Rule: Dealers receiving more than $10,000 in cash in one transaction or in two or more related transactions must file IRS/FinCEN Form 8300 with the IRS within 15 calendar days and must provide written notice that the report was filed to the person named on the report by January 31 of the following year. "Cash" includes certain cashier's checks, traveler's checks, money orders and bank drafts.

- Magnuson-Moss Act: Dealers must give consumers certain required information on warranties and limited warranties. Dealers are also generally prohibited from requiring routine service to be performed at their dealership as a condition of a used-car warranty.

- Office of Foreign Assets Control (OFAC) restrictions: Dealerships may not enter into transactions with certain sanctioned countries, governments, and specially designated organizations and individuals. Dealers should check the electronic list maintained by OFAC to ensure compliance.

- Telephone Consumer Protection Act (TCPA): Imposes numerous restrictions on telemarketing, including the national and company-specific do-not-call (DNC) rules, calling-time restrictions, caller ID requirements, fax advertising rules, and restrictions on the use of autodialers and prerecorded messages. Fax ads may be sent only to authorized recipients and must include a phone number, fax number and toll-free opt-out mechanism (each available 24/7) on the first page of the fax ad.

The FCC considers text messages to be "phone calls" under the TCPA. This means you cannot send a text message "solicitation" to a phone number on either the national DNC list (subject to the "established business relationship" and "prior express permission" exemptions to the national DNC rules) or your company-specific DNC list (to which there are no exemptions). See additional text message restrictions under "CAN-SPAM Act."

Requires express written consent prior to any prerecorded or auto-dialed telemarketing call to a cell phone or text message. Recent FCC guidance indicates a very broad view of what is an "auto-dialed" call or a text message. You cannot send any text message whatsoever to a cellular telephone number—solicitation or not, whether the number is on a DNC list or not—using an "autodialer" unless you have the called consumer's "prior express consent."

- USA PATRIOT Act: Dealers must search their records and provide information about individuals or entities with whom they conducted transactions or created accounts if requested by the federal Financial Crimes Enforcement Network. Dealers are temporarily exempt from the law's anti-money-laundering program requirements.

New- and Used-Vehicle Sales Departments

- American Automobile Labeling Act: New cars and light trucks must have a domestic-parts content label showing percentage of U.S. or Canadian parts; countries contributing more than 15 percent of the parts; origin of engine and transmission; and location of vehicle assembly. Dealers must ensure that labels remain on vehicles until sold.

- Corporate Average Fuel Economy (CAFE) and Greenhouse Gases (GHGs) Rules: NHTSA and EPA rules on CAFE and GHGs govern the fuel-economy performance of all light, medium-duty and heavy-duty vehicles, which affects their design, performance and cost. The rules also impact the use of alternative technologies and fuels.

- Diplomat vehicle purchases: The State Department's Office of Foreign Missions must approve a diplomat's vehicle purchase before that diplomat's tax exemption request may be honored.

- DOE/EPA gas-mileage guide: Dealers must make this guide available to prospective new-vehicle buyers upon request. Download the guide from fueleconomy.gov.

- Federal bankruptcy law: Dealerships should perfect security interests within 30 days after a customer takes possession of a vehicle, regardless of state law. Otherwise, if the customer files for bankruptcy within 90 days of when the financing agreement is signed, the bankruptcy trustee may avoid the lien. Dealerships failing to perfect liens in a timely manner may be liable for any loss.

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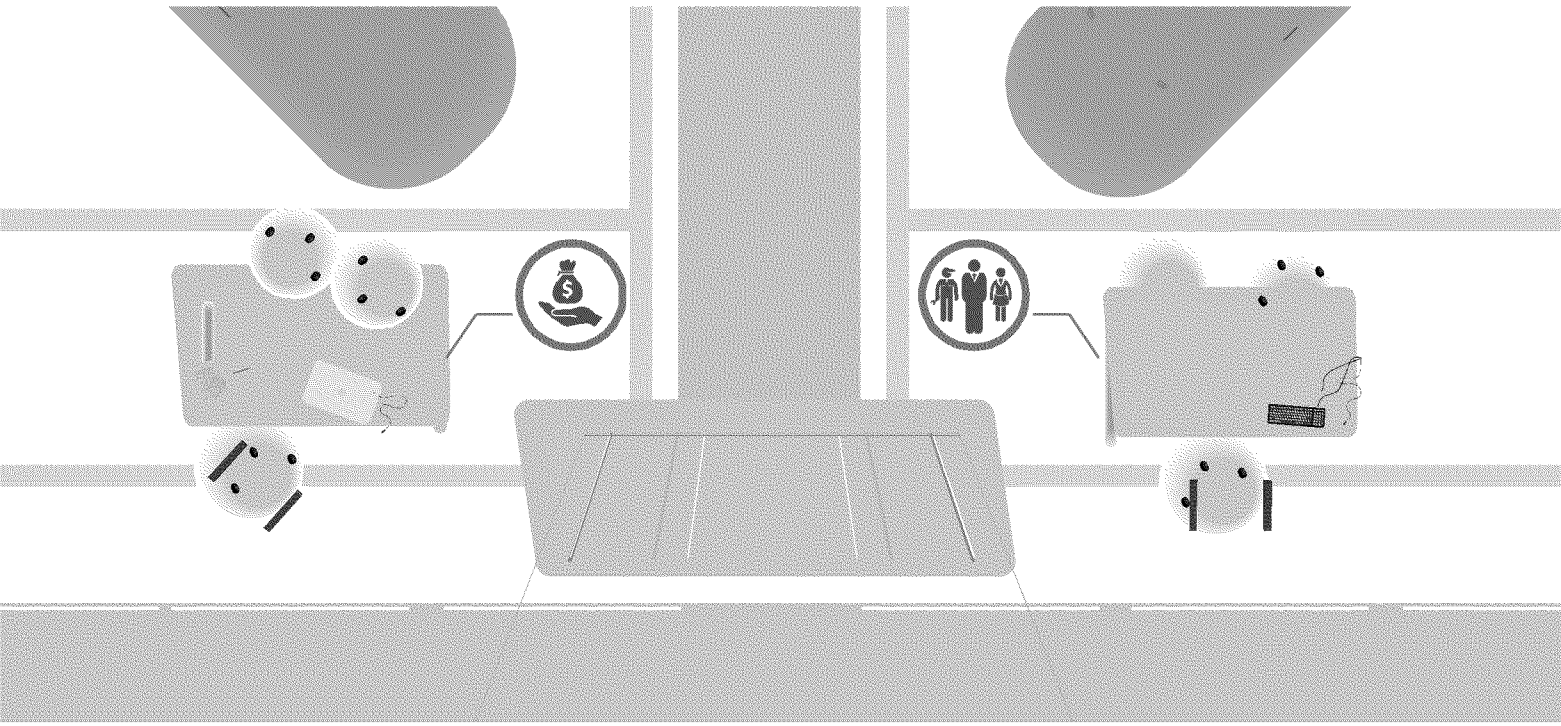
- FTC Door-to-Door Sales Rule: Gives consumers a three-day "cooling off" period only for sales not consummated at the dealership. Does not apply to auctions, tent sales or other temporary places of business if the seller has a permanent place of business.
- FTC guidelines for fuel-mileage advertising and alternative-fueled-vehicle advertising and labeling: Dealer and manufacturer fuel-economy advertisements must state that the numbers are estimates and come from EPA; alternative-fueled vehicles must be properly labeled.
- FTC Used Car Rule: "Buyers Guides" are required on all used vehicles offered for sale, disclosing whether the vehicle is offered "as is" or with a dealer warranty, other non-dealer warranty disclosures and service contract availability. Dealers must use FTC required form Buyers Guide. Note that a new version of the Buyers Guide was adopted in 2016. Dealers must use the new version of the Buyers Guide by January 27, 2017, but dealers may use their remaining stock of Buyers Guides for one year.
- Gray-market vehicles: EPA, Department of Transportation and Customs restrict the importation/sale of vehicles lacking safety or emissions certification.
- IRS treatment of salesperson incentives: Factory incentives paid directly to salespeople are not wages for tax purposes.
- LIFO (last-in/first-out) inventory accounting method: The use of the LIFO inventory method requires complianc with the conformity requirement.
- Heavy-highway-vehicle excise tax: A 12 percent excise tax generally applies to the first retail sale of (1) truck chassis and bodies with a gross vehicle weight rating (GVWR) in excess of 33,000 lb. (Class 8); (2) truck trailer and semitrailer bodies with a GVWR in excess of 26,000 lb. (Classes 7 and 8); and (3) "highway tractors," unless they have a GVWR of 19,500 lb. or less (Class 5 and under) and a gross combined weight rating of 33,000 lb. or less. Dealers selling Class 5 vehicles with more than 33,000-lb. gross combined weight rating or Classes 6 or 7 vehicles should apply the "primary design" test to determine if a vehicle is a taxable tractor or a nontaxable truck.
- Motor vehicle tax credits: Consumers may be eligible for up to a $7,500 personal federal tax credit when they buy a qualifying plug-in electric vehicle or dedicated electric vehicle at a dealership ("EV Tax Credit"). Eligibility for the EV Tax Credit is based on a taxpayer's income and tax status.
- Monroney sticker (Price Labeling Law): Dealerships must keep stickers on new passenger cars showing the manufacturer's suggested retail price, plus other costs, such as options, federal taxes, and handling and freight charges. Stickers also include EPA's revised fuel-economy information and NHTSA NCAP revised crash-test star ratings. Dealerships that alter covered vehicles must attach a second label adjacent to the Monroney label, stating, "This vehicle has been altered. The stated star ratings on the safety label may no longer be applicable." No size or form of this label is specified, only that it be placed as close as possible to Monroney labels on automobiles that (1) have been altered by the dealership and (2) have test results posted.
- National Highway Traffic Safety Administration (NHTSA) alteration and tire-placarding rules: Significantly altered new vehicles must have labels affixed identifying the alterations and stating that they meet federal safety and theft standards. Tire-placarding and -relabeling rules require a new tire information placard/label whenever parts or equipment are added that may reduce a vehicle's cargo-carrying capacity, or when replacement tires differ in size or inflation pressure from those referred to on the original.



- NHTSA odometer rule: Prohibits odometer removal or tampering and misrepresentation of odometer readings. Requires record keeping to create a "paper trail," and odometer disclosures on titles. Vehicles with a greater than 16,000-lb. gross vehicle weight rating and those 10 model years old or older are exempt.
- NHTSA recall regulations: New vehicles and parts held in inventory that are subject to safety recalls must be brought into compliance before delivery.
- NHTSA safety belt/airbag deactivation: Dealerships may install airbag switches for consumers with NHTSA authorization. Dealerships must be responsive to consumer requests for rear-seat lap/shoulder safety belt retrofits in older vehicles.
- NHTSA tire regulations: Rule requires proper replacement or modification of the tire-information label when replacing tires or adding weight before first sale or lease. Also, consumers must be given registration cards when buying new tires or tires must be registered electronically. Other rules govern handling and disposal of recalled new and used tires.
- School van sales: Dealers may not sell, lease or give away large, new passenger vans with more than 10 seating positions if they know the vehicle will be used to transport students to or from school or school activities. Schools must purchase or lease a school bus or multifunction school activity bus for such purposes.
- Uniform capitalization (UNICAP): Dealers who (1) "produce" property or (2) acquire it for resale if their average annual gross receipts over the three preceding tax years exceed $10 million must comply with the UNICAP requirements contained in Section 263A of the Internal Revenue Code. Revenue Procedure 2010-44 creates two safe-harbor methods of accounting, which dealers may elect by filing Form 3115 with the IRS, that generally permit dealers to expense, instead of capitalize, all handling and storage costs at certain dealership facilities.

F&I Department

- Dodd-Frank Financial Reform Law: Comprehensive legislation enacted in July 2010 created a new, independent Consumer Financial Protection Bureau and granted it unprecedented authority to regulate financial products and services. Dealers engaged in three-party financing are excluded from the authority of the bureau and remain subject to regulation by the Federal Reserve Board, the Federal Trade Commission (which has been given streamlined authority to declare dealer practices as unfair or deceptive) and state consumer protection agencies. Finance sources, including dealers who engage in BHPH financing, are subject to the bureau's jurisdiction. The Dodd-Frank law also created several new obligations for creditors, including additional disclosure requirements for risk-based pricing and adverse-action notices under the Fair Credit Reporting Act (Section-1100F). Plus, it contains a requirement to collect, report to the federal government, retain, and make available to the public upon request certain data collected in credit applications from small, women-owned and minority-owned businesses. Dealers are temporarily exempt from this requirement pending promulgation of specific regulations.
- Equal Credit Opportunity Act (ECOA): Regulation B prohibits discrimination in credit transactions based on race, sex, color, marital status, religion, national origin, age and public-assistance status. The government interprets this prohibition as applying not just to intentional discrimination, but also to credit practices that result in a negative "disparate impact" on consumers based on one of these prohibited factors. The Consumer Financial Protection Bureau (CFPB) addressed disparate impact discrimination in March 2013 guidance to indirect auto lenders (CFPB Bulletin 2013-02). In addition, the dealer/creditor is required both to notify applicants in a timely fashion of actions taken on—and reasons for denying—applications, and to retain certain records. (See also "Dodd-Frank Financial Reform Law," above, for a description of new small-business loan data collection requirements.) An optional ECOA compliance program template is available to dealers at nada.org/faircredit.
- Fair Credit Reporting Act (FCRA): Dealers are restricted in their use of credit reports for consumers, job applicants and employees. Credit reports generally may be obtained only pursuant to consumers' written instructions or if consumers initiate a business transaction (not if they merely talk with salespeople). Dealers must give job applicants and employees a separate document informing them that a credit report may be obtained and must obtain prior, written authorization to access the report. Dealers generally may not share credit information with affiliates unless they give consumers notice and the opportunity to opt out. If dealers take adverse action based on the report, they must notify consumers and follow additional procedures with job applicants and employees.
- Fair and Accurate Credit Transactions (FACT) Act of 2003: This law significantly amended FCRA by adding several identity-theft prevention and other duties. Duties include: responding to requests for records from victims of ID theft and to fraud and active-duty alerts on credit reports; disposal requirements for credit report information; opt-out disclosure formatting requirements for prescreened credit solicitations; truncating the expi-

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ration date and all but the last five digits on electronically printed credit and debit card receipts provided to purchasers at the point of sale; the Federal Reserve's Regulation FF restrictions on obtaining, using and sharing "medical information" in credit transactions; the FTC Red Flags Rule, which requires creditors and financial institutions to develop and implement a written Identity Theft Prevention Program that contains procedures to identify, detect and respond to "red flags" indicating the possibility of identity theft; the FTC Address Discrepancy Rule, which requires users of credit reports to develop and implement procedures to verify a customer's identity when receiving a "Notice of Address Discrepancy" from a consumer reporting agency; the FTC Affiliate Marketing Rule, which generally requires a business to offer customers the opportunity to opt out of receiving solicitations from the business's affiliates before affiliates may market to the customers; and the Risk-Based Pricing Rule, which generally requires initial creditors to issue either risk-based pricing notices to consumers to whom credit is granted but on relatively unfavorable terms, or credit score disclosure exception notices to all consumer credit applicants. Additional requirements apply to businesses that furnish negative information about consumers to consumer reporting agencies.

- FTC Credit Practices Rule: Dealers are required to provide a written disclosure statement to a cosigner before the cosigner signs an installment sale contract. Dealers cannot "pyramid" late charges (that is, add a late charge onto a payment made in full and on time when the only delinquency was a late charge on a previous installment).

- FTC Holder-in-Due-Course Rule: Preserves the consumer's right to raise claims and defenses against purchasers of consumer credit contracts (with automobile sales, it protects consumers who buy cars from dealerships on credit). When dealerships sell credit contracts to lenders, consumers are obligated to pay the lenders instead of the dealerships. Under the rule, if a dealership engaged in fraud or made misrepresentations in selling a car on credit, a consumer could raise the dealership's conduct as a defense against the lender's demand for payments. Dealerships must ensure that their credit contracts contain the precise disclosure required by the rule.

- Gramm-Leach-Bliley Act: See "FTC Privacy Rule" and "FTC Safeguards Rule" under "All Departments (Customer)."

- Producer-Owned Reinsurance Companies (PORCs): IRS Notice 2004-65 removed certain reinsurance arrangements as "listed transactions," but states that the IRS will continue to scrutinize transactions that shift income from taxpayers to related companies "purported to be insurance companies that are subject to little or no U.S. federal income tax."

- Truth in Lending and Consumer Leasing Acts: Regulations Z and M cover consumer credit and consumer leasing transactions, respectively, specifying information to be disclosed to a consumer before completing the transaction, and information to be disclosed when advertising consumer credit transactions or leases. For example, dealers who advertise a lease down payment or monthly payment amount must disclose in lease ads that the advertised deal is a lease; the total amount due at lease signing; number, amount and period (for example, monthly) of payments; and whether a security deposit is required.

Service and Parts Department

- Clean Air Act: Dealerships may not tamper with, replace or remove emissions-control equipment, such as catalytic converters. CFC recycling regs require dealership air-conditioning techs to obtain certification and to use certified recycling and recovery equipment to capture spent refrigerant, including HFC-134a and other non-ozone-depleting refrigerants. The act also regulates any fuels dealers store and dispense, as well as the alternative fuels motorists use, including gasohol. It restricts emissions from solvents and chemicals.

- Clean Water Act: Sets standards for regulation of wastewater and storm water at dealerships and comprehensive rules governing aboveground oil storage tanks.

- Department of Transportation (DOT) hazardous-materials-handling procedures: Require parts employees who load, unload and package hazardous products, such as airbags, batteries and brake fluid, to be trained in safe handling practices.

- FTC Used Parts Guide: Prohibits misrepresentations that a part is new or about the condition, extent of previous use, reconstruction or repair of a part. Previously used parts must be clearly and conspicuously identified as such in advertising and packaging, and, if the part appears new, on the part itself.

- IRS Core Inventory Valuation: Revenue Procedure 2003-20 creates an optional method for valuing core inventories for those using Lower of Cost or Market Valuation Method.

- LIFO/FIFO inventory accounting method: Revenue Procedure 2002-17 provides a safe-harbor method of accounting that authorizes the use of replacement cost to value year-end parts inventory.

- NHTSA tampering rules: Prohibit dealerships from rendering inoperative safety equipment installed on vehicles in compliance with federal law.

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- NHTSA tire rules: Dealerships must report sales of defective tires when the tires are sold separately from vehicles, and must properly manage recalled tires.
- OSHA asbestos standards: Dealerships must use certain procedures during brake and clutch inspections and repairs to minimize workplace exposure. Water, aerosol cleaners or brake washers may be used to comply with the standard.
- OSHA Hazard Communication Standard (right-to-know laws): Dealers must inform employees about chemical hazards they may be exposed to in the workplace, keep chemical product information sheets on-site and accessible, and train staffers to properly handle the hazardous materials they work with. Also, EPA's community right-to-know rules require dealers to list annually with state and local authorities tanks holding more than 1,600 gallons.
- OSHA lock-out/tag-out procedures: Explain what service departments must do to ensure machines, including vehicles, are safely disengaged before being serviced.
- OSHA workplace health and safety standards: Extensive regulations cover a multitude of workplace issues and practices, from chemical labeling requirements to the number of toilets required. Example: Dealerships must determine if workplace hazards warrant personal protective equipment and, if so, to train employees on its use. Verbal or online reports must be made within eight hours of any incident involving the hospitalization or death of any worker.
- Resource Conservation and Recovery Act (RCRA): Comprehensive environmental law regulating many dealership functions, including underground storage tanks and the storage, management and disposal of used oil, antifreeze, mercury products and hazardous wastes. Underground tanks must be monitored, tested and insured against leaks; leaks and spills must be reported to federal and local authorities and cleaned up. The law also regulates new-tank installations. Dealers must obtain EPA ID numbers if they generate more than 220 lb. per month (about half of a 55-gallon drum) of certain substances and must use EPA-certified haulers to remove the waste from the site; dealers must keep records of the shipments. Used oil should be burned in space heaters or hauled off-site for recycling. Used oil filters must be punctured and drained for 24 hours before disposal.
- Safe Drinking Water Act: To protect underground drinking water from contamination, dealerships may be barred from discharging waste liquids (such as used oil, antifreeze and brake fluid) into septic system drain fields, dry wells, cesspools or pits.
- Superfund (Comprehensive Environmental Response, Compensation and Liability Act [CERCLA]): As waste generators, dealerships may be subject to Superfund liability. Carefully select companies to haul waste off-site. Dealers can deduct the cost of cleaning up contaminated soil and water in the year it's done. Dealers may qualify for an exemption from liability at sites involving used oil managed after 1993. The service station dealer exemption application (SSDE) requires dealers to properly manage their oil and to accept oil from do-it-yourselfers.
- UNICAP: See "New- and Used-Vehicle Sales Departments."

Body Shop

- Clean Air Act: National paint and hazardous air-pollution rules require reformulated, environmentally safer paints and finishes, special handling procedures, and record keeping.
- EPA hazardous-waste rules: See "RCRA" under "Service and Parts Department."
- OSHA Hazard Communication Standard (right-to-know laws): See "Service and Parts Department."
- OSHA Respiratory Protection Standard: Requires written programs describing how to select, fit and maintain respirators to protect body shop workers from hazardous chemicals.
- OSHA workplace health and safety standards: Extensive regulations affect body shops in many ways, including mandating the use and care of protective equipment such as face masks, gloves and respirators. The hex chrome standard limits air emissions during sanding and painting. (See also "Service and Parts Department.")
- UNICAP: See "New- and Used-Vehicle Sales Departments."
- VIN and parts marking: Dealers may not alter, destroy or tamper with vehicle identification numbers or antitheft parts-marking ID numbers and should use only properly marked replacement parts.

Doug Greenhaus, Paul Metrey, Brad Miller and Lauren Bailey of the NADA Legal and Regulatory Affairs Department contributed to this guide.

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January 2017

May 15, 2017

By regulations.gov

Samantha K. Dravis
Regulatory Reform Officer and Associate Administrator
Office of Policy
United States Environmental Protection Agency (EPA)
1200 Pennsylvania Ave., N.W.
Washington, DC 20460-0001

RE: Evaluation of Existing Regulations; 40 CFR Chapters I, IV-VII, EPA–HQ–OA–2017–0190

Dear Associate Administrator Dravis:

The National Automobile Dealers Association (NADA) represents more than 16,000 franchised automobile and commercial truck dealers who sell new and used motor vehicles and engage in service, repair and parts sales. Together they employ more than1,100,000 people nationwide, yet the majority are small businesses as defined by the Small Business Administration.

On February 24, 2017, President Trump signed Executive Order (E.O.) 13777, entitled *Enforcing the Regulatory Reform Agenda,* which directs agencies, including EPA, to evaluate existing regulations with an eye toward alleviating unnecessary regulatory burdens. Last month, EPA acted pursuant to Section 3(e) of E.O. 13777 to solicit suggestions for rules that can be repealed, replaced or modified to reduce such burdens. 82 Fed. Reg. 17793 (April 13, 2017). As illustrated by the attached study entitled *The Impact of Federal Regulations on Franchised Automobile Dealerships* and the attached publication entitled *The Regulatory Maze: NADA's Annual Update on Federal Regulations,* franchised automobile and truck dealers are highly regulated small businesses. Set out below is but one of many examples of how EPA can reduce regulatory onerous burdens without reducing environmental protections.

E.O. 13777 takes aim at regulations that are "are outdated, unnecessary, or ineffective". One such rule, entitled *Servicing of Motor Vehicle Air Conditioners*, is found at 40 CFR part 82, subpart B. Originally promulgated in 1992 pursuant to Section 609 of the Clean Air Act (CAA), this rule governs the recycling of refrigerants from motor vehicle air conditioners (MVACs). 42 USC §7671(h). In 1992, EPA appeared to interpret Section 609 of the CAA to require the recycling of ozone depleting refrigerants used in MVACs during services where they may be released into the atmosphere. It is no mystery that the very purpose of Title VI of the CAA,

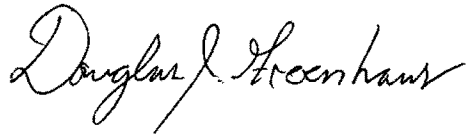
entitled *Stratospheric Ozone Protection,* is to protect the stratospheric ozone layer from ozone depleting chemicals.

In 1992, the refrigerant of choice was CFC-12 (i.e., *Freon*), a chemical well known for its ozone depleting potential. Consequently, its use in MVACs made it subject to the Section 609 rule which, among other things, requires dealership service departments and body shops to purchase recycling equipment and to have their air-conditioning technicians certified. Specific examples of compliance burdens for small business dealerships include $5,000-7,000/unit for recycling equipment and MVAC technician training and certification costs.

Since 1992, MVAC refrigerants containing ozone depleting substances have been phased out. https://www.epa.gov/mvac/refrigerant-transition-environmental-impacts. Yet, dealerships and their technicians performing MVAC service must *still comply with the Section 609 rule with respect to new MVAC refrigerants.* MVACs in the new vehicles of today and tomorrow will use refrigerants with no ozone depleting potential and *de minimis* global warming potential. They pose virtually no potential for environmental harm. Thus, *EPA should clarify that refrigerants free of ozone depleting chemicals should not be subject to the expensive and burdensome MVAC servicing procedures and standards designed for "old" ozone depleting refrigerants.*

On behalf of NADA, I thank EPA for the opportunity to file comments on this matter.

Respectfully submitted,



Douglas I. Greenhaus
Chief Regulatory Counsel,
Environment, Health, and Safety

To: Dravis, Samantha[dravis.samantha@epa.gov]
Cc: Bolen, Brittany[bolen.brittany@epa.gov]; Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]
From: Lorraine Gershman
Sent: Tue 5/16/2017 2:47:45 PM
Subject: RE: Follow up on NSPS DD: Grain Elevators
NSPS DD Letter to Dravis Regulatory Reform FINAL 5-15-17.pdf
NOPA Reg Reform FINAL 05.15.17.pdf

Samantha,

As a follow up, here are the filed comments of the NSPS DD Coalition on EPA's proposal to evaluate existing regulations, along with NOPA's comments. In these remarks we ask that EPA's newly-formed Regulatory Reform Task Force recommend to the Administrator to:

1)Not finalize the proposed amendments to NSPS Subpart DD; and

2)Formally rescind the July 9, 2014 proposed amendments to NSPS Subpart DD. By formally rescinding this rule, EPA would be able to "bank" the costs of this rule in order to offset the costs of a future rule, as detailed in E.O. 13771 - Reducing Regulations and Controlling Regulatory Costs.

Furthermore, we encourage EPA to look to the possibility of rescinding this NSPS ***prospectively*** and/or modifying it based on the Coalition comments submitted in 2014, as part of a larger Regulatory Reform effort.

We have also shared these comments directly with Josh Lewis.

Best,

Lorraine

From: Lorraine Gershman
Sent: Tuesday, May 09, 2017 5:06 PM
To: 'dravis.samantha@epa.gov' <dravis.samantha@epa.gov>

Cc: 'bolen.brittany@epa.gov' <bolen.brittany@epa.gov>; 'gunasekara.mandy@epa.gov' <gunasekara.mandy@epa.gov>
Subject: Follow up on NSPS DD: Grain Elevators

Samantha, thank you again for meeting with the Regulatory Improvement Council (Valis Associates) this morning. It was a pleasure to hear from you regarding some of industry's big concerns.

As I mentioned in our brief discussion, NOPA is a part of a coalition of agribusiness trade associations that have been working on the NSPS DD: Grain Elevators for the last decade. In October 2016, EPA's final NSPS package was sent to OMB for review under EO 12866. The revisions would include new emission limits for certain grain elevators; additional testing, monitoring, recordkeeping and reporting requirements; different compliance requirements for periods of startup, shutdown and malfunction; and a new method for calculating emissions from temporary storage facilities. The final rule would apply to grain handling facilities on which construction, modification or reconstruction began after July 9, 2014 - the date the proposed amendments were published in the *Federal Register*. This rule package was not finalized by EPA, and on January 24, 2017, the rule was officially withdrawn from OMB. (See: https://www.reginfo.gov/public/do/eoDetails?rrid=126938) At this point in time, we are uncertain if this rule is going to be resubmitted to EPA for review or if EPA will no longer pursue revision of NSPS Subpart DD. That said, in order to not subject new grain elevators to these burdens, it is critical that EPA:

1) not finalize the proposed amendments to NSPS Subpart DD; and 2) formally rescind the July 9, 2014 proposed amendments to NSPS Subpart DD. By formally rescinding this rule, EPA would be able to "bank" the costs of this rule in order to offset the costs of a future rule, as detailed in E.O. 13771 - Reducing Regulations and Controlling Regulatory Costs. Furthermore, we encourage EPA to look to the possibility of rescinding this NSPS, and other outdated NSPS, as part of a larger Regulatory Reform effort.

Jess McCluer, my counterpart at NGFA, briefed Josh Lewis on this issue at the OSDBU stakeholder meeting last month, and requested a meeting. Josh's response was that he is talking to colleagues in the air office and will be in touch soon to discuss next steps.

The coalition will be submitting more detailed comments on this issue to the docket next week, and we are happy to meet with you or the relevant contact person to discuss this issue in more detail.

(As an aside, I was encouraged to hear about EPA's intentions to bring back the Sector Strategies program. I was involved in that effort, and the CAAAC multipollutant sector strategy effort as well, when I was with the American Chemistry Council and found value in both efforts. And I also support EPA educational visits to regulated facilities. I worked with Penny Lassiter in OAQPS to have several of her technical staff accompany me to ethylene production facilities in advance of the RTR efforts.)

Please do not hesitate to contact me if I can be of further assistance.

Best,

Lorraine Gershman

Lorraine Gershman, P.E.

Vice President, Regulatory Affairs

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May 15, 2017

VIA ELECTRONIC MAIL

Office of Regulatory Policy and Management
Office of Policy
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460

Re.: NOPA's Comments on Evaluation of Existing Regulations (82 Fed. Reg. 17,793)
(Docket ID No. EPA-HA-OA-2017-0190)

Dear Ms. Dravis:

The National Oilseed Processors Association (NOPA) appreciates the opportunity to submit comments on EPA's Evaluation of Existing Regulations (82 Fed. Reg. 17,793, April 13, 2017).

The National Oilseed Processors Association (NOPA) is a national trade association that represents 13 companies engaged in the production of food, feed, and renewable fuels from oilseeds, includ ing soybeans. NOPA's member companies process more than 1.8 billion bushels of oilseeds annually at 64 plants located in 20 states throughout the country.

The NAICS code that directly applies to oilseed processing facilities is 311224 – Oilseed processing. NOPA member company facilities range in size from small, family -owned businesses to large multi - national corporations.

NOPA belongs to the New Source Performance Standard (NSPS) DD Coalition, the National Ambient Air Quality Standards (NAAQS) Implementation Coalition (NIC), and the Food Associations Coalition managed by Herbert Estreicher of Keller and Heckman and fully support the comments submitted by those groups to this docket.

Regulatory Burden/Compliance

The ever-changing landscape of regulatory requirements for manufacturing facilities results in more and more resources devoted to compliance, in lieu of investing in new equipment and additional jobs. The list compiled below reflects regulations and policies that have a detrimental impact to the oilseed processing industry.

1) ***EPA's NAAQS/Preconstruction Permitting Process***. One of the biggest concerns with NAAQS is that a new/revised NAAQS is effective almo st immediately after finalization, without any accompanying implementation regulations. A facility undergoing permitting may have to restart the entire permitting process in order to accommodate a revised NAAQS that becomes effective before the final permit is issued. The PSD regulations are highly complex and their implementation is largely achieved through ever -changing EPA guidance and policy documents that have not gone through rulemaking. As noted in comments below and in more detail in the comments su bmitted by the NIC, EPA's Appendix W modeling requirements do not accurately predict emission impacts for all

facilities, and can lead to overly restrictive pollution control requirementsEPA should strive to promptly issue implementation regulations afte r a new NAAQS is finalized in order to provide certainty to the regulated community.

2) ***EPA's NSPS DD (Grain Elevators) Rulemaking***. As noted in the comments submitted by the NSPS DD Coalition, NOPA is a part of a coalition of agribusiness trade associations that have been working on the NSPS DD: Grain Elevators for the last decade. In October 2016, EPA's final NSPS package was sent to OMB for review under EO 12866. The revisions would include n ew emission limits for certain grain elevators; additional testing, monitoring, recordkeeping and reporting requirements; different compliance requirements for periods of startup, shutdown and malfunction; and a new method for calculating emissions from te mporary storage facilities. The final rule would apply to grain handling facilities on which construction, modification or reconstruction began after July 9, 2014 - the date the proposed amendments were published in the *Federal Register*. This rule package was not finalized by EPA, and on January 24, 2017, the rule was officially withdrawn from OMB. We are uncertain if this rule is going to be resubmitted to OMB for review or if EPA will no longer pursue revision of NSPS Subpart DD. That said, so as to not subject new grain elevators to these burdens, it is critical that EPA: 1) not finalize the proposed amendments to NSPS Subpart DD; and 2) formally rescind the July 9, 2014 proposed amendments to NSPS Subpart DD. Furthermore, we encourage EPA to look to the possibility of rescinding this NSPS, and other outdated NSPS, as part of a larger Regulatory Reform effort.

3) ***EPA's Startup, Shutdown, and Malfunction (SSM) Policy.*** Beginning with the court decision in Sierra Club v. Johnson, 551 F.3d 1019 (D.C. Cir. 2008) , EPA has required facilities to be in continuous compliance with normal emission and operating limits, without allowing for any deviations due to unforeseen circumstances. If an event occurs that causes the facility to exceed a limit, the facility is at the mercy of the regulatory authority's discretion regarding enforcement for that event. Since this court decision, EPA has rarely allowed for the use of a work practice during the startup and shutdown periods of operation. EPA should look to set work pract ice standards or set alternative emission limits during periods of SSM, as allowed under sections 112(d)(2) and 112(h) of the Clean Air Act (CAA)

4) ***EPA's Risk and Technology Review (RTR) Rules*** . Section 112(f) of t he CAA requires EPA to review National Emission Standards for Hazardous Air Pollutants (NESHAP) rules after eight years toevaluate the remaining risk posed by the regulated facilities, andsection 112(d)(6) of the CAA requires EPA to review advances in pollution control technologies. EPA has been slowly conducting these RTR rules over the past decade, and faces many more in the next few years. Despite regularly finding low residual risk from various regulated facilities, EPA has regularly pushed for lower emission limits, requiring the installation of expensive new equipment with limited to no demonstrated benefits. EPA should focus its reviews on ensuring that the NESHAP rules are effective, pose little residual risk, and do not impose additional costs on regulated industry without demonstrated benefits.

5) ***Federal Response Plans (FRP)***. EPA requires facilities that store over one million gallons of oil to prepare a Federal Resp onse Plan . For the oilseed processing industry, this requirement also applies to vegetable oil, which is one of the primary products of our business. A FRP is required even if the facility has adequate secondary containment for their oil tanks. The FRP req uires that regulated facilities have a contract with an oil spill response organization (OSRO) to provide emergency response if needed. Often, this contract requires a retainer be paid to the OSRO based on the amount of oil that the facility

stores. Because these facilities generally have adequate containment, the OSRO's services is rarely needed. In order to provide a timely response to a spill, facilities may be required to buy and maintain a boat to deploy spill -containing booms on a water body. Facilities with a FRP are also required to hold periodic costly drills. Finally, FRPs duplicate requirements in the Spill Prevention Control and Countermeasure (SPCC) plans – in particular, the Emergency Response Action Plan (ERAP). EPA should look to remove duplicative requirements that add burden to regulated facilities. One way for EPA to minimize the burden on vegetable oil producers is to exclude vegetable oil from the definition of "oil" in the FRP, and instead require vegetable oil producers to prepare only SPCC plans.

6) ***TSCA Reporting Requirements.*** The Toxic Substances Control Act (TSCA) requires facilities to regularly report the manufacture or use of chemicals in commerce. This requirement also applies to food products that are used for non-food uses. Although these substances are regulated by FDA for human consumption, if the same substance is used for a non -food use, information about its end use, production volumes , and other information is required to be reported. As requested in the the Food Associations' comments, EPA should eliminate the TSCA CDR reporting requirements for food substances already regulated by FDA.

7) ***Regional Consistency Requirements***. On August 3, 2016, EPA finalized revisions to its Regional Consistency regulations to more clearly address the implications of adverse federal court decisions that result from challenges to locally or regionally applicable actions. These revisions introduced a narrow procedural exception under which an EPA Regional office no longer needs to seek Headquarters concurrence to diverge from national policy in geographic areas covered by such an adverse court decision. EPA claimed that the revisions will help to foster overall fairness and predictability regarding the scope and impact of judicial decisions under the Clean Air Act, but in fact, it provides little regulatory certainty to companies that have operations in multiple EPA regions. EPA should reconsider this regulation.

8) ***EPA Electronic Reporting Requirements.*** In many new rules, EPA has begun requiring facilities to submit testing data electronically, such as through CEDRI. The goal of these rules is to reduce the paperwork burden; however, this has not yet been accomplished. For many of these rules, the states also need to obtain the test data, and not all states have access to EPA's database. In some cases, EPA requires the submittal of data before the testing companies can reformat their results to comply with EPA's rule, or EPA's database is not yet ready to accept testing data. EPA should work to ensure that all states have access to the same facility data to reduce duplication of effort for the regulated parties, and that the electronic databases and submittal portals are extensively tested before use.

9) ***Rulemaking through guidance.*** EPA has frequently issued guidance documents that served as de facto regulations, but these documents never underwent public notice and comment. Many are not even considered final agency actions and therefore can't be challenged. One such example is the 1990 New Source Review Draft Guidance . Even though this document is 27 years old and was never finalized, it still serves as the basis for many NSR permitting decisions. All federal Agencies should follow the proper notice and comment procedures to ensure that the regulations are being interpreted and applied consistently.

Manufacturing Permitting Process

New oilseed processing facilities undergo a lengthy and detailed environmental permitting process. This permitting process is filled with many challenges that can derail a project, including uncertainty in schedule for obtaining a final permit, the requirement to model emissions using programs that cannot account for site-specific inputs, and public input and challenges. Once a project hits a roadblock or is substantially delayed, the project may be scrapped and the accompanying jobs and growth would disappear.

A new or modified oilseed processing facility may need to obtain a preconstruction (Prevention of Significant Deterioration (PSD)/ Nonattainment New Source Review (NNSR)) air permit, a National Pollution Discharge Elimination System (NPDES) wastewater permit, an Army Corps wetlands permit, a state building permit, a state groundwater withdrawal permit, as well as develop numerous plans, including facility response/Spill Prevention Control and Countermeasure (SPCC), Process Safety Management (PSM)/Risk Management Plan (RMP), and Food Safety Modernization Act (FSMA). Furthermore, these facilities may also need to undergo the following reviews: Wetlands Assessments and Surveys, Threatened and Endangered Species and Habitat Assessments and Surveys, Floodplain Assessments and Surveys, Cultural Resources Assessments and Surveys, U.S. Army Corps of Engineers Clearances, and Section 401 State Water Quality Certifications. Once the preconstruction reviews and permits are secured, these facilities then need to obtain operating permits.

A large majority of these permits are regulated under EPA.For most environmental permits, the states have the authority to issue permits, with an EPA review often required. Such permits require dedicated permit staff in each state that are familiar with permitting requirements and facility operations.

For the past few years, states have struggled to balance their budgets, and permit writers have often been eliminated as part of budget cuts, losing experience and knowledge of the applicability of the rules and the industries under permit. At the same time, many states have been trying to welcome new manufacturing facilities and new jobs, resulting in a permit backlog that has not yet been resolved. Facilities will not be built unless permits can be issued in a timely manner.

Typically, the most onerous regulatory review/permitting program for oilseed processing facilities has involved air permitting. Over the past seven years, EPA has tightened several ambient air quality standards while increasing its reliance on modeling to demonstrate attainment and project impacts. For example, in 2010 EPA finalized a one-hour NO_X standard, only to later discover that models are predicting exceedances where monitors demonstrate attainment. At the same time, EPA has been slow to issue guidance to the state permitting agencies and has failed to highlight flexibility states have in drafting permits. As such, many permits have gotten bogged down, lengthening the timeline to permit issuance and increasing the permit backlog at the states.

Some specific examples of technical issues that recent industrial projects have encountered include:

- There is no formal mechanism for the States or the regulated community to implement any changes in the model or methods via EPA guidance or 40 CFR 51 Appendix W. Without changes to the model or methods, states are wed to using the current suite of modeling tools which frequently do not account for site-specific conditions and overestimate projected impacts. An overestimate of projected emission impacts may result in a facility having to install costly, unneeded control technology or a project not moving forward at all.
- Currently approved modeling programs do not adequately represent all facility scenarios. When modeling is compared to actual monitoring data, the model proves to be overly conservative. By having overly conservative models, some facilities have not been able to

demonstrate attainment with the current standards and have been forced to abandon new projects.

- Finally, in many cases EPA has failed to provide direction to the states which are responsible for permitting industrial facilities. Without guidance from EPA, many states are struggling to determine what is acceptable to EPA, and may resist innovative and flexible approaches. The result is that projects may be scrapped,along with any new jobs that would have accompanied the project.

Recently, several NOPA members have announced new facilities or expansion of existing facilities, and have undergone the permitting process. One of the most trying aspects of the permit process is the never-ending uncertainty in the process itself. Any minor comment or correction may result in another full review of the permit application. Each delay in the permit process might result in a changed limit or guidance that must now be addressed in the permit. This would include a new NAAQS, or a ratcheting down of a storm water benchmark. A final permit is rarely final until all appeals are exhausted.

In conclusion, NOPA appreciates this Administration's efforts to relieve some of the regulatory burdens faced by the oilseed processing industry. Thank you in advance for your consideration of NOPA's comments. If you have any questions, or will like to further discuss our comments, please contact me at lgershman@nopa.org or 202-864-4368.

Sincerely,

Lorraine Krupa Gershman, P.E.
Vice President, Regulatory Affairs

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┬

To: Dravis, Samantha[dravis.samantha@epa.gov]; Bolen, Brittany[bolen.brittany@epa.gov]; Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]
From: Carrie Jenks
Sent: Tue 5/16/2017 1:45:35 PM
Subject: MJBA Permitting and Infrastructure - EPA Letter and White Paper
MJB&APermittingInfrastructure_EPARegReform_Letter.pdf

Thank you for taking the time to meet with us last week. We submitted the attached comments to EPA's Regulatory Reform Docket yesterday and posted a white paper with more detailed principles for a WOTUS rulemaking here:

http://www.mjbradley.com/sites/default/files/MJBAPermittingInfrastructure_WOTUSPrinciples_WhitePaper.pdf

Please let us know if you have any questions.

Thank you,

Carrie

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MJB & A

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May 15, 2017

Sarah Rees
U.S. Environmental Protection Agency
Office of Regulatory Policy and Management
1200 Pennsylvania Avenue, N.W.
Mail Code 1803A
Washington, D.C. 20460
(submitted via regulations.gov)

Re: Regulatory Reform Docket in response to Executive Order 13777 (Input on regulations that may be appropriate for repeal, replacement, or modification)

Dear Ms. Rees:

The MJB&A Permitting and Infrastructure Coalition appreciates the opportunity to comment on the regulatory reform process initiated by Executive Order 13777, seeking input on regulations that may be appropriate for repeal, replacement, or modification. MJB&A Permitting an d Infrastructure Coalition member companies [1] collectively engage the Administration and agencies on potential permitting modernization as well as regulatory and legislative opportunities to ensure energy infrastructure projects can proceed in a timely andcost-effective manner.

Consistent with Executive Order 13778 and the Notice of Intention published by EPA, we agree that EPA should review the Clean Water Rule, which defined 'Waters of the United States'[2]. We support EPA's process to develop a new rule that can be implemented consistently for all regions of the U.S. and that is legally durable. The electric sector, including our member companies, have long advocated for EPA to issue a rule that provides clear direction on which waters are jurisdictional and which waters are not. The current regulations, guidance, and case law have led to different interpretations in different regions of the U.S.

Given the opinions in *Rapanos v. United States*, 547 U.S. 715 (2006), we urge EPA to take comment on how best to define a physical surface connection between a wetland and a traditional navigable water and explore if

[1] The MJB&A Permitting and Infrastructure Coalition member companies include: Dominion Energy, Entergy Corporation, NextEra Energy, and PG&E Corporation. While we focus primarily on the Waters of the United States rule in these comments, the member companies are submitting comments on other regulations that may be appropriate for repeal, repl acement, or modification through individual letters and through additional organizations.

[2] Clean Water Rule: Definition of ``Waters of the United States"; Final Rule, 80 FR 37,054 (June 29, 2015).

there are ways to clearly define Waters of the U.S. that reflects the federal and state partnership. To supplement this letter, we have developed a white paper that frames the key areas we think a final rule should address and that proposes key definitions for consideration.[3] While we think navigable waters, tributaries, and adjacent wetlands are Waters of the U.S., the final definitions for these terms and others are critical to make that clear.

Recognizing the existing case law and that some areas will need case-by-case evaluations, we propose the following key principles that could guide jurisdictional determinations:

- Any Waters of the U.S. must have a physical surface connection that has a predictable flow to a navigable water in order to demonstrate a significant nexus based on Justice Scalia's opinion and Justice Kennedy's opinion.
- By contrast, ephemeral streams, tributaries, and washes with low volume, infrequent, and short flow duration periods on an annual basis are not significantly connected to a navigable water. Such streams and tributaries that are absent of hydric soils, hydrophytic vegetation, or lifecycle dependent aquatic species are not significantly connected to a navigable water. Wetlands that are solely dependent on groundwater or precipitation for inundation are not jurisdictional.

As part of a new rule, there are a number of terms that we would encourage EPA to propose definitions for comment. For example, the definition of Waters of the U.S. must make clear that waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act, are not Waters of the U.S. One of our key concerns with the prior rule was that the regulatory text failed to make clear that these systems are not Waters of the U.S.

It is also important for the definition of tributary to make clear what is not jurisdictional. As an example, the definition might say:

> the water must be physically characterized by the presence of a bed and banks and ordinary high water mark, which contributes frequent and consistent duration of flow, either directly or through another water, to jurisdictional waters provided that hydric soils, hydrophytic vegetation, or lifecycle dependent aquatic species are present. Man-made structures with engineered bed, banks, and top of banks that are not created from jurisdictional waters or whose construction pre-dates the Clean Water Act should not be considered a jurisdictional tributary.

If significant revisions are not accomplished through the rulemaking process and the expanded jurisdiction created under the final rule remains relatively unchanged to the rule finalized in 2015, we would continue to urge EPA and the Army Corps of Engineers to review the current nationwide permits to increase higher acreage thresholds for permanent discharges to jurisdictional waters.

In addition to these comments on the Waters of the U.S., we look forward to continued engagement with the Administration on other issues that affect the permitting process for energy projects. We continue to have concerns with the time it takes for permitting decisions to be made for energy infrastructure projects. These delays can significantly impact the economics of a project. While we recognize that not all of our concerns can be addressed through EPA's authority, EPA's engagement in the Administration's process to identify opportunities for streamlining permitting will be important.

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[3] The MJB&A Permitting and Infrastructure White Paper on Principles for a Revised Waters of the U.S. Rulemaking is available for download from the MJB&A website at: http://www.mjbradley.com/sites/default/files/MJBAPermittingInfrastructure_WOTUSPrinciples_WhitePaper.pdf

17cv1906 Sierra Club v. EPA - 6/22 Production ED_001523_00008302-00002

If you have any questions about these comments, please do not hesitate to contact me at cjenks@mjbradley.com.

Sincerely,

Carrie Jenks

MJB&A Permitting and Infrastructure Coalition

cc:
Samantha Dravis, EPA
Brittany Bolen, EPA
Sarah Greenwalt, EPA
Mandy Gunasekara, EPA

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To: Dravis, Samantha[dravis.samantha@epa.gov]; Bennett, Tate[Bennett.Tate@epa.gov]; Wagner, Kenneth[wagner.kenneth@epa.gov]; Lyons, Troy[lyons.troy@epa.gov]; Bangerter, Layne[bangerter.layne@epa.gov]
Cc: Barbery, Andrea[Barbery.Andrea@epa.gov]
From: Alexandra Dapolito Dunn
Sent: Tue 5/16/2017 12:57:17 PM
Subject: ECOS' Letter on EO 13777
ECOS Comments on EO 13777.pdf

Hello colleagues:
Wanted you to receive this directly.

Thank you for the opportunity to participate in this important work.

Alexandra Dapolito Dunn, Esq.

Executive Director & General Counsel

Environmental Council of the States

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See my research: http://ssrn.com/author=1356207

Save the Date! ECOS' State Environmental Protection (STEP) Meeting, 7/17/17, Washington, DC, www.ecos.org

May 15, 2017

ECOS

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Pollution Control Agency
PRESIDENT

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Director, Arkansas Department
of Environmental Quality
SECRETARY-TREASURER

Martha Rudolph
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Programs, Colorado
Department of Public Health
and Environment
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Executive Director &
General Counsel

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Regulatory Reform Officer
Associate Administrator, Office of Policy
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Re: ***Comments on Executive Order 13777: Enforcing the Regulatory Reform Agenda, 82 Fed. Reg. 17793 (4/13/17), Docket ID: EPA-HQ-OA-2017-0190***

Dear Ms. Dravis:

The Environmental Council of the States (ECOS) is pleased to respond to the U.S Environmental Protection Agency's (EPA's) request for input on the President's February 24, 2017 *Executive Order 13777: Enforcing the Regulatory Reform Agenda* As the nonpartisan national association of state and territorial environmental agency leaders, ECOS has a unique opportunity to offer perspective on environmental regulatory reform. We believe the conversations that will come out of this, and related inquiries, have potential to make our system of environmental and public health protection more efficient, effective, and outcomes oriented.

Over the last 45 years, states have become the primary implementers of federal environmental statutes through cooperative federalism – today, states have assumed over 96 percent of the delegable authorities under federal law. States are a critical part of achieving our nation's environmental and public health goals, and carrying out mandated responsibilities in innovative ways that show proven results to the public. As states have daily experiences with the complexity of the federal environmental regulatory system, we are well positioned to offer suggestions for regulatory reform, modernization, and streamlining.

Attached are 19 regulatory reform recommendations to begin this dialogue with you. To prepare this list, ECOS reviewed our existing Resolutions and previous compilations of regulations identified by states as burdensome or less effective than possible. Our recommendations are in three categories:

- Outdated, Unclear, or Burdensome Reporting Requirements
- Opportunities to Modify Requirements to Advance State Flexibility and Authority; and
- Regulations that Hinder Infrastructure Investment.

We are aware that many states are preparing their own responses to the Executive Order, and that EPA will receive much more extensive, and differing, recommendations.

States are committed to ensuring our nation's system of environmental regulations is modern, efficient, protective of human health and the environment, and that it shows measurable results. We thank you again for seeking our input, and we look forward to continued conversation with you about this important matter.

Regards,

Alexandra Dapolito Dunn
Executive Director & General Counsel
Environmental Council of the States

ECOS Response to Executive Order 13777: Enforcing the Regulatory Reform Agenda May 15, 2017

Outdated, Unclear, or Burdensome Reporting Requirements

1. Cooperative Agreements and Superfund State Contracts (CERCLA)

ECOS recommends EPA eliminate the reporting requirements outlined in 40 CFR Subpart O, Cooperative Agreements and Superfund State Contracts for Superfund Re sponse Actions. This regulation contains detailed requirements for the content of these r eports including an explanation of work accomplished, comparison of the project completed to the project schedule and explanation of any discrepancies, comparison of estimated funds, etc. State staff are already in regular communication with EPA staff on the work being done under these grants and agreements, making these detailed reports unnecessarily burdensome.

2. Total Coliform Rule (SDWA)

ECOS recommends EPA eliminate the option to forgo fecal coliform testing after a total coliform positive sample as outlined in the Total Coliform Rule 141.21(e). This provision is seldom used, if ever, since unlike the situation when the rule was initially written, the most commonly used analytical methods automatically generate an E.coli result along with the initial total coliform result.

3. Consumer Confidence Reports (SDWA)

ECOS recommends EPA consider eliminating the consumer confidence report (CCR) requirement, described in 141.153(d)(4)(i), that mandates only whole numbers to be used for reporting levels and maximum contaminant levels (MCL). This would allow the units in the CCR to correspond to the units used for the MCL and make it easier to reconcile CCR values with actual test results taken by the water system.

4. "Once in, Always in" Policy (CAA)

ECOS recommends EPA provide an exception to the "Once In, Always In" policy provisions that apply major source requirements after a source reduce s and maintains its level of hazardous air pollutants (HAPs) emissions below major source thresholds and equivalent to maximum achievable control technology (MACT) if the reduction is made through the use of pollution prevention measures that are permanent and enforceable through permit conditions. The current policy creates no incentive for industry to reduce emissions if they will still be subject to the MACT standard. Revising this policy will promote pollution prevention as envisioned in the 1990 Pollution Prevention Act as well as reduce administrative and reporting burdens.

5. Cross-Media Electronic Reporting Rule (Multi-Media)

ECOS encourages EPA to expedite corrective action to the CrossMedia Electronic Reporting Rule (CROMERR) that would that would make it more accessible to and functional for all user s. The current rule requires users to follow complicated and burdensome reporting procedures. The procedures involve challenges associate d with password expirations, log-on delay time, and updating secret questions as a double verification steps.

6. Sewage Overflow Regulations (CWA)

ECOS recommends EPA include in any modifications to regulations regarding sewage overflow into the waters of the United States from waste water treatment works, sanitary sewer systems and combined sewer systems the following: a clear definition of "sewage overflow", a requirement to describe the level of treatment provided to the sewage overflow and to report the overflow in a timely and effective manner, and require only necessary and

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realistic monitoring. These modifications would ensure the public health and safety of source waters and prevent any undue reporting burdens.

7. Permit Modification Classification System (RCRA)

ECOS urges EPA to reevaluate the permit modification classification list found at 40 CFR 270.42. As currently set forth, all class 2 modifications require that the facility hold a public meeting and opportunity for comment on the proposed modification. Based on state experiences, the public almost never attends these public meetings on proposed class 2 modifications and the states rarely receive public comments. The meetings end up being a waste of facility and agency time and resources. ECOS believes that many modifications could be assigned a lower classification, making the permit modification process more efficient, timely and responsive to facility needs. Alternatively, EPA could include a provision requiring a public hearing only when the public demands so.

8. Authorization of State Hazardous Waste Programs (RCRA)

ECOS urges EPA to streamline the authorization process stated in 40 CFR 271 and reduce the amount of supporting documents needed, particularly for programs that mirror federal rules. This would eliminate staff and contracting time and expense. Additionally, ECOS urges for the elimination of EPA changes to the MOA that attempt to provide for a greater EPA presence in the state. Removing these changes would confirm that the state is the lead for hazardous waste oversight.

9. Hazardous Waste Rules and Regulations (RCRA)

ECOS recommends EPA revise hazardous waste rules and regulations in 40 CFR 245 Subparts AA, BB and CC to reference the Air Program's emission standards requirements for process vents, tanks, surface impoundments, and containers. The Air Program's standards are more restrictive so additional requirements under Subtitle C are not needed. This would provide consistency between Hazardous Waste and Air programs, eliminate unnecessary duplication, and free up resources for the regulatory agencies and regulated community.

Opportunities to Modify Requirements to Advance State Flexibility & Authority

10. State Assumption of the 404 Program (CWA)

ECOS supports EPA's formation of the National Advisory Council for Environmental Policy and Technology (NACEPT) Assumable Water Subcommittee (Subcommittee) to recommend to EPA clarifications to its regulations that will foster meaningful state assumption of Clean Water Act Section 404 permitting authority as allowed under the law. The U.S. Army Corps of Engineers' (USACE) interpretation of waters retained by USACE articulated in the just published NACEPT report run counter to supporting state assumption.

11. Underground Injection Control Regulations for Class V Wells (SDWA)

ECOS recommends EPA review the underground injection control (UIC) regulations for Class V wells to increase regulatory flexibility for states to implement the Class V program based on state determined priorities. Prior to the promulgation of the federal UIC regulations, some states had already prioritized types of UIC wells that pose the most significant risk to groundwater sources of drinking water. Now, many of the provisions of the federal regulations are duplicative of state programs, particularly the inventory requirement.

12. Disinfection Byproducts Rule (SDWA)

ECOS urges EPA to allow states to reduce the Disinfection Byproducts Rule (DBPR) monitoring requirements for groundwater systems that consistently have very low DBP's. Currently the reduced monitoring for DBPs is

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once per 3 years for very small systems and once per year for larger systems. States would like the option of reducing the monitoring to less frequently than every three years where the water quality and treatment are well defined and stable.

13. Maximum Residual Disinfectant Level Reporting (SDWA)

ECOS recommends that EPA allow additional reductions in required reporting, as outlined in 141.134, at state discretion for systems where water quality and treatment are well defined and stable.

14. Lead and Copper Rule (SDWA)

ECOS urges EPA to engage with primacy states on the development of the new Lead and Copper Rule. States have provided the agency with extensive input on how to make a new rule more effective, transparent, and implementable.

15. National Pollutant Discharge Elimination System (CWA)

ECOS recommends that EPA remove barriers to full state programmatic flexibility and operations that are not expressly established in the CWA. Additionally, ECOS suggests the implementation of a National Pollutant Discharge Elimination System (NPDES) electronic reporting rule that provides EPA with only the data needed for program oversight thus limiting the data management burden on the states. The current NPDES electronic reporting rules place a significant burden on states to electronically capture and report hundreds of data fields (~368) reflecting both information collected from regulated facilities and state-generated data reflecting compliance monitoring activities, compliance determinations, and enforcement actions. The "Hanlon Memo", dated May 10, 2007, is designed to provide a framework for the review of NPDES permits containing compliance schedules for water quality-based effluent limits (WQBELs). The memo lays out when compliance schedules may be included in permits, and the principles applicable to whether a compliance schedule for achieving a WQBEL is consistent with the Clean Water Act and related regulations. The memo and its interpretation result in an overly narrow review of factors relevant to setting the date included in the compliance schedule as to when a permittee must comply with the WQBEL.

16. Underlying Hazardous Constituent Land Disposal Restriction Regulations (RCRA)

ECOS recommends EPA eliminate the requirement in 40 CFR 268.2(i) to address underlying hazardous constituents for simple characteristic hazardous wastes unrelated the characteristic specific hazard. Additionally, ECOS recommends combining the numerous tables in 40 CFR 268.4, 268.42, 268.45, 268.48, and 268.49 with a single toxicity characte ristic leaching procedure concentration-based land disposal restriction threshold and clarifying near circular references to other rule sections by identifying referenced requirements. Both recommendations would simplify regulations and reduce confusion on the part of the regulated community.

17. Set-Asides in State and Tribal Assistance Grants (Multi-Media)

ECOS urges EPA to work with Congressional appropriators to eliminate set-asides in STAG funding unless the set-asides are made with state concurrenc e and support joint priorities. Set-asides of existing funding reduce the ability of states to continue to implement environmental programs in the manner in which they deem appropriate

18. Maintenance Area Monitoring Requirements (CAA)

ECOS recommends that EPA allow states to reduce monitoring in mainte nance areas that can demonstrate permanent ambient pollutant levels significantly below the level of the relevant National Ambient Air Quality Standards (NAAQS). In many areas of the country, ambient levels of pollutants have been drastically and

permanently reduced based on improvements in technology, land use changes, and the implementation of State Implementation Plan controls. However, under current rules and guidance documents (September 4, 1992 memo "Procedures for processing requests to redesignate areas to attainment" and 40 C FR part 58) these areas are required to continue to operate monitors throughout the 20 -year maintenance period, even when these monitors demonstrate no threat of NAAQS violation. This imposes a significant cost with no environmental benefit; these are resources that could be better spent understanding pollutants that are a current health concern

Regulations that Hinder Infrastructure Investment

19. Projects Ineligible for Drinking Water State Revolving Fund (SDWA)

According to CFR 35.3520(e)(3), "the following projects are ineligible for assistance from the Drinking Water State Revolving Fund (DWSRF): reservoirs or rehabilitation of reservoirs, except for finished water reservoi rs and those reservoirs that are part of the treatment process and are on the property where the treatment facility is located." Some states have been prevented from receiving funding for certain projects because the raw water reservoir is on the same prop erty, although miles away, as the treat ment plant. ECOS requests EPA consider making these projects eligible for assistance from the DWSRF.

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To: Kime, Robin[Kime.Robin@epa.gov]
From: Hilary Moffett
Sent: Tue 5/16/2017 12:20:47 PM
Subject: Fwd: Comments on EPA's Reg Reform proposal
API EPA reg reform final comments 5-15-17.pdf
ATT00001.htm
API Attachment 1 - Comments on specific regulations 5-15-17.pdf
ATT00002.htm

Hi Robin,

These are the comments we submitted last night.

Thanks, and see you soon.

Hilary

Begin forwarded message:

From: "Howard Feldman" <Feldman@api.org>
To: "hec@listserve.api.org" <hec@listserve.api.org>
Subject: Comments on EPA's Reg Reform proposal

API Health and Environment Committee,

Attached are the comments submitted today to the EPA reg reform docket. Thank you all for your input! Obviously we tried to incorporate every company's input and comments to the extent possible, consistent with the HEC guidance on the issues and the comment package.

Next, your Washington representatives will be meeting with EPA and Hill staff regarding the identified issues.

Thanks again for your help.

Howard

Howard J. Feldman

Senior Director

Regulatory & Scientific Affairs
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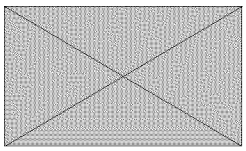

Attachment 1 -- API Comments on Specific Regulations
(top priorities highlighted in yellow)

Air

Rule	**Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources (NSPS OOOOa rule) (June 3, 2016; 81 Fed. Reg. 35824)**
Opportunity for Improvement	Final rulemaking directly regulates GHGs, in the form of a limitation of methane, as a pollutant. Under the Clean Air Act, the addition of GHGs as a regulated pollutant triggers the development of a regulation to address existing sources across the segments.
Suggested Improvement	EPA should revisit the final rule process the agency undertook that failed to demonstrate that the source category represents a "significant contribution" to endangering public health and welfare. EPA should also continue to work technical issues through administrative reconsideration process and provide immediate compliance date extensions to avoid costly implementation of rule requirement (e.g., leak monitoring and repair) while EPA revisits rule following publication of April 4th Federal Register (82 FR 16331).

Rule	Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources (NSPS OOOOa rule) (June 3, 81 Fed. Reg. 35824) --- Alaska specific issues
Opportunity for Improvement	This rule would raise specific issues in Alaska: (1) The Leak Detection and Repair (LDAR) requirements of the OOOOa rule require periodic inspections with a prescribed technology (Optical Gas Imaging cameras and Method 21 detectors), but those instruments do not operate at temperatures less than-4°F per manufacturers' specifications, so compliance with the rule is not feasible when prevailing weather patterns involve long periods of temperatures below-4°F, such as on the Alaska North Slope. (2) The repair timelines do not adequately account for cold climates considerations. Some components used on the Alaskan North Slope are specially rated to-50°F to maintain integrity in the arctic climate. These specialty parts are not typically available for replacement within 30 days in the event of a leak, as the rule requires. Some parts may take up to 36 months to arrive for replacement because of the special climate rating. This delay due to parts unavailability would require shutdowns, and make the costs of the rule outweigh the benefit. (3) The State of Alaska already requires piping inspection for leaks monthly. When leaks are detected during these inspections, work orders are generated so they may be investigated and repaired. As similar work is already being done and regulated through a State agency, OOOOa is duplicative and does not achieve significant additional emission reduction in Alaska. The costs imposed by the LDAR requirements far outweigh the benefits of the rule. For more information on this topic, please see ConocoPhillips Alaska, Inc.'s OOOOa comment letter dated 12/4/2015 and API's OOOOa Petition for Reconsideration Letter dated 8/2/2016.
Suggested Improvement	The operations on the Alaskan North Slope should be categorically exempt from the LDAR requirements.

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Attachment 1 -- API Comments on Specific Regulations
(top priorities highlighted in yellow)

Rule	Release of Final Control Technique Guidelines for the Oil and Natural Gas Industry (October 27, 81 Fed. Reg. 74798)
Opportunity for Improvement	Initiates requirements for states to incorporate controls for existing oil and gas sources within ozone implementation plans where non-attainment is moderate or above (or in OTR).
Suggested Improvement	EPA should revisit the stringency of the final CTGs and incorporate cost-effective VOC thresholds. EPA should provide clear flexibility to the states that any application of VOC controls within NOx-limited air sheds should be eliminated. Reducing VOC emissions in areas where the NOx-limited air sheds (where NOx emissions are the primary driver of low-level ozone formation) provides no additional environmental benefit.

Rule	Tribal Lands Federal Implementation Plan (FIP) (40 CFR 49)
Opportunity for Improvement	The FIP failed to accommodate synthetic minor sources, requires ESA/NHPA analyses, and is no longer useable for minor source permitting once an area is determined to be non-attainment
Suggested Improvement	EPA should modify the FIP to address all issues raised in API's petition including use of the FIP in ozone non-attainment areas and seek streamlined permitting for synthetic minor sources.

Rule	Emissions Standards for Small Remote Incinerators 40 CFR 60 Subpart CCCC and DDDD (effective February 2018)
Opportunity for Improvement	Small Remote Incinerator (SRI) emissions standards effective in February 2018 pose a serious concern for remote oil & gas operations in AK which do not have direct access to landfill disposal. EPA standards failed to account for waste stream variability and utilize a "pollutant by pollutant" approach to create a hypothetical incinerator. The rules do not consider net environmental benefits or conflicting regulatory requirements to quickly dispose of trash to minimize wildlife interactions in AK. Standards for newly built incinerators are not technically achievable.
Suggested Improvement	EPA should modify the requirements to allow units to meet operational performance standards (e.g., minimum combustion change temperatures, burn time, etc.).

Rule	**Accidental Release Prevention Regulations Under Clean Air Act (RMP)**
Opportunity for Improvement	EPA promulgated and issued an updated RMP final rule in January 2017 with little to no coordination with OSHA -- if RMP final rule remains as finalized, there will be significant differences between the RMP and PSM rules placing an increased regulatory compliance burden on regulated sites. RMP final rule has significant provisions that have not been shown will improve safety (inspecting all covered units, 3rd party audits, Safer Technology Alternatives & Analysis). EPA has not demonstrated that the benefits of the revised RMP final rule exceed costs.
Suggested Improvement	Initiate new rulemaking allowing the various provisions of concern to be readdressed.

Attachment 1 -- API Comments on Specific Regulations
(top priorities highlighted in yellow)

Rule	**Renewable Fuel Standard Program: Standards for 2017 and Biomass-Based Diesel Volume for 2018**
Opportunity for Improvement	EPA published the final rule December 12, 2016 with an effective date of February 10, 2017. Problematic provisions include: (1) Unrealistic assumptions were used in predicting 2017 volumes of cellulosic biofuel, E85, E15, and E0; and (2) Fuels mandates do not reflect current markets, creating potential for economic harm.
Suggested Improvement	(1) EPA should utilize its waiver authority in subsequent annual rulemakings to reduce the advanced, cellulosic, and total renewable fuel obligations to ensure the mandate does not exceed the E10 blend wall. In order to maintain a market for ethanol-free gasoline, EPA should not set a RFS mandate that would cause the average mandated ethanol content to exceed 9.7 percent of projected gasoline demand. (2) EPA should use realistic projections of E0, E15, E85 demand and cellulosic production when setting the annual RVOs. (3) EPA should work with Congress to reform and ultimately end this unworkable program.

Rule	Fuels Regulation Modernization – Streamlining (40 CFR Part 79 & Part 80)
Opportunity for Improvement	This action is the first of three phases intended to streamline and modernize EPA's fuels regulations. The purpose of this effort is to update EPA's existing gasoline and diesel regulations to reduce compliance costs for both EPA and industry, improve environmental benefits, and improve compliance assurance with EPA's fuels requirements. In this first phase, EPA will focus on streamlining and modernizing the existing fuels regulatory requirements and designing them in a way to match today's fuel marketplace, undertaking actions such as developing a single common set of provisions and definitions that will apply across all gasoline and diesel programs to reduce complexity, eliminate redundancy, and avoid duplication. Subsequent phases will look at removing variations in in-use fuel requirements and put in place provisions to ensure that health and welfare are protected as new fuels enter the marketplace.
Suggested Improvement	EPA should ensure that it reduces the burden of fuels regulations.

Rule	**Startup, Shutdown, Malfunction (SSM)**
Opportunity for Improvement	EPA began a systemic process of eliminating existing SSM exemptions and affirmative defense provisions from various Clean Air Act regulations and previously-approved SIPs. This potentially exposes every Title V-permitted manufacturing company, which must shut down and start up their equipment to conduct maintenance activities and other planned and unplanned outages, to citizen suits and potential civil penalties that can be costly and time consuming.
Suggested Improvement	EPA should reverse SSM SIP calls and defend previous SSM interpretations.

Rule	CAA Refinery Consent Decrees
Opportunity for Improvement	Most US refineries have agreed to settlement agreements under the Clean Air Act (aka. Consent Decrees), which were signed in the early 2000s. Many of these refineries have met all the requirements of their respective consent decrees, which should now be terminated. EPA has not allocated enough resources towards working with refineries to terminate their consent decrees.
Suggested Improvement	EPA should allocate more resources towards working with each refinery in order to terminate their respective consent decrees.

Attachment 1 -- API Comments on Specific Regulations
(top priorities highlighted in yellow)

Rule	**NAAQS Review: 2015 Ozone NAAQS**
Opportunity for Improvement	A more stringent Ozone NAAQS of 70 ppb was promulgated in 2015 without a sufficient science basis. EPA requested and the Court granted EPA's request to evaluate how the Agency wishes to proceed. EPA will need to report to the court on the status every 90 days. The current NAAQS could result in potential long term non-attainment and over-control of domestic sources attempting to overcome background ozone concentrations.
Suggested Improvement	EPA should reconsider the 2015 Ozone NAAQS in a timely fashion. If the EPA does not decide to reconsider 2015 NAAQS, EPA should take steps to expeditiously revoke the 2008 NAAQS.

Rule	**NAAQS Implementation (40 CFR Part 51)**
Opportunity for Improvement	Implementation rules and associated tools (e.g., robust modeling tools) are not sufficiently flexible and available to implement the NAAQS. Rules should be predictable and provide maximum flexibility to the states and impacted sources. Grandfathering, which is addressed in the NAAQS rule itself, does not provide sufficient transition periods when a NAAQS is revised. The current situation can cause uncertainty and costly delays to both states and businesses.
Suggested Improvement	EPA should incorporate the maximum flexibility within the implementation rules.

Rule	NAAQS Implementation (40 CFR Parts 50 and 58)
Opportunity for Improvement	The compliance monitoring network can be improved with updated guidance to more accurate and economical monitoring practices that will reduce monitor interference, inlet height, altitude, and dry calibration effects currently understating NAAQS compliance.
Suggested Improvement	EPA should mandate deployment of new "interference-free" O3 FRMs & FEMs at design value sites, adjustment of current inlet height data to 2 meter outdoor breathing heights above ground level, barometric data adjustment to reflect reduced inhaled gaseous O3 mass in altitude-adapted populations above sea level, and dry calibration/wet operation guidance revision to reduce FRM concentration of O3 and FEM baseline shift effects. Support states in finding the modest resources to substantially improve the monitoring network and thereby limit nonattainment areas to appropriate jurisdictions.

Rule	SIP Attainment/Maintenance Demonstration Modeling
Opportunity for Improvement	States may conduct brute-force modeling which masks the cost-ineffectiveness of control of a particular source type or category. Facilities may be forced to install costly controls that provide little or no improvement in air quality.
Suggested Improvement	EPA should modify implementation rules to require control sensitivity analyses when requested by potentially impacted stakeholders. Sensitivity analyses to be performed in advance of a formal SIP proposal as new implementation rules are proposed.

Rule	Treatment of Data Influenced by Exceptional Events (40 CFR 50 [50.14])
Opportunity for Improvement	The Exceptional Event Rule is too narrow and does not provide the relief from events outside the control of air pollution control agencies. Areas could be classified non-attainment due to NAAQS exceedances attributable to background sources.
Suggested Improvement	EPA should incorporate policies to include lightning, biological processes and international pollution transport for evaluation as an event.

Attachment 1 -- API Comments on Specific Regulations
(top priorities highlighted in yellow)

Rule	NAAQS Review: Standardize Implementation Schedules by finalizing all NAAQS as of 12/31 of the year of completion
Opportunity for Improvement	Implementation dates are driven by the finalization of the rules. Calendar years are used for monitoring data evaluation and ultimately when controls must be installed and attainment demonstrations performed. Conflicting schedules for different NAAQS at times result in a need to install controls more quickly than intended.
Suggested Improvement	EPA should prevent conflicting schedules from different NAAQS by making all NAAQS final as of 12/31 of the year promulgated. Establish a policy and include this final date in any schedule included in deadline consent decrees.

Rule	NAAQS Short Duration 2010 Standards
Opportunity for Improvement	The short-term standards for SO_2 and others, such as the current 1-hour standards, can cause permit delays due to sources conducting iterative modeling in order to demonstrate that a contemplated project does not "cause or contribute to the exceedance of a NAAQS." The short duration standards may not provide additional health protection over longer averaging time standards.
Suggested Improvement	When conducting NAAQS reviews, EPA should first consider longer term standards, such as an 8 and 24-hour standard, for contaminants for which a 1-hour standard provides no certain quantifiable additional health benefit.

Rule	Functioning and Role of the Clean Air Scientific Advisory Panel (CASAC) in the National Ambient Air Quality Standards (NAAQS) reviews (Section 109 of the Clean Air Act (CAA) enacted on August 7, 1977 (42 U.S.C. § 7409(d)(2)
Opportunity for Improvement	CASAC panels are not balanced; for example it can be difficult for industry representatives to be included on the committees. The full role of the CASAC as stipulated in the statutory language is not being fulfilled. This situation could result in NAAQS that are more stringent than required.
Suggested Improvement	EPA should select balanced panels. The SAB should ensure CASAC more closely follow the legislative role.

Rule	NAAQS Review: Process and Conclusions in Integrated Science Assessments (ISA) (statutorily known as the Criteria Document) (Section 109 of the Clean Air Act (CAA) enacted on August 7, 1977 (42 U.S.C. § 7409(d)(1)
Opportunity for Improvement	To inform a NAAQS review, EPA (ORD) must evaluate whether a given pollutant causes a given health effect and at what dose. EPA's weight of evidence methods for determining likelihood/strength of causal links lack clarity, consistency and transparency.
Suggested Improvement	EPA should use consistent criteria for selecting and evaluating studies and use an established weight of the evidence approach to integrate and interpret all available data. EPA should also engage broader scientific community to evaluate current best practices regarding causality and weight of evidence methods.

Attachment 1 -- API Comments on Specific Regulations
(top priorities highlighted in yellow)

Rule	NAAQS Review: Process and Conclusions in Risk and Exposure Assessment (REA)
Opportunity for Improvement	The REA process needs to provide more rigorous and scientifically sound risk assessments including error analysis. In addition to quantitative uncertainty analysis, EPA should quantitatively account for regulatory health dis-benefits (e.g., health dis-benefits of increased unemployment) should also be evaluated, for balancing against anticipated benefits of tightened NAAQS.
Suggested Improvement	EPA should ensure that the REA includes a more rigorous quantitative uncertainty analysis and presentation of a range of plausible risk values.

Rule	NAAQS Review: Policy Assessment (PA)
Opportunity for Improvement	This "staff paper" is reviewed by CASAC and this approach limits other stakeholder input at this pre-rulemaking stage.
Suggested Improvement	EPA should make the administrative change to issue the Policy Assessment as an Advanced Notice of Proposed Rulemaking to gather all stakeholder input on the conclusions of OAQPS

Rule	NAAQS Review: Regulatory Impact Analysis (RIA) (Executive Order 12291)
Opportunity for Improvement	While the NAAQS are not evaluated on their cost while being developed, a draft RIA is produced when the proposed rule is issued. EPA relies on co-benefits from other pollutants to justify a NAAQS (e.g. PM2.5 co-benefits to justify an ozone NAAQS). These inflated benefits are often used to justify more stringent NAAQS than are necessary. RIA's should also characterize the uncertainty in any estimates.
Suggested Improvement	EPA should conduct cost-benefit analyses that do not rely on co-benefits. Analysis should include a robust uncertainty analysis consistent with OMB guidance for developing regulatory impact analyses (RIAs), as required for economically significant rules by Executive Order 13563, Executive Order 12866, and OMB Circular A-4.

Rule	NSR Reforms
Opportunity for Improvement	There continues to be a need for NSR reforms that simplify and streamline permitting. Uncertainty and overly prescriptive permitting requirements can cause significant delays. EPA is restricting use of the actual-to-projected actual test by issuing policy that is inconsistent with the rule, which in turn discourages both companies and states from using these provisions and states to allow their use.
Suggested Improvement	EPA models and procedures need to be updated to improve efficiency and to remove over-conservatism. EPA should finish previous NSR rulemaking efforts to implement improvements in netting and project aggregation evaluations, and incorporate ways to simplify complicated analysis such as BACT/LAER and Routine Maintenance Repair and Replacement Rule (RMRR) exclusion. EPA should issue a policy on use of the actual-to-projected actual test that is consistent with the rule and its intent and clarify that use of the provisions is not a prior approval scheme in the context of minor NSR permitting.

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Attachment 1 -- API Comments on Specific Regulations
(top priorities highlighted in yellow)

Rule	Significant Impact Level (SIL) used in PSD Permitting (40 CFR 51, 52)
Opportunity for Improvement	While Significant Impact Levels (SILs) are useful permitting tools, recent EPA guidance regarding SILs for ozone and PM2.5 recommends unnecessarily conservative levels. Unnecessarily conservative/low SILs result in more permit applicants having to conduct a resource intensive and time-consuming cumulative impact analysis.
Suggested Improvement	EPA should update its draft SIL guidance: Revise recommended SIL levels using EPA's previously used approximation of "4% of the NAAQS" or, if EPA sets SILs based on ambient monitor uncertainty, determine values using a 95% confidence interval, not a 50% confidence interval.

Rule	Definition of Ambient Air (NSR Policy and Guidance Database)
Opportunity for Improvement	EPA analysis assumes it is necessary to evaluate the air quality right outside of any facility boundary. This can be needlessly protective, for example in the case of evaluating modeled compliance with an air quality standard on a railroad right-of-way that bisects a manufacturing facility. There are other circumstances where the terrain or other factors make it highly improbable that people will be present. Additional controls and permit delays can result from this approach
Suggested Improvement	EPA should update the definition provided in the NSR Policy and Guidance Database to a reasonable definition that takes into account where people are not likely to be for any extended period of time.

Rule	**Petroleum Refinery Sector Risk and Technology Review Rule (December 1, 2015, 80 FR 75178)**
Opportunity for Improvement	Final rule published in December 2015 greatly expands control requirements at refinery flares, tanks, pressure-relief devices, and cokers. EPA has lagged in resolving outstanding API petition for reconsideration issues, including those that warrant regulatory language changes.
Suggested Improvement	EPA should reaffirm relevant features of the final rule without any increases in stringency. Accelerate pace of issue resolution, especially for issues for which compliance deadlines approach and for those requiring regulatory language changes. EPA should work to more fuly develop the record on important aspects of the rule, like the work practice for pressure relief devices and flares.

Rule	Equipment Leak Standards (40 CFR 60 & 63)
Opportunity for Improvement	EPA has been unwilling to replace Method 21 with optical gas imaging, camera-based monitoring for the detection of leaks of VOCs and HAPs from equipment such as valves, pumps, and compressors.
Suggested Improvement	EPA should initiate rulemaking process to modify all appropriate regulations (e.g., NSPS VV/VVa) to allow use of camera-based equipment leak detection for refineries.

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Attachment 1 -- API Comments on Specific Regulations
(top priorities highlighted in yellow)

Rule	Once In, Always In Policy (40 CFR 63)
Opportunity for Improvement	EPA's policy (1995 Seitz memo) is that facilities that are major sources for HAPs on the first compliance date are required to comply permanently with the MACT standard (i.e. - "once in, always in.") This policy serves as a disincentive to older facilities that might otherwise contemplate additional controls or PTE limits to change permit status from major to area source.
Suggested Improvement	EPA should issue new guidance document that revokes this policy and allow sites to switch from major to area source status.

Rule	Work Practice Standards (40 CFR 60 & 63
Opportunity for Improvement	Increasingly high hurdle for EPA to establish work practice standards capable of addressing periods of malfunction, especially where alternative remedies are prohibitively costly with negligible environmental benefits.
Suggested Improvement	EPA should support work practices as appropriate policy. Evaluate possible statutory change. EPA should solidify as policy that, not only does the agency have authority to establish work practices, but that, in many instances; it's the preferable outcome to advance emission reductions while accommodating the technical limits of strict Clean Air Act rule-setting interpretations.

Rule	Reciprocating Internal Combustion Engine (RICE) NESHAP ZZZZ and NSPS JJJJ
Opportunity for Improvement	The excessive monitoring, reporting, and record keeping associated with these rules result in costs that outweigh the insignificant environmental benefits of regulated emissions from the affected engines.
Suggested Improvement	Revisit rules to identify opportunities for reducing burden associated with rule implementation and exempt portable engines, including emergency generators, from NSPS Subpart JJJJ and from NESHAP Subpart ZZZZ. The monitoring, reporting, and maintenance frequencies within these rules should be reduced. The rules should only be applicable to engine manufacturers based on model year with no recordkeeping requirements at the stationary source.

Rule	National Emission Standards for Hazardous Air Pollutants; Site Remediation (May 13, 2016, 81 Fed. Reg. 29821)
Opportunity for Improvement	This proposed rule unnecessarily imposes stringent regulatory requirements on remedial activities that EPA itself has admitted are already adequately controlled under CERCLA and RCRA. This proposed rule would remove the existing exemption from the NESHAP standards for site remediation activities performed under CERCLA or a RCRA corrective action.
Suggested Improvement	EPA should not finalize rule.

Rule	General CEMS and CPMS QA/QC Requirements under MACT and NSPS
Opportunity for Improvement	EPA has become overly prescriptive in specifying CEMS and CPMS QA/QC requirements under MACT and NSPS. These requirements are complex, confusing, and costly to comply with, and provide little to no additional environmental protection as compared to adhering to manufacturers specifications. EPA should refrain from more prescriptive requirements and simply specify that sites adhere to manufacturer's specifications for these analyzers.
Suggested Improvement	EPA should only require CEMS and CPMS analyzers to meet the QA/QC requirements specified by the manufacturer.

Attachment 1 -- API Comments on Specific Regulations
(top priorities highlighted in yellow)

Rule	Flare Requirements under NESHAP and NSPS
Opportunity for Improvement	EPA has recently promulgated new flare combustion efficiency and emergency flaring requirements in the Refinery Sector Rule (§63.670). In addition, EPA has also approved several Alternative Means of Limitation (AMEL) petitions for multi-point flares. To efficiently allow the utilization of these new standards and approaches in other industry sectors and for sites with multi-point flares, EPA should amend the MACT and NSPS General Provisions to allow others to utilize these new approaches.
Suggested Improvement	EPA should consolidate flare requirements by amending the MACT (§63.11) and NSPS (§60.18) General Provisions in a manner consistent with the Refinery Sector Rule and the approved AMELs.

Rule	Equipment Leak Standards (40 CFR 60 & 63) – Subparts KKK, OOOO, OOOOa, VV, VVa, HH
Opportunity for Improvement	The Leak Detection and Repair regulations are a complex web of regulatory requirements for the monitoring of leaks at natural gas plants. Although well-intended, the current enforcement initiative of LDAR where EPA obtains individual company databases containing thousands upon thousands of monitoring data points and runs diagnostics on the databases to look for data inconsistency, record mishaps, or missing data has resulted in an intense investment of resources and enforcement actions.
Suggested Improvement	The LDAR regulations found at Subpart KKK, Quad O, Quad Oa, VV, VVa all should be reviewed and revised to require the on-going conduction of leak monitoring and repairs but to provide more flexibility in repair schedules, monitoring corrections. The focus should be on a well-run monitoring and repair program, and permit upon discovery of minor recordkeeping or monitoring failures, the ability to make corrections and adjustment to the LDAR programs without having violated the regulations. Adding regulatory clarity to this program objective would save the government and industry thousands of man-hours spent on evaluating minor recordkeeping concerns.

Rule	Recordkeeping and Reporting (40 CFR 60, 61 and 63)
Opportunity for Improvement	Several rules under NSPS and NESHAPS require either quarterly or semi-annual reports for various requirements. These reports are time consuming and do not provide any environmental benefit.
Suggested Improvement	Any periodic report should only occur on an annual basis or at the very least, should only be required no more than semi-annually. It is also suggested that the periodic report due dates be staggered throughout the year instead of at the mid or end of year timeframe.

Rule	Performance Test (40 CFR 60, 61 and 63)
Opportunity for Improvement	Some federal air regulations (e.g., NSPS Subpart Ja) require annual certifications (Relative Accuracy Testing Assessment or RATA) on the continuous emission monitoring devices. The rule also requires quarterly cylinder gas audits (CGAs), which are also a form of analyzer system certification. These annual RATAs are costly and are unnecessary, especially since you are performing a quarterly system assessment. Furthermore, some rules only require CGAs to be done after the initial RATA has been conducted for items required to have CEMS. A re-RATA is required under these regulations only in the event if there is a significant change in the system (e.g. change analyzer system, probe locations, etc.).
Suggested Improvement	CGAs should be adequate to ensure that the monitoring systems are operating correctly without the increased costs of the annual RATAs.

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Attachment 1 -- API Comments on Specific Regulations
(top priorities highlighted in yellow)

Rule	Greenhouse Gas Reporting Program (GHGRP) for these Subparts: Subpart A (General Provisions), Subpart C (Stationary Combustion), Subpart P (Hydrogen Production), Subpart Y (Petroleum Refineries), Subpart MM (Suppliers of Petroleum Products), Subpart NN (Suppliers of Natural Gas and Natural Gas Liquids), Subpart PP (Suppliers of Carbon Dioxide), Subpart RR (Geologic Sequestration of Carbon Dioxide) Subpart W (Petroleum & Natural Gas Systems)
Opportunity for Improvement	For each Subpart, API provided unique technical and operational input pertinent to the specific Subpart, to achieve a balance between the burden of data collection and reporting, the need to protect sensitive information and ensure that reporting requirements are placed on the correct reporters, while providing the highest quality data. In past comments, API noted that EPA has other avenues to acquire the needed information- such as commercial data systems DI-Desktop or the EIA's information for onshore production, or the monthly reports to the Bureau of Ocean Energy Management (BOEM) at the well level, for offshore production.
Suggested Improvement	1) Petition to Reconsider has already been filed for some Subparts. 2) In the past, API requested that EPA and OMB implement a GHGRP that would provide for less frequent reporting, such as every 2-3 years. This would be based upon an analysis of the burden of ongoing annual reporting and upon the lack of material change in annual emissions in many sectors that are pertinent to the petroleum and natural gas industry. 3) EPA should focus on the most significant emission sources instead of focusing on overly-frequent reporting of minor sources. To further streamline the GHGRP it is suggested that the use of company records such as historical samples and engineering calculations should be allowed to avoid expensive and unnecessary calibration and sampling activities. Also GHG reporting should be confined to estimated GHG emissions as opposed to inputs such as feed or product volumes. 4) EPA should organize its efforts such that the GHGRP reported data (which pertains to major emitters in 42 industrial sectors nationwide) is used to inform the development of EPA's National Greenhouse Gas Inventory, both for activity data and emission factor data. Better alignment of the GHGRP with the national GHG Inventory ensures better utilization of resources and personnel for both industry and the EPA

Rule	Greenhouse Gas Reporting Program (GHGRP): Leak Detection Methodology Revisions for Petroleum and Natural Gas Systems (Subpart W)
Opportunity for Improvement	Finalized three new reporting requirements and added two new monitoring methods for detecting leaks from oil and gas equipment for facilities conducting equipment leak surveys in all of the segments subject to reporting under Subpart W. EPA needs to preserve consistency of measurements and emission estimation methodology among sites, basins and nationwide as well as with NSPS Subpart OOOOa.
Suggested Improvement	Petition to Reconsider has been filed on 1/27/2017. This rule is tied to the outcome of NSPS OOOOa.

Attachment 1 -- API Comments on Specific Regulations
(top priorities highlighted in yellow)

Rule	EPA Greenhouse Gas Reporting Program
Opportunity for Improvement	Currently, pneumatic devices, including pneumatic controllers, account for over 30 percent of methane emissions in the oil and gas sector in part due to overstated emission rates for pneumatic controller emission factors. These overstated emission factors make pneumatic controllers the largest oil and gas source category of methane emissions and cause the EPA to overstate overall oil and gas sector methane emissions. New research and emission measurement demonstrate that emission factors for intermittent pneumatic devices are much lower than reflected in EPA's current GHG reporting program.
Suggested Improvement	Continue work on EPA Greenhouse Gas reporting program to update estimated emission factors for intermittent pneumaticdevices to align with the latest research, such as Allen et al, *Methane Emissions from Process Equipment at Natural Gas Production Sites in the United States: Pneumatic Controllers* (2014) and Thoma et al, *EPA's Assessment of Uinta Basin Oil and Natural Gas Well Pad Pneumatic Controller Emissions* (2017).

Rule	Revisions to the Prevention of Significant Deterioration (PSD) and Title V Greenhouse Gas (GHG) Permitting Regulations and Establishment of a Significant Emission Rate (SER) for GHG Emissions Under the PSD Program
Opportunity for Improvement	EPA's legal authority to establish such *de minimis* SER thresholds under the Clean Air Act is well-established when the administrative and economic burdens associated with permitting are not justified by the trivial emissions reductions from sources that emit below the *de minimis* threshold. Thus, there is no legal barrier to establishing an appropriate SER for GHG emissions.
Suggested Improvement	Carbon capture and storage ("CCS") should not be the basis for setting the SER a commercially viable emission control for stationary sources and should not be used to establish a *de minimis* threshold. EPA should consider comments submitted on the proposed SER rule and establish a *de minimis* thresholds significantly above 75,000 tpy. The proposed rule does not fully correct the PSD rule language in order to implement the UARG Supreme Court decision. EPA should consider comments on rule changes needed to fully implement UARG, such as to ensure that BACT for GHGs would not be required if a source only triggers non-attainment NSR but had a significant increase in GHGs.

Rule	Electronic Reporting (40 CFR 60 & 63)
Opportunity for Improvement	Rules require facilities to electronically report performance test and performance evaluation data. However, EPA's existing electronic infrastructure is limited, unreliable, and not currently capable of receiving all of the information that facilities are required to report. EPA should drop the electronic reporting requirement until the system is reliable and capable of receiving all of the required information.
Suggested Improvement	EPA should clarify, within the rules, that facilities are not required to provide electronic reports until the system is reliable and capable of receiving all of the required information.

Attachment 1 -- API Comments on Specific Regulations
(top priorities highlighted in yellow)

Water

Rule	**Clean Water Rule: Definition of "Waters of the United States," 80 Fed. Reg. 37,054, (June 29, 2015).**
Opportunity for Improvement	We support the review and ultimate revocation of this rule, as well as EPA's current effort to better define waters of the U.S. in a way that will protect waters, promote the goals of federalism, and provide certainty for businesses. Problems with the final 2015 Waters of the U.S. Rule include: 1) the Rule is vague in describing features that are purportedly waters of the U.S. (e.g., "tributary," "adjacent waters," and "significant nexus"), leaving uncertainty which makes informed decisions impossible without case-by-case determinations; 2) the Rule is overly broad, including many land and water features not within the scope of reasonable interpretation under the Clean Water Act (CWA) and exceeding the Agencies' Authority under the Commerce Clause; 3) the Rule relied upon EPA's Connectivity Report, which was still under review by EPA's Science Advisory Board during the entire comment period for the Rule and after the comment period closed. EPA made meaningful changes to the Connectivity Report , depriving the public of an opportunity to comment on or view the final scientific conclusions in the Connectivity Report during the comment period for the Rule and refusing to extend the comment period to allow for public comment on this critical aspect of the Rule; 4) EPA used federal funds to engage in a substantial advocacy campaign for the Proposed Rule to influence Members of Congress, state government officials, and the general public through aggressive social media tactics that generated superficial support for the Rule through Twitter and Thunderclap, soliciting non-specific statements on clean water and treating these "comments" as support for the Proposed Rule; 5) EPA made substantial changes to the Rule between publication of the Proposed Rule and promulgation of the Final Rule without inviting additional comments from the public; and 6) EPA conducted a flawed cost-benefit analysis that dramatically underestimated and omitted certain key costs from the Rule and overestimated certain benefits of the Rule.
Suggested Improvement	Subject to review under Executive Order 13778, Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the "Waters of the United States" Rule. Seek revocation, receive clear interim guidance, and replacement with a final rule providing more certainty for all stakeholders.

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Rule	Effluent Limitations Guidelines and Standards for the Oil and Gas Extraction Point Source Category, 81 Fed. Reg. 124, 41845 (June 28, 2016) – published December 7, 2016.
Opportunity for Improvement	US EPA announced that it will develop standards for produced water from oil and natural gas operations discharged to POTWs – they set a "zero discharge" limit. This rule banned publicly owned treatment works from accepting waters from unconventional oil and natural gas development, relying only on circular logic and regional data. Repealing it would encourage businesses to advance water treatment technologies and infrastructure. Publicly owned treatment works (POTW) permit conditions can still and fulfill the environmental goal of allowing qualifying waters to be discharged at the only after appropriate permits with strict pretreatment discharge standards have been met. From a business perspective, repealing this rule would encourage the development of and adaptation of advanced water treatment technologies (both on-site and within POTWs). The rule was problematic in several ways: 1) It offered no environmental benefits and created possible environmental consequences (POTWs are already prohibited from accepting waters outside their permitted discharge limitations but this could cause environmental harm by permanently removing one of the few discharge options by which industry can return water to the hydrologic cycle and deprive POTWs of the economic benefits of accepting discharge related flows within their permit limits merely because of the origin of the water); 2) relied on a definition of unconventional previously used at the federal level only for statistical purposes which conflicts with state definitions (causing unintended consequences); 3) was based on a limited and largely regional data set (ironically from one of the regions where the rule conflicts with the applicable state definitions); 4) relied upon insufficient analysis and procedure (with EPA failing to conduct the statutorily required analysis to support their circular logic); and 5) lacked internal coordination within EPA (EPA handled the issue separately from the larger ongoing study on the use of centralized waste treatment facilities, contrary to the holistic approach recommended in the hydraulic fracturing drinking water study). Discharge of produced water from an off-site treatment plant is allowed under the CWA provided the treated water meets applicable water quality standards, and some states have permitted this activity. US EPA has a study underway to evaluate the O&G industry's use of CWTs. US EPA has stated: "While EPA is conducting a study of CWT facilities that accept oil and gas wastewater to determine if revision to the CWT regulations may be appropriate, EPA is not evaluating any approaches that would directly restrict their ability to accept such wastewaters." Overall, EPA has not followed the required processes to create standards and there is a concern that since certain regulations have been finalized, they will not "backslide" or make the regulation "less stringent."
Suggested Improvement	Candidate for replacement with appropriate pretreatment standards. Should only be repealed if replaced with appropriate pretreatment standards Ideas for Revisions: Clarify in the 40 CFR 435 regulations that any type of wastewater is allowed to be sent to POTWs, so long as it can meet the required pretreatment standards developed in a scientific manner. A zero discharge limit is not practical nor justifiable under the Clean Water Act. Also clarify in the CWA that water may be sent to a CWT for treatment and discharge at the surface, so long as the standards for a receiving navigable water are met.

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Rule	2010 Congressionally-directed Study on the Relationship Between Hydraulic Fracturing and Drinking Water.
Opportunity for Improvement	A draft Assessment report was released on June 4, 2015 with the key finding, *"the Assessment shows hydraulic fracturing activities have not led to widespread, systemic impacts to drinking water resources."* The SAB Panel provided its recommendation report to the Administrator on August 10, 2016 and a Final assessment was released on December 13 with a revised final conclusion that hydraulic fracturing activities can impact drinking water resources and EPA identifies factors that influence these impacts.
Suggested Improvement	Recognition that extensive scientific data does exist to support EPA's original topline conclusion and that no additional scientific work was undertaken by the Agency, following the SAB peer review, leading to the final revised conclusion.

Rule	CWA: 40 CFR Part 435, No Discharge "East of the 98th Meridian"
Opportunity for Improvement	The US EPA Oil and Gas Onshore Extraction Point Source Category rule (40 CFR Part 435, Subpart C) regulates the discharge of produced water from oil and gas operations. This regulation prohibits point source discharge of wastewater pollutants into navigable waters from any source associated with production, field exploration, drilling, well completion, or well treatment (i.e., produced water, drilling muds, drill cuttings, and produced sand) east of the 98th meridian. West of the 98th meridian operators can discharge produced water to the navigable waters for beneficial use for agriculture and wildlife propagation (40 CFR Part 435, Subpart E) as long as waste pollutants are removed to acceptable limits for the receiving waters For the most part, operators use different technologies to comply with this "no-discharge" regulation, including underground injection and use of pits or ponds for evaporation. Where direct discharge of wastewater is an option for disposal of wastewater, the owner/operator must obtain an NPDES permit from EPA or a delegated state. There are two problems with this division. First, the choice of the 98th meridian as a divider is inexplicable. Additionally, produced water should be treated like other types of potential discharges – eligible for discharge when permissible under strict permits with limits set based on water quality, economics, and technology.
Suggested Improvement	Clarify in in 40 CFR Part 435 that the discharge of produced water is allowed so long as it can meet the required NPDES standards, protective of navigable receiving waters.

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Rule	40 CFR 60 Subparts CCCC and DDDD and proposed 40 CFR 62 Subpart III, Federal Plan Requirements for CISWI units in Alaska
Opportunity for Improvement	Small remote incinerators (SRIs) in Alaska cannot reliably achieve the emission limits in the 40 CFR 60 Subparts CCCC (emission limits for new units) and DDDD (emission limits for existing units) yet must comply with them either upon installation of a new unit or by February 2018 for existing units. As such, the SRI units in Alaska are, in the worst case, in danger of having to be shut down. In the best case, add-on controls or waste segregation measures would have to be implemented, thus defeating the utility of the SRIs. If the SRIs must be shut down, this could pose substantial problems in remote parts of Alaska – particularly on the North Slope. Incineration of food waste is a key element of measures imposed by state and federal agencies to reduce human-wildlife interaction. For example, the Alaska Department of Natural Resources North Slope Area-wide Lease Sale Mitigation Measures states at Mitigation Measure 4h that, *"Garbage and domestic combustibles must be incinerated whenever possible or disposed of at an approved site…"* and at Mitigation Measure 4k, *"Proper disposal of garbage and putrescible waste is essential to minimize attraction of wildlife…The primary method of garbage and putrescible waste [disposal] is prompt, on-site incineration in compliance with state of Alaska air quality regulations."*[1] At remote work locations, food waste and other waste must be handled in a manner that does not attract wildlife. If disposal without incineration were relied upon as the waste management method, food wastes will invariably have to be stored to await shipment to a landfill – for some as far as 100 miles away. For remote locations that lack year-round or seasonal access to roads, waste must be flown off-site for disposal. During frequent periods of adverse weather, air shipment of waste may not be possible and the waste could remain stored remotely for several days – increasing the likelihood of attracting wildlife. This poses a threat to both man and animal. Indeed, the very first consideration that a waste management plan required by the Bureau of Land Management for operations in the National Petroleum Reserve – Alaska is this: "The plan shall identify precautions that are to be taken to avoid attracting wildlife to food and garbage."[2] Overall, incineration helps to reduce the environmental footprint of remote operations on the North Slope. Without timely destruction of waste, more space would be needed for waste storage, which might translate to additional wetlands impact. For roadless operations, the need to transport waste by air increases emissions and noise. The additional work, costs, and risks associated with those efforts cannot be justified, especially when they come with their own environmental impacts. If the existing emission limits could be met using waste segregation measures, the utility of the SRIs would be largely lost. At remote transient sites such as seismic operations where there are no facilities, waste segregation and hauling are logistically impractical. Plastics will often have food waste on them and separating and storing them for eventual landfill disposal will

[1] http://dog.dnr.alaska.gov/Permitting/Documents/Mitigation_Measures_North_Slope.pdf
[2] National Petroleum Reserve – Alaska, Integrated Activity Plan, Record of Decision, February 21, 2013, Best Management Practice A-2

	increase the likelihood of attracting animals. Segregation of the sulfur-containing food wastes, such as egg shells, vegetables, meats, and dairy products will present obvious problems and, more importantly, render the use of incineration moot. There would be no point in having an incinerator if these wastes could not be burned. And the key element of those measures put into place to minimize wildlife interaction will have been defeated. To date, no add-on control technology has been identified that can provide reliable compliance with the emission limits for the types of waste burned on the North Slope. Industry continues to look for such technology, but making an investment without reasonable assurance of compliance would be unsound. Indeed, EPA has stated, "To the extent that these [small remote incinerators] are located in Alaska, a major difference in these types of units is the inability to operate a wet scrubber in the northern climates and the lack of availability of wastewater handling and treatment utilities."[3]
Suggested Improvement	To solve this problem, EPA should accept newly available SRI emissions data and think outside of its "pollutant-by-pollutant" methodology for setting the floor for new and existing SRIs. Alaska industry is preparing a recommended way to do this within the confines of Clean Air Act section 129 and EPA is urged to extend the February 2018 compliance deadline and work cooperatively with industry to set new standards that are actually achievable.

[3] Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units; Proposed Rule, 75 FR 31951, June 4, 2010.

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Rule	U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Vessel General Permit for Discharges Incidental to the Normal Operation of a Vessel (VGP)
Opportunity for Improvement	This permit is applicable to discharges incidental to the normal operation of a vessel identified in Part 1.2.2 into waters subject to this permit. These waters are "waters ofthe United States" as defined in 40 Code of Federal Regulations (CFR) §122.2 (extending to the outer reach of the 3 mile territorial sea as defined in section 502(8) of the CWA). Much of the confusion surrounding the topic is because of overlapping federallaws and regulations as well as variation in local and state laws. EPA VGP regulations should align with or defer to existing USCG ballast water regulations.
Suggested Improvement	Amend VGP to include in 2.2.3.5.2: In cases in which the Coast Guard approves an alternative compliance date to this implementation schedule in accordance with 33 C.F.R. § 151.2036, the schedule for when ballast water treatment management methods become effective, EPA will consider this action to meet BAT requirements.

Rule	Information Collection Effort for Refinery Effluent Limit Guidelines (ELGs) Study– 308 Request
Opportunity for Improvement	ISSUE: EPA is in the process of issuing a 308 request to study refinery wastewater technology under a theory that more stringent technology-based effluent limitation guidelines may be warranted to address additional loadings of selenium and other contaminants from increased use of Canadian heavy crude feedstock and the installation of air pollution control equipment; and to address dioxins and polynuclear aromatics from particular refinery operations. The outcome of the study could lead to more stringent ELGs. This could lead to additional, technically difficult, costly controls with little to no water quality benefit.
Suggested Improvement	EPA should not issue the ICR and/or subsequentlyconclude that existing technology is already sufficient to protect water resources.

Rule	Spill Prevention, Control, and Countermeasure, 40 CFR 112
Opportunity for Improvement	Complexity and ambiguity of the rule invites regulatory misinterpretation and inequitable enforcement; excessive conservatism, particularly for facilities remote from navigable waters; and unreasonable cost burdens.
Suggested Improvement	Constrain the rule to economically achievable containment; increase applicability thresholds, including the volume threshold to 10,000 gallons; and expand exemptions/off-ramps.

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Rule	Proposed Data Collection Submitted for Public Comment and Recommendations of a Proposed Information Collection Plan on "Health Risks for Using Private Water Wells for Drinking Water, originally published at 81 Federal Register 12902 on and released as an ICR on March 11, 2016 and Submitted an Information Collection Request to OMB on the same topic onJune 22, 2016 (81 Federal Register 40703).
Opportunity for Improvement	API's primary concern was the lack of detail in the actual notice regarding the variables which could affect the outcome of the investigation. The Agency should: • Develop specific and appropriate selection criteria to ensure there is no bias from homeowners when choosing a population of private water wells for the investigation. • Indicate how it will consider the geology/hydrogeology where the selected private water wells exist. • Determine how baseline water quality work will be undertaken to understand the aquifer and naturally occurring chemical and biological constituents. • Determine how the implication of positive/negative urine and blood samples be attributed to water rather than other cause. • Develop a response plan should a "contaminant" be found above some health limit and communicate the health limit selected to serve as the baseline. • Determine the anticipated baseline work with respondents to understand individuals' health conditions before the sampling begins. • Follow proper sampling protocols for biological specimens.
Suggested Improvement	The proposal should be reworked to address the concerns raised in the comments API submitted.

Rule	2017 CWA Nationwide Permit 12, SC 17
Opportunity for Improvement	2017 Special Condition 17: "Tribal Rights. No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands." In the 2017 language "more than minimal adverse effects" is vague and subject to multiple interpretations making the conditions for Tribal consultation more unclear.
Suggested Improvement	Revert back to previous language

Rule	Clean Water Act Section 404(c)
Opportunity for Improvement	Clean Water Act 404(c) allows EPA to deny use of a defined area as a disposal site for dredge and fill activities whenever EPA wishes to make such a determination on the basis of impacts to aquatic life, wildlife or water supplies, be it prior to or even after US Army Corp of Engineers (USACE) has issued a permit authorizing those dredge and fill activities. This provision creates regulatory uncertainty, the potential for high restoration and mitigation costs, and loss of access to sites for industrial activities.
Suggested Improvement	1) A regulatory provision constraining EPA's actions under 404(c) to prevent EPA from withdrawing a previously issued USACE dredge and fill permit on this basis; and to allow EPA, in consultation with USACE, to condition but not prohibit USACE issuance of a dredge and fill permit authorizing construction activities at a site. 2) Repeal and replace the Clean Water Rule to provide clarity on the definition of Waters of the U. S. applicable to CWA 404(c).

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Toxics

Rule	Addition of Natural Gas Processing (NGP) Facilities to the Toxics Release Inventory (TRI); Community Right-to-Know Toxic Chemical Release Reporting Proposed Rule published at 82 Fed. Reg 1651 on January 6, 2017 with a comment period extension published at 82 Fed. Reg. 12924 on March 8, 2017.
Opportunity for Improvement	On October 24, 2012, the Environmental Integrity Project (EIP) filed a petition with the EPA to add upstream activities to TRI reporting. EPA did not formally respond but separately included TRI review of the upstream sector in its 2013 regulatory agenda. On January 3, 2014 EPA published a notice of receipt of this petition and established a formal docket number to be used to view the petition and related documents. On January 7, 2015, EIP filed suit to compel EPA to make a decision on the petition. After almost a year of legal activity, on October 22, 2015, EPA denied in part the original petition, specifically with regards to upstream sector activity, and granted in part regarding the addition of natural gas processing (NGP) facilities to TRI reporting. On January 6, 2017 EPA published the proposed rule. EPA in its determination of applicability of NGP to TRI reporting, underestimated the associated administrative and financial burdens, and overestimated the benefits gained from the proposed rule.
Suggested Improvement	This regulation should be withdrawn, as EPA did not provide sufficient cause as to why NGP should be subject to EPCRA Section 313.

Rule	Hydraulic Fracturing Chemicals and Mixtures ANPRM originally published at 79 Fed. Reg. 28664 on May 19, 2014 with a comment period extension published at 79 Fed. Reg. 40703 on July 14, 2014.
Opportunity for Improvement	Agency requested information that should be reported or disclosed for hydraulic fracturing chemical substances and mixtures and the mechanism for obtaining this information under TSCA 8(a) or 8(d) or both. The information that would be collected under a TSCA section 8(a) and/or 8(d) rule for chemicals and mixtures used in hydraulic fracturing is already available to EPA. The Agency has more toxicity and exposure information on the additives used in hydraulic fracturing than it has on many other existing chemicals, and available information is more detailed and extensive than information typically collected under TSCA.
Suggested Improvement	The ANPRM should be withdrawn. The Lautenberg Chemical Safety Act (LCSA) creates a risk-based framework for the prioritization and risk evaluation of chemicals, including those used in hydraulic fracturing.

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Rule	Lautenberg Chemical Safety Act (LCSA) Section 6 implementation
Opportunity for Improvement	The proposed "framework" rules to implement LCSA have significant flaws that would render them ineffective, including: • Inadequate mechanisms for designating low-priority chemicals; • "Pre-prioritization" EPA activities that would not be transparent; • Lack of adequate clarity on what information sources EPA will use for prioritization and what level of information the Agency will consider sufficient for prioritization; • Unnecessary inflexible focus on all conditions of use in prioritization and risk evaluation; • Reliance on generic guidance in the risk evaluation proposed rule, in lieu of transparency on the specifics of how EPA will conduct risk evaluation; and • Lack of definition of key terms and insufficient clarity on foundational concepts in the risk evaluation proposal. • Casts a wider net on Section 5 PMN reviews that result in unwarranted risk findings and consent orders, contributing to regulatory review delays and increased burden. In order for these important framework rules to be transparent, effective, and operate as LCSA intended, the final rules need to correct the flaws noted above and others that commenters on the proposed rules have flagged.
Suggested Improvement	The proposals should be reworked to reflect the concerns of API, ACC,AFPM and other affected businesses.

Rule	Integrated Risk Information System (IRIS)
Opportunity for Improvement	The Integrated Risk Information System (IRIS) is an EPA program to evaluate the hazards of chemicals and the doses at which those hazards may lead to adverse health effects. EPA's regions and regulatory offices use IRIS values to set regulatory levels in EPA air, water, waste and other programs decisions. The conclusions EPA makes through IRIS ripple through the Agency's regulations, and have led to unnecessarily stringent regulations in some cases. Moreover, IRIS relies on data, information, or methods that are not fully publicly available. In the IRIS program, EPA applies "science policy" to calculate toxicity values. The program generates toxicity values that rely on multiple default adjustment factors to address uncertainty in toxicity estimation. EPA's IRIS methods inflate toxicity estimates, which are then used in EPA regulations in many programs. The rationale for choosing the scientific data to be used as the basis for the IRIS numbers is not transparent. The IRIS program is inefficient and not based in sound science, using overly conservative assumptions in lieu of weight-of-evidence and other established scientific principles. The Lautenberg Chemical Safety Act (LCSA) establishes a framework for chemical risk evaluation and includes scientific standards in amended TSCA section 26. All data sources the Agency now uses to generate and analyze toxicity information should be consistent with those standards, and IRIS would need to be significantly revamped to meet them.
Suggested Improvement	Revamp IRIS program through an independent panel/committee

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Rule	TSCA Premanufacture Notification (PMN) 40 CFR Part 720
Opportunity for Improvement	Since the June 2016 passage of the Lautenberg Chemical Safety Act (LCSA), EPA has made changes to its policies for review of TSCA section 5 notices for new chemicals (and section 5 exemption notices). The changes were not intended by LCSA, and have brought EPA's new chemical review to a virtual standstill. The situation in the new chemicals program is resulting in significant impacts on the ability of companies to move forward with technology and business plans that involve new chemicals. TSCA provides for a 90-day review period for new chemicals review, which EPA largely has adhered to in reviews over the past 40 years. However, of hundreds of PMNs under review since June 2016, only about 10% have passed through the process to commercialization. EPA has initiated regulatory action (so-called "5(e) orders") on over 80% of the chemicals under review, as compared to less than 5% in previous years. EPA has made the program changes unilaterally, without transparency or due process
Suggested Improvement	EPA should revert to the in place PMN-program pre-LCSA, and then make any necessary changes through notice and comment rulemaking, as opposed to Agency guidance.

Rule	Notification of Chemical Exports—Toxic Substances Control Act (TSCA) Section 12(b) 40 CFR Part 707 Subpart D
Opportunity for Improvement	TSCA export notification requirements have no health or environmental benefit, and are a prime example of an unnecessary bureaucratic program that should be eliminated. The only intended purpose of TSCA export notification is to enable EPA to notify a receiving foreign country that a chemical being exported to the country from the U.S. is subject to a TSCA action. There is no reason to believe that the information EPA provides is of any use to receiving countries, and more importantly, there are no benefits to the U.S. public interest. Furthermore, the current state of communication and technology has rendered EPA's notices to foreign countries obsolete. When TSCA was enacted in 1976, it would have been difficult for foreign governments to know what chemicals EPA regulated under TSCA. Now this information is readily available on the Internet. TSCA section 12(b) does require that exporters notify EPA of exports and that EPA provide receiving countries with notices, but it does not specifically mandate that EPA carry out its statutory obligation in the manner that it currently does.
Suggested Improvement	Repeal TSCA export notification requirements.

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Waste

Rule	Financial Responsibility Requirements for Facilities in the Chemical, Petroleum and Electric Power Industries (Jan. 11, 2017, 82 Fed. Reg. 3512)
Opportunity for Improvement	Under this Notice of Intent, EPA is indicating that it is proceeding to consider CERCLA financial responsibility for other industries besides mining, including the petroleum industry. CERCLA financial responsibility would be both costly and unnecessary for petroleum facilities. Petroleum manufacturing facilities are already subject to comprehensive federal and state environmental regulations that minimize the risks of future CERCLA liability. In addition, a significant amount of material managed by petroleum refineries is excluded from the definition of hazardous substance and therefore outside the scope of CERCLA 108(b).EPA has not demonstrated the need for CERCLA financial responsibility, particularly since petroleum is exempt from the federal definition of a hazardous substance (and therefore CERCLA liability), and financial responsibility requirements already exist under RCRA addressing similar risks. Finally, most refineries are operated by economically strong companies and are unlikely to require public funding to address releases
Suggested Improvement	A final determination by EPA that CERCLA financial assurance for the petroleum sector is not necessary.

Rule	Definition of Solid Waste (Jan. 13, 2015, 80 Fed. Reg. 1694)
Opportunity for Improvement	EPA's definition of solid waste (DSW) defines what materials are wastes and, therefore, what materials are potentially subject to stringent regulation under RCRA. EPA has expanded this definition so that it captures many materials that are not being discarded, but instead can be beneficially reused in a production process or as fuels, including many materials from petroleum facilities that can be reused in this manner. This creates unnecessary waste management costs and discourages the beneficial reuse of valuable materials.
Suggested Improvement	Reopen the rulemaking to limit the definition and exclude materials that have a beneficial reuse, including materials that can be reinserted into the refinery or safely used as fuels. Note: API and other industry parties filed petitions for review of the 2015 DSW rule, challenging certain provisions of EPA's changes to the definition of solid waste.

Rule	Financial Responsibility Requirements Under CERCLA § 108(b) for Classes of Facilities in the Hardrock Mining Industry (Jan. 11, 2017, 82 Fed. Reg. 3388)
Opportunity for Improvement	Proposed rule establishes important precedent for EPA's imposition of financial responsibilty requirements under CERCLA. The proposed rule imposes a complex process for facilities to calculate the amount of financial responsibility required. EPA's own estimates are that the rule will cost individual mining facilities between $1 and $19 million per year. In imposing this rule, EPA has neither adequately demonstrated the need and has ignored various other regulatory programs that address the same risks, such as state mining reclamation laws.
Suggested Improvement	A determination by EPA, after receiving public comment on the proposal, that financial responsibility is not necessary or appropriate for mining facilities.

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Rule	Hazardous Waste Generator Improvements Rule (Nov. 28, 2016, 81 Fed. Reg. 85732)
Opportunity for Improvement	This rule made a wide range of changes to the standards for generators of hazardous waste, including several API supported. It also made a significant and unnecessary change by creating a distinction in the requirements between what EPA calls "independent requirements" and "conditions for exemption." The result is that even minor deviations from the generator standards could result in a facility being considered an unpermitted RCRA facility and subject to both disproportionate enforcement and a range of unnecessary requirements, such as RCRA corrective action. The closure requirements for central accumulation areas will restrict the flexibility facilities have to make changes to their operations and impose burdensome notification and post-closure requirements more appropriate for permitted treatment storage and disposal facilities (TSDFs) than 90-day storage areas. Many of the new requirements for contingency plans, particularly the requirement to develop a quick reference guide, are not appropriate or necessary for the many petroleum facilities with trained, internal emergency response teams and which are already subject to stringent process safety management, risk management, and emergency response requirements under other regulatory programs.
Suggested Improvement	Initiate an action to eliminate the distinction between "independent requirements" and "conditions for exemption." Rescind the closure requirements for central accumulation areas. Eliminate requirement to track containers over the life of site. The focus should solely be on if/when the site closes. Provide an exemption from the quick reference guide for facilities with internal emergency response capabilities. Note: API and other industry parties filed a petition for review of this rule challenging the "conditions of exemption" issue identified above.

Rule	Identification and Listing of Hazardous Waste (listing of K050) (May 19, 1980, 45 Fed. Reg. 33084)
Opportunity for Improvement	In 1980, EPA listed "heat exchanger bundle cleaning sludge from the petroleum refining industry" as a hazardous waste (K050) because of the presence of chromium from the use of corrosion inhibitors in cooling water. Refineries no longer use chromium in corrosion inhibiters yet EPA has never rescinded the listing. Refineries must therefore unnecessarily manage this waste under stringent and expensive hazardous waste rules.
Suggested Improvement	EPA rescinds the listing for K050.

Rule	Addition of a Subsurface Intrusion Component to the Hazard Ranking System (Jan. 9, 2017, 82 Fed. Reg. 2760)
Opportunity for Improvement	This rule will introduce burden and expense, while diverting federal resources with little or no environmental benefit. Most sites with significant vapor intrusion issues are already being addressed under CERCLA or other remedial programs. For other sites, CERCLA is an unnecessary and costly approach to addressing vapor intrusion and these sites are more effectively dealt with through state or even local government programs.
Suggested Improvement	Candidate for repeal.

Attachment 1 -- API Comments on Specific Regulations
(top priorities highlighted in yellow)

Rule	Emergency Planning and Community Right-to-Know Act (EPCRA) Section 312 Chemical Inventory Requirements (40 CFR Part 370)
Opportunity for Improvement	Under regulations pursuant to EPCRA section 311, facilities must submit safety data sheets (SDSs) for each hazardous chemical present on-site at or above the reporting thresholds to their State Emergency Response Commission (SERC), Local Emergency Planning Commission (LEPC), and local fire department. The reporting thresholds are lower for "extremely hazardous substances" listed at 40 CFR 355, Appendix B. Facilities may choose to submit a list of the hazardous chemicals grouped into hazard categories instead. Although EPCRA section 311 regulations require a one-time submittal, there is another annual inventory report required under EPCRA section 312, which is burdensome and of minimal value. Facilities that are required to submit SDSs or the list of hazardous chemicals under EPCRA Section 311 are required to submit an annual inventory report for the same chemicals (EPCRA Section 312 requirement). This inventory report must be submitted to the SERC, LEPC and local fire department by March 1 of each year. Generating the annual inventory reports is labor intensive, as large sites have thousands of SDSs to include. There has never been any regular auditing of these reports by EPA or state agencies, which calls into question their significance. The value of these reports to emergency responders or for any other meaningful purpose to protect the community or environment is questionable.
Suggested Improvement	Amend the regulations to require submittal of a one-time inventory of Extremely Hazardous Substances as defined in 40 CFR part 355 Appendix A and Appendix B with ranges (i.e., <10klbs, >10klbs and <100klbs, and so forth). Require resubmittals only if there are significant changes.

Other

Rule	1980 National Contingency Plan (NCP) (40 CFR 300), and as amended, 2005 EPA Contaminated Sediment Remediation Guidance for Hazardous Waste Sites / 2002 Principles for Managing Contaminated Sediment Sites
Opportunity for Improvement	The EPA is not following risk management principles as outlined in the NCP regulations and EPA guidance manuals. Several regions apply arbitrary criteria and methods to artificially derive below regional background clean-up criteria leading to multiple +$1B remedies.
Suggested Improvement	Work with HQ staff to ensure EPA regions follow applicable regulations and guidance. For remedies >$100M, record of decisions should be approved by HQ staff. Increase authority of CSTAG to oversee region actions. Ensure source control / realistic risk and integrative remedies inclusive of capping / natural recovery and dredging are equally applied.

Rule	National Enforcement Initiative (NEI)
Opportunity for Improvement	The NEI has been focused on the oil and gas industry in recent years, with an undue impact and evaluation of the industry's continued operations.
Suggested Improvement	The NEI should be managed to not focus repeatedly on one industry. Smart effective regulations, along with state enforcement programs, should allow EPA to shift away from NEI altogether.

Howard J. Feldman
Senior Director

Regulatory and Scientific Affairs

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May 15, 2017

Ms. Samantha K. Dravis
Regulatory Reform Officer and Associate Administrator, Office of Policy
US Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460
Submitted via www.regulations.gov

Re: EPA-HQ-OA-2017-0190 (82 FR 17793)

Dear Ms. Dravis:

The American Petroleum Institute ("API") is pleased to provide comments to the US Environmental Protection Agency ("EPA") in response to the EPA's solicitation of input from the public to inform its Regulatory Reform Task Force's evaluation of existing regulations. API represents over 625 oil and natural gas companies, leaders of a technology-driven industry that supplies most of America's energy, supports more than 9.8 million jobs and 8 percent of the U.S. economy, and, since 2000, has invested nearly $2 trillion in U.S. capital projects to advance all forms of energy, including alternatives.

Background

America is now the world's leading producer and refiner of oil and natural gas, a reality that was unimaginable just a decade ago. We've transitioned from an era of energy scarcity and dependence to one of energy abundance and security. The developments of the past decade have brought cost savings for American consumers, good paying jobs, renewed opportunities for U.S. manufacturing, a stronger economy and greater national security. Record U.S. production and refining is happening alongside greater environmental progress: CO_2 from power generation is down to near-30 year lows, thanks in large part to greater use of natural gas. Also, cleaner burning transportation fuels and industry investments in emissions reducing technologies have enabled reduced emissions of criteria air pollutants. In 2015, energy-related savings put an extra $1,337 back in the pocket of the average American family, and AAA reports that drivers saved as much as $550 in fuel costs. Energy abundance has helped cut energy and material costs for American manufacturers and is helping to attract manufacturing back to the U.S.

Technological innovations and industry leadership have propelled the oil and gas industry forward, despite the unprecedented level of federal regulatory actions targeting our industry. Consistent with President Trump's stated objectives of American energy independence and economic growth, EPA and other federal agencies should embrace and advance a regulatory system that promotes access to domestic oil and natural gas resources, streamlined permitting and cost-effective regulations. In 2011 and 2015, API supported EPA efforts to relieve the burdens imposed by its rules and the time has come to review those regulations and the additional requirements imposed by the previous Administration, while continuing to promote public health, safety and the environment as industry and citizens support.

API has recently submitted detailed comments to the Department of Commerce and other agencies to improve the manufacturing climate in the United States. (See docket DOC-2017-0001). The business community, including the oil and natural gas industry, relies upon a cost-effective regulatory system that promotes the certainty and predictability necessary to make the massive capital investments required to bring energy and other projects to the U.S. economy.

Key EPA regulations

Below, we highlight three of the key regulations which we urge EPA to review: oil and gas New Source Performance Standards (NSPS), Renewable Fuels Standards (RFS) and Ozone National Ambient Air Quality Standards (NAAQS) implementation. EPA Dockets EPA–HQ–OAR–2010–0505, EPA–HQ–OAR–2016–0004, and EPA-HQ-OAR-2016-0202 respectively contain API's recent comments on these three regulations. Greater detail on those and other regulations is found in Attachment 1, which contains API's detailed comments for the EPA regulatory review.

First, regarding the oil and gas final NSPS rule issued last year,[1] API submitted a detailed petition for administrative reconsideration of the final rule to Administrator McCarthy in August, 2016. The previous 2012 standards and innovation are already effectively reducing emissions. We are encouraged by EPA's April 4, 2017 announcement to review the 2016 standards,[2] and API supports a full review of all elements of the rule and the revision of the standards. Additionally, we recommend that EPA act quickly to extend the rapidly approaching compliance deadlines while the agency reconsiders the rule. EPA should also withdraw the Control Technique Guidelines it issued in October 2016, which share the same basis as the NSPS rule and call for similar requirements as the NSPS rule.

Second, there are a number of problems with the outdated Renewable Fuel Standard Program. API recommends:

(1) EPA should utilize its waiver authority to reduce the advanced, cellulosic, and total renewable fuel obligations to ensure the mandate does not exceed the E10 blendwall.
(2) In order to maintain a market for ethanol-free gasoline, EPA should not set a RFS mandate that would cause the average ethanol content to exceed 9.7 percent of projected gasoline demand. EPA should use realistic projections of E0, E15, E85 and cellulosic demand when setting the annual Renewable Volume Obligations.
(3) EPA should reject calls to move the RFS Point of Obligation. The RFS has significant structural flaws, and moving the point of obligation will not alleviate them; it will simply reallocate the problems to a different group of fuel supply chain participants. The issue was considered by the two previous administrations and both appropriately decided to place the obligation with refiners and importers.
(4) EPA should work with Congress to reform and ultimately end this unworkable program as the program does not reflect current market realities and it creates the potential for economic harm.

[1] Final Rule (June 3, 2016; 81 *Fed. Reg*. 35,824) for the Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources (NSPS OOOOa rule)
[2] 82 *Fed. Reg.* 16,331

Third, regarding the Ozone NAAQS, API has commented previously that the more restrictive ozone standards imposed by EPA in late 2015 were unnecessary, because ambient ozone levels were declining and the public health was already protected with an adequate margin of safety. We also pointed out, as EPA correctly identified, that ozone levels would keep falling. Unfortunately, EPA's new standards create tremendous burden on states and risk significant impacts on job growth, and the potential number of U.S. counties thrown out of attainment could more than triple.

API supports EPA reconsideration of the 2015 Ozone NAAQS based on the issues API identified in its previous comments and court briefs, and is encouraged by EPA's motion to delay oral arguments on the 2015 Ozone NAAQS, while an internal review of the final rule is undertaken. It is critical that the EPA complete this review quickly as deadlines pertaining to the 2008 and 2015 ozone NAAQS are quickly approaching. If the EPA decides not to reconsider the 2015 Ozone NAAQS after its review, , we encourage EPA to expeditiously revoke the 2008 Ozone NAAQS as proposed in the 2015 Ozone Nonattainment Area Classifications and SIP Rule in order to avoid unnecessary burden associated with implementing two Ozone NAAQS Simultaneously.

Comprehensive Review of EPA Regulations

In addition to the detailed comments contained in Attachment 1, as part of the review process API suggests, in no priority:

1. The cumulative cost impacts of regulations on individual industrial sectors be considered.
2. The review process seeks and utilizes actual compliance costs from impacted industries to the maximum extent possible.
3. The benefits attributable to any rule be determined based on measurable metrics to the maximum extent possible and be clearly attributable to the regulation under review.
4. Benefits are not double counted, i.e., the same benefits being attributed to multiple rules.
5. The science and data used to support a regulation should be reviewed to determine if they are still valid based on scientific integrity, consistent with EPA's Principles of Scientific Integrity and Policy (2012), with meaningful disclosure of all potential areas of bias, guarding against manipulation or misinterpretation. New information available since promulgation of the rule should be considered, consistent with the provisions mentioned above.
6. Reporting burdens be closely examined to evaluate if the amount, method and frequency of data collection are actually being used to any beneficial purpose and are actually necessary to meet the objectives of the regulation.
7. EPA should consider greater use of general permits as a cost effective permitting alternative.
8. EPA should evaluate how regulations can be written more clearly.
9. EPA should consider incentives for enhancing self-compliance auditing under the EPA Audit Policy and voluntary programs.
10. EPA should consider increasing flexibility in rules to allow sources broader usage of available technologies to monitor, model, and demonstrate compliance. Rules dictating precise monitoring, repair, modeling or compliance methods should be reviewed to eliminate outdated methods (i.e. Method 21 for LDAR monitoring).
11. All rules, including those subject to legal challenges, should be included in the review process.
12. Duplicative and overlapping regulations should be curtailed.
13. Regulations should be examined for any unintended, negative effects on recycling (i.e., regulations that create economic barriers to recycling).

Attachment 2 contains suggestions for future regulations and Attachment 3 highlights relevant economic impact studies.

In conclusion, we look forward to further working with Administrator Pruitt, EPA leadership and staff on these and other rules. Federal regulatory policy can either strengthen or weaken the U.S. energy renaissance, with impacts that extend far beyond our industry. Regulatory actions should be rooted in sound science and data, with a consideration of the costs and benefits, while protecting public health and the environment. With these goals in mind, we stand ready to work with EPA and the rest of the Administration to find reasonable solutions to the challenges before us.

Please do not hesitate to contact me via email at Feldman@api.org via phone at (202) 682-8340 for any clarification or supplemental information.

Sincerely,

Howard J Feldman

Attachments 1-3

Attachment 2
Future Regulations

1. Regulations need to be given a chance to take affect and be implemented before additional requirements controlling the same pollutants from the same sources are rolled out.

2. EPA needs to avoid rushing regulatory development with arbitrary, politically-motivated deadlines. This results in poorly crafted regulations leading to use of private and government resources on multitudes of regulatory revisions or expensive and protracted litigation. This places great cost on industry with no corresponding environmental benefit.

3. EPA should use the results of the review to improve cost/benefit analysis of future proposed regulations.

4. Where EPA identifies excessive regulatory burden, revisions should be made promptly to those regulations to eliminate wasted efforts.

5. EPA needs to look at the broader impacts of its regulations when it is promulgating them. This is inclusive of job impacts, energy security, and viability of regulated and indirectly impacted industries. For example, when EPA was promulgating the section 202 tailpipe light duty vehicle and then the truck standard, it did not consider and quantify the ramifications on stationary sources. The full effect of these regulations was not considered in the rulemaking and there was significant impact upon stationary sources.

6. EPA needs to adhere to the Administrative Procedures Act and other requirements for promulgating regulations and actually conduct detailed analysis prior to rulemaking. These would include, among others: a review of EPA's Information Quality Act Guidelines, where applicable; a detailed Regulatory Flexibility Act analysis to determine the impact of a regulatory action upon small businesses before certifying there is no significant economic impact; Unfunded Mandates Act to determine the least costly, most cost-effective, or least burdensome alternative that achieves the objective of the rule; Paperwork Reduction Act analysis to see if Office and Management and Budget approval needed for information collection requirements of a rule; an E.O. 13211 review to determine impact on energy supply, distribution and use; an E.O. 12866 review to determine costs and benefits of regulation and reasonably feasible alternatives identified by agencies or the public and to include considering the option of not regulating; an E.O. 13132 and 13175 review as to federalism – what is the impact of a regulation on state and local governments.

7. EPA, state and local governments, affected industry and NGO's need to revisit the automatic regulatory review triggers of the Clean Air Act. Too often, EPA's priorities are focused on meeting a court-imposed deadline for a regulatory review. If EPA wants to improve its regulations and focus on the most significant regulations, it needs Congressional relaxation of the numerous and frequent reviews that are required.

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8. EPA should ask for, and carefully consider, comments related to overlap and duplicative/reporting/compliance between/within EPA regulations and those issued by other agencies such as DOT, USCG, etc. Much confusion and wasted time results from trying to interpret overlapping rules and jurisdictions, and complying with duplicative regulatory requirements.

9. EPA should seek industry input during specific regulation review to allow identification of industry issues and opportunity for introducing improved approaches.

10. Regulations should facilitate, rather than impede reducing, reusing, and/or recycling of raw materials. For example, requiring burdensome TSCA reporting of industrial by-products that are subsequently recycled or reused discourages businesses from engaging in ventures that may have positive benefits for the environment.

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Attachment 3
Relevant Economic Impact Studies

List of API studies relevant to the economic impact of the EPA regulations

API contractors prepared the economic impact studies on EPA regulations listed below. API will provide the full studies to EPA upon request.

Report: Economic Impacts Resulting from Implementation of the RFS2 Program
Contractor / date: NERA Economic Consulting; July, 2015
Issue: Renewable Fuel Standard
Summary: NERA concluded, in affirming their previous study, that implementing the Renewable Fuel Standard at statutory volumes was infeasible and would result in severe economic harm. Severe economic harm is caused by insufficient RINs, market disruptions and outrageously high consumer costs for gasoline and diesel.

Report: Economic and Supply Impacts of a Reduced Cap on Gasoline Sulfur Content
Contractor / date: Turner, Mason & Company / February, 2013
Issue: Tier 3 fuel standards
Summary: TM&C quantified the economic and supply impacts of a reduction in the per gallon sulfur cap from current limits, with regards to a lower annual average sulfur limit of 10 ppm. TM&C concluded that the lower annual average sulfur limit of 10 ppm would effectively impose a tighter per gallon cap, but that imposing a tighter cap would increase capital costs by $2 to $6 billion and increase annual operating costs by $900 million. The overall potential loss of gasoline supply due to a tighter cap could be 130,000 barrels per day, but in some regions, shortages could reach 25% to 50% during outages of sulfur reduction units. TM&C showed that a sulfur cap reduction would increase capital and operating costs, reduce compliance flexibility, and could result in potential loss of gasoline supplies.

Report: Addendum to Potential Supply and Cost Impacts of Lower Sulfur, Lower RVP Gasoline
Contractor / date: Baker & O'Brien; March 2012
Issue: Tier 3 fuel standards
Summary: Baker & O'Brien assessed potential impacts of fuel regulations related to tier 3 fuel standards. Across the scenarios examined, annual compliance cost ranged from $13.2 billion to $2.4 billion and compliance investment ranged from $17.3 billion to $9.6 billion. Scenario parameters closest to tier 3 regulations (sulfur reduction only, no change to RVP) resulted in estimated annual compliance costs of $2.4 billion and compliance investment of $9.8 billion. Allocated to gasoline production costs, the fuel regulations in the scenario increase the marginal cost of gasoline in most markets by 6 to 9 cents per gallon.

Report: A Comparison of U.S. Oil and Natural Gas Policies: Pro-Development vs. Proposed Regulatory Constraints
Contractor / date: Wood Mackenzie; June 2015
Issues: Ozone, Methane emissions from existing sources, Clean Water Act, Refinery NSPS, Renewable Fuel Standard, NEPA
Summary: This study compared a "Pro-Development Policy" path and a "proposed regulatory constraints" path that modeled the total cumulative impacts of 10 regulatory initiatives from the EPA and other federal agencies. Individual impacts of proposed or recent regulations were not calculated. The study found that a path of regulatory constraints could lead to a reduction 3.4 million barrels of oil equivalent in US production, a loss of 830,000 jobs, a decrease of $133 billion per year in the U.S. economy, and a cumulative loss of $500 billion in government revenue.

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Report: API Comments on the Proposed Rulemaking – Standards of Performance for New Stationary Sources: Oil and Natural Gas Production and Natural Gas Transmission and Distribution – Attachment E, API's Review of EPA's Cost Benefit Analysis
Contractor / date: Environmental Resources Management, Inc. (ERM); December 2015
Issue: New source performance standard for oil production and natural gas transmission and distribution; (40 CFR Part 50, Subpart OOOOa)
Summary: ERM provided a critical review and analysis of the RIA provided by EPA for the proposed changes to the NSPS OOOOa Rule. ERM found that EPA underestimated the technical costs of controls by nearly $500 million ($310 million versus $806 million), and overestimated the emissions benefits by more than 43,000 metric tonnes, equating to roughly $64 million. As a result, ERM calculated that the rule would result in social net costs, not benefits, over approximately $410 million in 2025. ERM provided additional commentary on the inappropriate use of the social cost of methane by EPA.

Report: A Review of the Damage Functions Used in Estimating the Social Cost of Carbon
Contractor / date: NERA Economic Consulting; February 2014
Issue: IWG Social Cost of Carbon calculation
Summary: NERA performed a literature review regarding IAM damage functions and provided context for the damage functions used in the IWG analysis. NERA found that the uncertainties that underlie the SCC values resulting from uncertainties in damage functions create significant problems within the SCC. Possible damage estimates at a given point could differ by a factor of 20 or more, a fact that is obscured within the SCC. The report concluded that the parameter values and calibration procedure for the damage functions used in the modeling supporting the SCC are arbitrary. As a result, the IWG would need to significantly improve the characterization of uncertainties in the SCC in order to provide credibility.

Report: Energy Market and Macroeconomic Impacts of Compliance with a Rule Targeting Existing Oil and Gas Sources
Contractor / date: Earth System Sciences Inc. (ESS) and NERA Economic Consulting (NERA); Expected May 2017
Issue: Potential existing source performance standard for methane emissions from oil and natural gas operations
Summary: Incremental costs (net of recovered gas) are estimated to be in excess of $3 billion per year. Costs are dominated in the Onshore Production and Gathering segment. Annual reoccurring costs are dominated by leak detection and recovery (LDAR). Estimated reduction of GDP $7 to $11 billion per year and a reduction of jobs supported in the economy of 60,000 to 125,000 job-equivalents. Economic impacts are near the higher end of the range in the early years but continue though end of modeling time horizon (2031).

List of other studies relevant to the economic impact of the EPA regulations

API would like to highlight the following economic impact studies on EPA regulations listed below.

National Association of Manufacturers
Report: Economic Impacts of a 65 ppb National Ambient Air Quality Standard for Ozone
Contractor / date: NERA Economic Consulting; February, 2015
Issue: Ozone NAAQS
Summary: Emission reductions required to attain a national Ozone NAAQS of 65 parts per billion would reduce national GDP by $140 billion per year and result in an annual average loss of 1.4 million job-equivalents. In net present value (over the 2017 to 2040 timeframe) national GDP would be reduced by over $1.7 trillion.

National Association of Manufacturers
Report: Assessing Economic Impacts of a Stricter National Ambient Air Quality Standard for Ozone
Contractor / date: NERA Economic Consulting; July, 2014
Issue: Ozone NAAQS
Summary: Emission reductions required to attain a national Ozone NAAQS of 60 parts per billion would reduce national GDP by $270 billion per year and result in annual average losses of 2.9 million job-equivalents. Net present value (over the 2017 to 2040 timeframe) of national GDP would be reduced by over $3 trillion. In a sensitivity case analysis of potential impacts, if new natural gas wells were constrained by the tighter Ozone NAAQS, average annual losses would be $360 billion in GDP and 4.3 million job-equivalents. The net present value of GDP would be reduced by more than $4 trillion.

American Council for Capital Formation
Report: Technical Comments on the Social Cost of Methane As Used in the Regulatory Impact Analysis for the Proposed Emissions Standards for New and Modified Sources in the Oil and Natural Gas Sector
Contractor / date: NERA Economic Consulting; December 2015
Issue: Social cost of methane, as used in new source performance standard for oil production and natural gas transmission and distribution; (40 CFR Part 50, Subpart OOOOa)
Summary: NERA provided a critical review of the social cost of methane estimates used in the RIA provided by EPA for the proposed changes to the NSPS OOOOa Rule. NERA took an in depth look at the Integrated Assessment Models used to generate the estimates, and provided modeling runs both to replicate EPA's work and provide corrected estimates. NERA found that correcting for errors in EPA's estimate for the social cost of methane (including discount rates, domestic net benefits, and radiative forcing impacts) could lower the social cost of methane by as much as 94%.

Report: The Impacts of Restricting Fossil Fuel Energy Production
Contractor / date: OnLocation Inc.; April 5, 2017
Issue: Opposition to Fossil Fuels
Summary: Based on the models used, a U.S. policy of "keep it in the ground" is projected to generate the following impacts relative to EIA's Annual Energy Outlook 2016 Reference Case. The keep it in the ground scenario includes no new oil and natural gas leases on private, State or federal lands, a ban on hydraulic fracturing, no new or expansions of existing coal mines, and no new energy infrastructure to transport oil and natural gas within and outside of North America.
US impacts by 2040:

- Loss of 5.9 million jobs
- Loss of $11.8 trillion in cumulative GDP
- Potential increase of $4,552 annual energy expenditures per household
- Potential increase of $40 in the price of a barrel of crude oil (WTI)
- Potential increase of $21 in the cost of natural gas (MMBTU)
- Potential increase of 56.4 percent in retail electricity prices

To: Dravis, Samantha[dravis.samantha@epa.gov]; Bolen, Brittany[bolen.brittany@epa.gov]
From: Black, Noel W.
Sent: Tue 5/16/2017 12:30:18 PM
Subject: Courtesy Copy of Our Comments
Southern Company EPA-HQ-OA-2017-0190.pdf
ATT00001.htm

Good Morning,

Wanted to provide you a courtesy copy of our comments.

Thanks for the opportunity to submit.

Thanks, Noel
Southern Company
202-578-8377

Please excuse any typos...this is coming from my iPhone.

600 North 18th Street
14N-8195
Birmingham, AL 35203

May 15, 2017

Samantha K. Dravis
Regulatory Reform Officer and
Associate Administrator, Office of Policy
U.S. Environmental Protection Agency
Mail Code 1803A
1200 Pennsylvania Avenue NW
Washington, D.C. 20460

Submitted Electronically via Regulations.gov

Southern Company's Response to EPA's Request for Comments on Evaluation of Existing Regulations Pursuant to Executive Order 13777, 82 Fed. Reg. 17,793 (Apr. 13, 2017): Docket ID No. EPA-HQ-OA-2017-0190

Dear Ms. Dravis:

Southern Company appreciates the opportunity to offer comments in response to the Environmental Protection Agency's ("EPA" or "Agency") April 13, 2017, Federal Register notice[1] seeking public input to assist the Agency's evaluation of existing regulations pursuant to Executive Order 13777 ("Executive Order" or "Order").[2] These comments are submitted on behalf of Southern Company and each of its following subsidiaries—Alabama Power, Georgia Power, Gulf Power, Mississippi Power, PowerSecure, Southern Company Gas, and Southern Power. Southern Company is also a member of the Utility Air Regulatory Group ("UARG"), Utility Solid Waste Activities Group ("USWAG"), Utility Water Act Group ("UWAG") and the Edison Electric Institute ("EEI"), and fully supports and adopts the comments submitted by those associations. Southern Company's comments supplement those filed by the above associations.

[1] 82 Fed. Reg. 17,793 (Apr. 13, 2017).
[2] Exec. Order 13777, 82 Fed. Reg. 12,285 (Mar. 1, 2017).

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Southern Company is America's premier energy company, with 46,000 megawatts of generating capacity and 1,500 billion cubic feet of combined natural gas use and throughput volume serving 9 million electric and gas utility customers through its subsidiaries. The company provides clean, safe, reliable and affordable energy through electric utilities in four states, natural gas distribution utilities in seven states, a wholesale generation company serving customers across America, and a nationally recognized provider of customized energy solutions. Through an industry-leading commitment to innovation, Southern Company and its subsidiaries are inventing America's energy future by developing the full portfolio of energy solutions—including nuclear energy, 21st-century coal technologies, natural gas, renewable energy resources and energy efficiency—and creating new products and services for the benefit of customers. We are committed to meeting our customers' energy needs today and bringing customers energy solutions that will drive growth and prosperity tomorrow.

Southern Company believes that responsible environmental regulation is consistent with economic growth and the continued production of reliable and affordable energy. As our industry adapts to a continually changing future, Southern Company's commitment to reduce our impact on the environment is demonstrated by our environmental stewardship activities, our efforts to protect valuable natural resources while serving our customers and our compliance with applicable environmental regulations. We believe that sound government policies are essential to ensure energy is generated, transmitted, and sold in a way that is clean, safe, reliable and affordable. Further, policies designed to promote any of these goals individually should not impede the ability to optimally balance the collective goals—clean, safe, reliable and affordable. Moreover, environmental policies must consider other federal and state laws and regulation that, over time, established federal and state energy policy as it affects electric and gas utilities. Environmental regulation must effectively co-exist with

other federal and state statutory and regulatory schemes that affect the industries being regulated and respect the relevant jurisdictional roles and responsibilities under those laws and regulations. In some instances, environmental regulations adopted without this holistic approach can constrain economic growth, impose unnecessary costs on those who can least afford it, and confuse jurisdictional boundaries. Fortunately, there are ways to formulate environmental policies that continue to protect the environment while alleviating the potential for substantial economic harm to the American people—for example, adopting policies that align with technological advancement and innovation that support safe, reliable and affordable energy.

Southern Company therefore supports the policy established by the Executive Order of "alleviat[ing] unnecessary regulatory burdens placed on the American people."[3] To carry out this policy, the Order directs agencies (including EPA) to review their existing rules and identify those that may be appropriate for "repeal, replacement, or modification."[4] In particular, the Executive Order directs agencies to identify those existing regulations that, among other things:

- eliminate jobs or inhibit job creation;
- are outdated, unnecessary, or ineffective;
- impose costs that exceed benefits; or
- rely in whole or in part on data, information, or methods that are not publicly available or that are insufficiently transparent to meet the standard of reproducibility.[5]

As EPA undertakes its review and any subsequent actions, Southern Company's main objective is to ensure that environmental regulations promote—rather than hinder—the generation, transmission, and sale of energy in a way that is not only clean, but also safe, reliable, and affordable. A variety of environmental regulations can be improved to achieve this balance and ensure environmental protection while also reducing the burdens imposed on the American people and the economy. As part of this

[3] *Id.* § 1.
[4] *Id.* § 3(d).
[5] *Id.* The Executive Order also directs agencies to consider two other factors which are not addressed in these comments.

review, we encourage the Agency to consider the following fundamental principles and ensure they are reflected in subsequent actions:

- **Constructive regulation**: Regulations should provide constructive solutions to real problems affecting people, the environment, and the economy. The Agency should avoid imposing requirements that are duplicative, not supported by sound data and analysis, or otherwise unduly burdensome. In evaluating potential regulations, the Agency should take into consideration other statutes and regulations, both federal and state, that will affect the implementation and impacts of the potential regulation.

- **Regulatory certainty**: For many regulated industries, including our industry, regulatory certainty is essential to inform the long-term business planning and substantial capital investments required to effectively operate today and plan for tomorrow. Southern Company values clear, predictable requirements and consistent application of the law. Regulatory uncertainty can impose significant costs on the American people with minimal or no tangible benefits.

- **Cooperative federalism**: Regulation is most effective when the federal government works in partnership with the states rather than imposing one-size-fits-all federal regulations. This is particularly true in environmental regulation, where Congress has explicitly recognized the primary role of states.[6] Agencies should defer to the states with regard to matters for which the states have traditionally been delegated authority.

- **Realistic assessments of costs and benefits**: Analyses of proposed or existing regulations must properly weigh the relevant costs and benefits imposed by those rules. When evaluating costs and benefits, EPA should avoid reliance on speculative or scientifically unproven benefits and use sound, commonly accepted methods to make predictions about future costs and benefits.

- **Realistic technology-based standards**: The Agency should not adopt standards based on unsupported conclusions or on unproven, unreliable, or excessively costly technologies. Requiring sources to implement technologies that are unproven or not commercially available can actually hinder further technological development.

With these principles in mind, Southern Company supports EPA's efforts to review its existing regulations pursuant to the Executive Order and offers the following comments on EPA's existing regulations. In our comments, we discuss ways in which some of EPA's existing regulations relate to

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[6] *E.g.*, Clean Air Act ("CAA") § 101(a)(3) (stating that "air pollution prevention … and air pollution control at its source is the primary responsibility of States and local governments"); Clean Water Act ("CWA") § 101(b) ("It is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution, to plan the development and use … of land and water resources...").

the criteria specified in the Order. These comments provide examples of rules that embody the concerns outlined in the Executive Order and are not an exhaustive list of the regulations that Southern Company believes are appropriate for review. Further examples of specific regulations that EPA should examine pursuant to the Executive Order are described in greater detail in the comments of UARG, USWAG, UWAG and EEI.

We encourage the Agency to take its next steps quickly but carefully in order to minimize the regulatory uncertainty that may result in the near term. Simple but thoughtful changes can improve rules significantly in a way that minimizes disruption to long-term business planning and ongoing construction and compliance activities.

I. EPA Should Review Regulations Establishing Impractical or Unachievable Standards, Including Standards Not Based on Sound Data and Analysis, Adequately Demonstrated Control Technologies or Not Developed in a Transparent Manner.

EPA should ensure that its regulatory requirements are: based on the use of commercially available and reliable control technologies; achievable for individual sources; and developed in a transparent manner using high-quality, publicly available data. Facility owners cannot make plans to comply with standards if they do not have the tools to do so, and the public cannot meaningfully participate in the rulemaking process if the public cannot analyze the data or the methodologies used to adopt standards.

In the 2015 **Effluent Limitations Guidelines ("ELG") Rule**[7] for steam electric power generating sources, shortcomings in the data EPA relied upon—much of which was not disclosed—led the Agency to adopt standards that sources cannot consistently achieve using available technology.[8] For example, the rule's designated "best available technology" ("BAT") for treating scrubber

[7] 80 Fed. Reg. 67,838 (Nov. 3, 2015).

[8] Southern Company filed extensive comments on EPA's proposed ELGs. *See* Comments of Southern Company on Proposed ELGs (Sept. 19, 2013), Doc. No. EPA-HQ-OW-2009-0819-4379.

wastewater continues to remain unreliable as a means to consistently achieve compliance. EPA's decisions on major portions of the ELG Rule are based on flawed data or misinterpretations of data. Because EPA did not make all of the data, methodologies, and analyses used to support its conclusions—including its BAT determination for scrubber wastewater—available to the public, the ELGs are inconsistent with the policies laid out in the Executive Order, which cautions against relying on data that are not transparent or reproducible.[9] The ELGs should be modified to set practical and achievable standards and the public should have the opportunity to fully review the data and methodologies used to help determine the corrections that may be needed.

The **Clean Power Plan's**[10] carbon dioxide ("CO_2") emission guidelines for existing power plants are also fundamentally flawed because they are not based on emission control technologies at all.[11] In that rule, EPA took the unprecedented step of basing its emission reduction targets on shifting energy generation from coal-fired to gas-fired sources and from all fossil fuel-fired sources to renewable sources—rather than on emission controls that are available to the source itself. As a result, the Clean Power Plan's emission guidelines are overly stringent. This is inconsistent with the Clean Air Act ("CAA") and four decades of EPA rulemakings under section 111 of the CAA. As EPA undertakes its review of the Clean Power Plan pursuant to Executive Order 13783, Southern Company encourages the Agency to reaffirm the longstanding principle that standards of performance must be achievable based on available control technologies at the source.

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[9] Exec. Order 13777 § 3(d)(v).
[10] 80 Fed. Reg. 64,662 (Oct. 23, 2015).
[11] Southern Company filed extensive comments on the proposed Clean Power Plan. *See* Comments of Southern Company on Proposed Clean Power Plan (Dec. 1, 2014), Doc. No. EPA-HQ-OAR-2013-062-22907.

Furthermore, the finalized **CO_2 New Source Performance Standards ("CO_2 NSPS")**[12] for new coal-fired electric generating units ("EGUs") were based on carbon capture and storage ("CCS") as the best system of emission reduction "adequately demonstrated;" however, EPA provided no evidence that CCS was completely installed and demonstrated at any commercial-scale EGU.[13] As an industry leader in the development of CCS through implementation of pilot projects and the development of the Department of Energy-funded Kemper County Energy Facility, Southern Company is uniquely positioned to comment on the status of CCS. And, while the commercial operation of the Kemper County Energy Facility will mark a significant technological milestone for CCS, it will only be a first step in the integration of one type of carbon capture technology with a specific generation technology. Experiences gained from the Kemper County Energy Facility, as well as many more fully-integrated applications of CCS on full-scale power plants, will be needed before the technology can be considered "adequately demonstrated." While Southern Company is optimistic that CCS may play a larger role in capturing CO_2 in the future, application of the suite of technologies required in an integrated CCS system has not yet been "adequately demonstrated" on any commercial-scale EGU, as is required before establishing a nationally applicable NSPS for new EGUs. As a result, Southern Company supports EPA's ongoing review of the CO_2 NSPS and encourages the Agency to establish EGU performance standards based on "adequately demonstrated" control technologies.

Additionally, EPA's recent **Cross-State Air Pollution Update Rule ("CSAPR Update Rule")**[14] that establishes revised emission budgets for power plants results in unnecessary over-control

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[12] 80 Fed. Reg. 64,510 (Oct. 23, 2015).
[13] Southern Company filed extensive comments on the proposed CO_2 NSPS. *See* Comments of Southern Company on Proposed CO_2 NSPS (May 9, 2014), Doc. No. EPA-HQ-OAR-2013-0495-10101.
[14] 81 Fed. Reg. 74,504 (Oct. 26, 2016).

of upwind emissions.[15] In addition to improperly imposing state emission budgets on power plants from the top down, the rule requires emission reductions from power plants in upwind states that are severely disproportionate to the limited projected reductions in downwind ozone concentrations. The vast discrepancy between required reductions and expected benefits are not sensible and are not justified by any data or analysis in the record. EPA should revise its "substantial contribution" screening methodology to conform with a common sense analysis of the data in the record. EPA should also focus its approach to addressing non-attainment issues by cooperating with states on local efforts to improve air quality and on ensuring emissions reduction requirements from upwind states actually have the potential for material, data-supported impacts on downwind ozone concentrations.

II. EPA Should Review Regulations That Are Outdated, Unnecessary, or Ineffective, Including Those That Interfere with Cooperative Federalism, Minimize State Authority, Conflict with Other Federal Statutory Schemes, Or Do Not Properly Account For Regional Differences.

Southern Company agrees that EPA should take action to address regulations that are outdated, unnecessary, or ineffective.[16] In particular, regulations may be unnecessary and ineffective if they conflict with the principle of cooperative federalism, or if they impose monitoring, recordkeeping or reporting requirements that are duplicative, costly, or add little value. Congress envisioned a primary role for states in protecting the environment, and federal policies that interfere with that role can lead to inefficiencies and hinder states' efforts to account for important regional and intrastate differences.

For example, EPA's 2015 **Coal Combustion Residuals ("CCR") Rule**[17] fails to provide an appropriate role for state and local permitting agencies to manage coal combustion residuals.[18] In the

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[15] Southern Company filed detailed comments on the proposed CSAPR Update Rule. *See* Comments of Southern Company on Proposed CSAPR Update Rule (Feb. 1, 2016), Doc. No. EPA-HQ-OAR-2015-0500-0290.
[16] Exec. Order 13777 § 3(d)(ii).
[17] 80 Fed. Reg. 21,302 (Apr. 17, 2015).

final CCR Rule, EPA removed provisions from the proposal that would have allowed for tailoring of the rule's groundwater monitoring and corrective action programs based on site-specific conditions, claiming there was no regulatory body that could oversee implementation of the rule. As a result, the final rule eliminated the proposal's cost-effective, site-specific, and environmentally protective options for managing CCRs. Instead, the final rule included overly stringent and costly compliance requirements imposed through a self-implementing compliance scheme where citizen suits were the primary enforcement mechanism. The lack of site-specific risk-based considerations, a provision that is contained in other EPA (and state) programs, is imposing tremendous costs with no additional protection of human health and the environment. However, the Water Infrastructure Improvements for the Nation Act of 2016 ("WIIN Act") passed by Congress in December 2016 expressly recognizes the critical role of states in regulating CCRs, and provides that states and EPA now have the authority to implement the CCR rule through a permit program, which can remove concerns of abuse from a self-implementing rule.[19] EPA should promptly review and modify the CCR Rule to allow for implementation through cooperative federalism as contemplated by the WIIN Act.

Another example of EPA action that conflicts with cooperative federalism occurred in 2015 when EPA called for 36 states to revise their SIPs regarding emissions during startup, shutdown, and malfunction ("SSM") events. In this action, known as the **SSM SIP Call**,[20] EPA claimed that the SIPs of over two-thirds of U.S. states are "substantially inadequate" to meet the CAA's requirements

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[18] Southern Company filed extensive comments on the proposed rule in November 2010. See Comments of Southern Company on Proposed Regulations for Coal Combustion Byproducts from Electric Utilities, (November 2010), Doc. No. EPA-HQ-RCRA-2009-0640.

[19] Water Infrastructure Improvements for the Nation Act, Pub. L. No. 114-322, 130 Stat. 1628 (Dec. 16, 2016).

[20] 80 Fed. Reg. 33,840 (June 12, 2015).

because they did not align with EPA's interpretation of how those events should be treated.[21] This EPA action forces states to reverse their own regulations—some of which have been in place for nearly four decades—without any evidence that the SSM provisions in question would actually affect attainment or maintenance of any National Ambient Air Quality Standards ("NAAQS"). EPA should, instead, recognize the fundamental federal-state partnership that Congress envisioned in the CAA, through which states retain discretion in crafting their SIPs as long as they ensure attainment and maintenance of the NAAQS within their own borders.

Likewise, under the Clean Water Act ("CWA"), EPA hindered cooperative federalism in its 2015 **Water Quality Standards Rule**.[22] Water quality standards under the CWA are the states' domain, with limited oversight from EPA. The Water Quality Standards Rule improperly encroaches on the states' role by limiting their flexibility in developing their water quality standards programs and subjecting them to greater federal oversight. As a result, the rule will unnecessarily impose additional costs and regulatory delays on industry with greater administrative burdens on federal and state resources. EPA should review the Water Quality Standards Rule to seek a constructive solution that correctly maintains the principles of cooperative federalism.

The **Clean Power Plan** is also inconsistent with cooperative federalism. The CAA explicitly grants states substantial discretion to adopt state plans implementing emission guidelines for existing sources, and allows the states to vary the requirements imposed on sources based on their consideration of the "remaining useful lives of the sources" and "other factors."[23] Yet the Clean Power Plan deprives states of that discretion by barring any variance from EPA's top-down emission reduction decrees.

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[21] Southern Company submitted extensive comments to this rule on May 13, 2013. *See* Comments of Southern Company on Proposed SSM SIP Call (May 13, 2013), Doc. No. EPA-HQ-OAR-2012-0322-0507.
[22] 80 Fed. Reg. 51,019 (Aug. 21, 2015).
[23] CAA § 111(d)(2).

Moreover, the Clean Power Plan's emission reduction requirements are based on shifting states' electric generation from coal- to gas-fired sources and from fossil fuel-fired to renewable sources, rather than on emission controls available to individual sources. This ignores the primary responsibility afforded to the states to determine the appropriate mix of energy resources within their borders.

EPA regulations should also be reviewed to ensure they are consistent with other federal statutory schemes, such as the Federal Power Act or the Natural Gas Act, and with regulation under those statutes. For example, the Clean Power Plan would have the effect of requiring changes in how electric utilities dispatch their power systems, a practice that has always been subject to regulation by the Federal Energy Regulatory Commission under the Federal Power Act. The EPA must ensure that when it issues regulations, those regulations are consistent with or complementary to other federal regulations.

Regulations are also unnecessary or ineffective if they impose monitoring, recordkeeping, or reporting requirements that are duplicative, costly, or add little value. For example, Southern Company disagrees with the Clean Power Plan's requirement that power plants that capture their CO_2 in order to meet an applicable emission limit must transfer the CO_2 to an offsite facility that "reports in accordance with the requirements of 40 CFR part 98 subpart RR."[24] This requirement conversely prevents states from giving emissions reduction credits to plants that transfer captured CO_2 to offsite facilities that report under Subpart UU, the regime used in enhanced oil recovery ("EOR"). EOR wells are already heavily-regulated by state oil and gas boards pursuant to underground injection control programs, as well as Subpart UU. The **Subpart RR reporting requirement** for CO_2 capture projects does not further promote the safe, permanent storage of captured CO_2 and would have significant economic or compliance impacts on facilities that have invested in carbon capture and storage technologies with

[24] 40 C.F.R. § 60.5860(f).

plans to transfer captured CO_2 to offsite EOR operations. Requiring CO_2 recipients to report under the more stringent provisions of Subpart RR disincentivizes future deployment of CCS technologies and is unnecessary.

III. EPA Should Review Regulations That Inordinately Impact the Economy or Fail to Adequately Compare Costs and Benefits.

Agency rulemaking must account for the costs that regulation imposes on society. Regulations that are unnecessarily costly harm the American public by raising the cost of operating facilities and contributing to potential premature facility retirements or closures, which can "eliminate jobs[] or inhibit job creation."[25] Likewise, constructive rulemaking requires the Agency to weigh the costs of regulation against the relevant benefits to ensure residents are made better off.[26]

For example, the Agency's decision to adopt the **Clean Power Plan** was based in part on a faulty cost-benefit analysis that reflected several fundamental flaws. Southern Company recognizes that climate change is a challenging issue for our world and our nation, and we are committed to a leadership role in finding solutions that make technological, environmental and economic sense. However, in the Clean Power Plan, EPA's cost-benefit analysis attempted to justify the projected costs by pointing to the expected incidental reductions in non-greenhouse gas emissions as justification for the enormous cost of the rule. Many non-greenhouse gas emissions are already specifically and extensively regulated by other statutory and regulatory provisions under the CAA. Relying on these incidental reductions yields benefit projections for the Clean Power Plan that are either double-counted, overstated, or both. Moreover, the Agency calculated *global* benefits rather than focusing on *domestic* benefits of the CO_2 emission reductions attributed to the Clean Power Plan. Under current White

[25] Exec. Order 13777 § 3(d)(i).
[26] *See Michigan v. EPA*, 135 S. Ct. 2699 (2015); Exec. Order 13783 § 1(e), 82 Fed. Reg. 16,093 (Mar. 31, 2017) (stating "necessary and appropriate environmental regulations … are of greater benefit than cost").

House Office of Management and Budget ("OMB") guidelines, analysis of economically significant proposed and final regulations from the domestic perspective is required.[27] Appropriate regulatory cost-benefit analyses should focus on the benefits of reducing emissions of the pollutant that a regulation is actually targeting, and only on the domestic benefits of that action. Southern Company agrees with EPA's plan to review the Clean Power Plan in light of these issues and encourages the Agency to develop a durable and constructive solution.

EPA's **Mercury and Air Toxics Standards ("MATS") Rule**[28] is another example of a regulation that improperly counted the perceived benefits from reductions of emissions that are already regulated by other statutes. EPA's own estimates showed the benefit from mercury and air toxics emission reductions to be $4-6 million per year, while the cost of the rule is $9.6 billion per year.[29] Moreover, the Supreme Court decided that EPA did not properly weigh the costs and benefits of this regulation. The subsequent progression of the MATS Rule also illustrates the risks of regulatory uncertainty, with changes to the rule still being contemplated over five years after it went into effect. Meanwhile, Southern Company has already invested significant capital and resources into implementing and complying with the requirements of the MATS Rule. Based on our experience complying with the MATS Rule, it is clear that numerous opportunities exist to reduce that rule's ongoing costs: for example, by modifying or streamlining its monitoring, testing, reporting and recordkeeping provisions; by specifying that affected units are not subject to these burdensome and unnecessary requirements when they operate on natural gas; and by addressing provisions in the rule that are inconsistent or unclear. Southern Company encourages the Agency to optimize the MATS Rule's clarity, consistency and flexibility.

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[27] OMB, Circular A-4 at 34.
[28] 77 Fed. Reg. 9304 (Feb. 16, 2012).
[29] *Id.* at 9425, 9428.

Likewise, EPA's final **ELGs** for steam electric power generating sources are based on faulty cost-benefit analyses and should be reviewed pursuant to the Executive Order. In that rule, EPA concluded that the BAT for scrubber wastewater is the use of chemical precipitation plus biological treatment, despite the fact that the incremental costs of biological treatment far exceed the limited benefits of the additional pollutant removal that process would achieve. Southern Company supports EPA's ongoing review of the ELG in light of these issues.

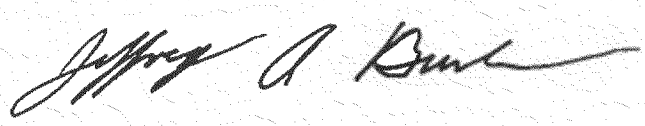
Another example of policy that hinders economic growth is the Agency's implementation of the **New Source Review ("NSR")** preconstruction permitting program. The CAA requires both new power plants and existing plants that are "modified" to undergo NSR and obtain permits before construction or modification can begin. If triggered, NSR is extremely costly and time-consuming, and it presents a substantial hurdle for investment in new plants and improvements to existing plants. The theory of NSR liability that the Agency has pursued in enforcement cases against existing power plants has led to decades of litigation while yielding inconsistent judicial interpretations of the law. This inconsistency has led to compliance and enforcement uncertainty that impedes projects that could otherwise improve the reliability, efficiency and performance of these plants. Additional uncertainty surrounding costs and the availability of future generation has resulted. NSR reform can be achieved through changes in EPA's litigation position in enforcement cases, as well as through Agency guidance and regulations.

* * * * *

Southern Company appreciates the opportunity to provide input on the Agency's review of existing regulations pursuant to Executive Order 13777. Southern Company believes that responsible environmental regulation need not impede economic growth or the continued production of reliable and affordable energy. We encourage EPA to take thoughtful, constructive steps to ensure that all of its

rules reflect the core principles fundamental to effective regulation: certainty and clarity; respect for the principle of cooperative federalism; meaningful consideration of both costs and benefits; and emphasis on scientifically and technically sound standards. If EPA remains mindful of these values, it can best serve the American people by optimally balancing environmental protection, safety, reliability, and affordability in the energy industry. If you have any questions regarding these comments please contact Jason Reynolds at 205.257.7181 and jakreyno@southernco.com or Scott Clouse at 205.257.6612 and sclouse@southernco.com.

Sincerely,



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From: Geoff Brosseau
Sent: Tue 5/16/2017 2:22:50 AM
Subject: CASQA Comments on the Evaluation of Existing Regulations - Select questions posed by EPA OPP
CASQA Comments on Evaluation of Existing Regulations-EPA OPP.pdf

Ms. Dravis,

Please accept these comments from the California Stormwater Quality Association (CASQA) regarding select questions posed by the EPA Office of Pesticide Programs. These comments have also been submitted to the e-docket.
Thank you,

Geoff Brosseau
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CASQA is a 501(c)(3) non-profit organization dedicated to the advancement of stormwater quality management, science, and regulation.

CASQA
California Stormwater Quality Association®
Dedicated to the Advancement of Stormwater Quality Management, Science and Regulation

May 15, 2017

Samantha K. Dravis
Regulatory Reform Officer and Associate Administrator
Office of Policy
U.S. Environmental Protection Agency (U.S. EPA)

Subject: Evaluation of Existing Regulations – EPA Office of Pesticide Programs (OPP) (EPA–HQ–OA–2017–0190)

Dear Ms. Dravis:

On behalf of the California Stormwater Quality Association (CASQA[1]), thank you for this opportunity to provide input on pesticide regulations that may be appropriate for repeal, replacement, or modification. CASQA has an interest in this process because, on a recurring basis, uses of U.S. EPA-approved pesticides result in adverse impacts to water quality and aquatic life beneficial uses in waters that receive urban runoff via municipal storm drain systems. Under the Clean Water Act (CWA), such impacts create potential liability and can lead to enforcement actions and expensive mitigation.

In recent years, numerous studies have documented the presence of pesticides and pesticide-caused toxicity in both surface waters and sediments in California's urban waterways.[2] Examples of beneficial uses that have been adversely affected by pesticides include warm and cold freshwater habitat, commercial and sport fishing, shellfish harvesting, wildlife habitat, estuarine habitat, marine habitat, fish migration, municipal and domestic supply, and preservation of rare and endangered species. Municipalities are held responsible for impacts to any receiving water beneficial uses and can be subject to enforcement actions under the terms of their National Pollutant Discharge Elimination System (NPDES) permits and face negative publicity as well as potential litigation under the citizen suit provisions of the Clean Water Act. Additionally, water bodies impaired by pesticide pollution are subject to being placed on a list under CWA section 303(d). A 303(d) listing triggers the need to develop a total maximum daily load (TMDL) of the pollutant for the listed water body. The costs of TMDL implementation activities to end impairment of a CWA section 303(d) listed water body often run into the millions of dollars. For example, the California Regional Water Quality Control Board, San Francisco Bay Region, estimated that the implementation cost for a pesticide-related TMDL for Bay Area urban creeks would be roughly $7 million *annually*.[3]

[1] CASQA is comprised of stormwater quality management organizations and individuals, including cities, counties, special districts, industries, and consulting firms throughout California. Our membership provides stormwater quality management services to more than 22 million people in California.
[2] c.f., Ruby, Armand (2013). Review of Pyrethroid, Fipronil and Toxicity Monitoring Data from California Urban Watersheds. Prepared for CASQA. July 10.
[3] Johnson, B. (2005). *Diazinon and Pesticide-Related Toxicity in Bay Area Urban Creeks. Water Quality Attainment Strategy and Total Maximum Daily Load (TMDL).* Final Staff Report. Prepared by the California Region al Water Quality Control Board, San Francisco Bay Region. November 9. Available on the Internet: http://tinyurl.com/cqw76j

P.O. Box 2105 Menlo Park CA 94026-2105 650.366.1042 www.casqa.org info@casqa.org

OPP Regulatory Reform Questions

OPP has requested input from stakeholders on the following seven questions:

1. Is there a particular rule or regulatory provision in 40 CFR Parts 150-189 (pesticide regulations) that should be repealed, replaced or modified?
2. Which regulations could be updated to be less burdensome for small businesses and/or state and local or tribal governments while maintaining environmental protection?
3. Which regulations, including economically significant rules, could be transitioned from paper to electronic reporting?
4. How can EPA streamline or consolidate reporting requirements to reduce burden, including reducing the frequency of reporting, while maintaining effective programs?
5. Which regulations could be made less burdensome through the use of advance monitoring techniques to facilitate environmental protection?
6. Which regulations (or portion of a regulation) have achieved their original objective and become obsolete?
7. Which regulations are based on data, information or methods that are not publicly available or that are insufficiently transparent?

Our input responds to questions 1, 2, and 7.

Question 1 - Regulations that Should Be Repealed or Modified

We propose that U.S. EPA repeal or modify two regulations: 1) the treated article exemption; and 2) the elimination of requirements to provide product performance data for urban pesticide products (i.e., residential, professional, institutional, and industrial products).

A. Treated Article Exemption

40 CFR Part 152, §152.25 lists regulatory exemptions from FIFRA for pesticides "of a character not requiring FIFRA regulation." The first exemption, §152.25 (a), known as the "treated article exemption" is overly broad and burdensome for state and local governments. Because they can leach their pesticide content during use or at end of life, treated articles definitely are of a character requiring FIFRA regulation. There is no scientific basis for this exemption.

This exemption has two consequences:

1. OPP does not assess the ecological risks of end-use treated articles when it registers pesticides. This scientific omission creates an enormous gap. Many treated articles, including treated wood, paint, roofing materials, other building products, and treated fabrics, leach pesticides into urban runoff or wastewater through outdoor exposure or indoor washing. This leaching of chemicals, such as from pentachlorophenol, creosote, and arsenic wood treatments, has been linked to urban pollution.

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2. The exemption blocks states' rights to manage pesticide treated articles. For example, states cannot control sale and use of treated wood, building materials, or clothing. In some instances, this can preclude use of the most cost-effective means to address water pollution.

We request that U.S. EPA repeal this scientifically unsound exemption. If U.S. EPA prefers a narrower change, we suggest that U.S. EPA consider the following options:

(1) Modify the exemption to allow states to register treated articles;

(2) Require registration of all treated articles with a pesticides content above a de minimis threshold (e.g., 1 part per million) that allows for preservative use in personal care products like shampoo and makeup.

If it elects the latter course, OPP should modify its ecological risk assessment procedures to include a full ecological assessment of all treated articles.

B. Product performance data requirements

US EPA should revise 40 CFR §158.400 to require registrants to provide product performance testing data for all urban uses. As it stands, this regulation provides an overly broad exemption from data requirements pertaining to efficacy for individual pesticide registration applications, which is not required by the authorizing legislation (FIFRA 7 U.S.C. Part 136a [c] [5], and undermines the ability of US EPA and the States to obtain data necessary to mitigate unnecessary environmental impacts. The underlying argument for the exemptions, namely that market forces supplant the need for efficacy data because users would only purchase efficacious products, is not well supported for urban uses. For instance, recent discoveries of the lack of efficacy of antimicrobials used in healthcare have not significantly reduced their success in the urban marketplace.

Efficacy data are critical for establishing application rates and mitigation measures that can reduce environmental impacts while still preserving the efficacy of the products. Recent scientific studies have revealed that labels instruct users to apply pesticides in quantities much greater than necessary to control pests in the urban setting. For example, labels for pyrethroid insecticides typically instructed users to spray a 7-10 foot band around a structure to control nuisance insects like ants. Scientific studies funded by the California Department of Pesticide Regulation (DPR) and others determined that using the same pesticide application concentration and treating a band of only 2 inches around a building would be sufficient to provide nuisance insect control, and result in a reduction of >95% in the amount pesticide used. This over-application allowed on labels has unnecessarily created substantial regulatory burdens for state and local governments (e.g., see comments in the bifenthrin registration review docket).

Question 2 - Making Pesticides Regulation Less Burdensome for State and Local Governments While Maintaining Environmental Protection

Water pollution due to the presence of pesticides has been burdensome to local governments. Recent cases (e.g., urban runoff and wastewater pollution with diazinon, chlorpyrifos, pyrethroids, fipronil) have revealed gaps in the processes used to implement U.S. EPA's

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pesticide regulatory authorities. Our professional organizations have detailed the costly consequences of this water pollution in prior correspondence that is available in the U.S. EPA Reregistration and Registration Review dockets for these pesticides. Addressing these gaps through regulatory and procedural modifications would reduce the burden on state and local governments while maintaining environmental protection.

While these gaps are primarily procedural, addressing them would provide greater regulatory relief than any regulatory change under existing law. Specific modifications that would provide the greatest benefit at the least cost to OPP include:

- Scientific review procedures need to be modified to completely analyze all urban pesticide uses, correctly identify exposure pathways, improve models such that they accurately estimate pesticide releases into urban runoff and municipal wastewater treatment plants. We encourage OPP to collaborate with California DPR, which has been actively engaged in examining these scientific gaps.

- Toxicity testing data requirements in 40 Code of Federal Regulations (CFR) Part 158 Subparts G and W for conventional and antimicrobial pesticides should be modified to ensure that minimum data requirements are harmonized with U.S. EPA Office of Water testing requirements for NPDES permittees (i.e., same species, same time frames). Minimum required data sets should be sufficient to provide accurate species sensitivity distributions that are required for Endangered Species Act consultations. On its face this may appear to be an increased regulatory requirement, but it would actually lower the overall cost of the pesticides registration process by making the process more predictable and more scientifically reliable. This change would eliminate the regulatory gaps between the nation's pesticides, water, and endangered species regulatory programs that are costly and cumbersome for OPP, state and local governments, and registrants.

- Benefits Assessments should be modified to consider economic impacts on state and local governments such as costs arising from Clean Water Act compliance issues, and to include the costs of actual impacts on beneficial uses (e.g., drinking water and fisheries).

It is essential that U.S. EPA's pesticide regulatory processes adequately consider – and fully mitigate – impacts in urban runoff and the surface waters that receive it. We strongly encourage OPP to continue to work with the Office of Water toward this objective.

Question 7 - Regulations Causing Data to Not Be Publicly Available / Insufficient Transparency

One of OPP's regulations in 40 CFR Part 152, Subpart F (§152.199) keeps data in support of pesticide registration hidden until after the decision is finalized. Our scientific reviewers have been unable to provide meaningful input to OPP on proposed new pesticide registration decisions because this information is unavailable to us. Our local government experts, who have on-the-ground understanding of urban runoff and wastewater, can only help OPP ensure the accuracy of its assessments if they can access the scientific data crucial for OPP's decisions. For example, data characterizing leaching of pesticides from treated materials and studies of

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pesticide transport to drinking water intakes have been withheld from our reviewers. Our input improves the accuracy of OPP scientific assessments, thus helping OPP make better decisions that avoid costly mitigation of water pollution from pesticides.

Thank you for your consideration of our comments. If you have any questions, please contact our Executive Director, Geoff Brosseau at 650-365-8620.

Sincerely,

Jill Bicknell, Chair
California Stormwater Quality Association

cc: Richard P. Keigwin, Jr., U.S. EPA Office of Pesticide Programs (OPP)
Tracy Perry, U.S. EPA OPP, Pesticide Re-Evaluation Division
Andrew Sawyers, U.S. EPA Office of Water, Office of Wastewater Management
Betsy Southerland, U.S. EPA Office of Water, Office of Science and Technology
Tomas Torres, Water Division, U.S. EPA Region 9
Debra Denton, U.S. EPA Region 9
Patti TenBrook, U.S. EPA Region 9
Karen Larsen, California State Water Resources Control Board
Philip Crader, California State Water Resources Control Board
Paul Hann, California State Water Resources Control Board
Dawit Tadesse, California State Water Resources Control Board
Tom Mumley, California Regional Water Quality Control Board, San Francisco Bay Region
Janet O'Hara, California Regional Water Quality Control Board, San Francisco Bay Region
Daniel McClure, California Regional Water Quality Control Board, Central Valley Region
Tessa Fojut, California Regional Water Quality Control Board, Central Valley Region
Peter Meertens, California Regional Water Quality Control Board, Central Coast Region
Nan Singhasemanon, California Department of Pesticide Regulation
Jennifer Teerlink, California Department of Pesticide Regulation
Scott Taylor, National Municipal Stormwater Alliance
Chris Hornback, National Association of Clean Water Agencies
Cynthia Finley, National Association of Clean Water Agencies
Kelly D. Moran, UP3 Partnership

17cv1906 Sierra Club v. EPA - 6/22 Production ED_001523_00008314-00005

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Cc: David Williams[dwilliams@bacwa.org]; Lorien Fono[lfono@bacwa.org]; Stephanie Hughes[steifehughes@yahoo.com]; North, Karin[karin.north@cityofpaloalto.org]
From: Sherry Hull
Sent: Tue 5/16/2017 1:07:35 AM
Subject: BACWA Comment Letter on Evaluation of Existing Regulations – EPA Office of Pesticide Programs (OPP)
BACWA letter_EPA Pesticides Regulatory Reform_05-15-17.pdf

Please find attached a copy of a BACWA Comment Letter on Evaluation of Existing Regulations – EPA Office of Pesticide Programs (OPP)(EPA–HQ–OA–2017–0190), submitted May 15, 2017 to the EPA.

Let me know if you have any questions or difficulty accessing the document.

Best regards,

Sherry

Sherry Hull

Assistant Executive Director

Bay Area Clean Water Agencies

shull@bacwa.org

415-404-8303

BACWA
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OPP Regulatory Reform Questions

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Making Pesticides Regulation Less Burdensome for State & Local Governments While Maintaining Environmental Protection

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Regulations that Should Be Repealed or Modified

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A. Treated Article Exemption

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B. Product performance data requirements

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Regulations Causing Data to Not Be Publicly Available / Insufficient Transparency

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David R. Williams

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From: Theresa Pugh
Sent: Mon 5/15/2017 10:29:18 PM
Subject: Theresa Pugh Consulting's comments EPA-HQ-OA-2017-0190
Pugh FINAL EPAComments Re Evaluation of Existing RegulationsMay15,2017.pdf

Good afternoon.

These comments address a few regulations suggested for modification. The comments also point to a few process issues that may interest you because they are fundamental to EPA. Perhaps no one has yet mentioned to you some problems with recent SBREFA and UMRA panels over the last few years. This regulatory reform process could also revive what was an excellent opportunity to discuss regulatory options under SBREFA that has declined significantly over the last few years in several programs (though not all programs).

The comments also point to two very well organized SBREFA meetings convened over the last ten years (water and PCBs) which were productive and perhaps instructive on how to do it well.

The comments were already submitted earlier to www.regulations.gov

Thanks—

TP

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