Message

Sent: 7/9/2018 8:56:40 PM
To: Nabity, Caroline [Caroline.Nabity@mail.house.gov]
Subject: M Hupp Transcript
Attachments: Oversight-Millan Hupp OGR Interview Transcript Errata.pdf

Caroline – Attached is a copy of the errata sheet for the Millan Hupp transcribed interview.

Errata Sheet

Transcript of May 18, 2018, Interview with Millan Hupp.
Conducted by Majority and Minority Staff, Committee on Oversight and Government Reform,
U.S. House of Representatives, Washington, D.C.

Page 16, line 11:	Clarify that Kevin Chmielewski was not supervisor at that time.
Page 29, lines 24-25:	Insert "not" before reference to best available option.
Page 52, line 5:	Clarify that the response was based on the "best of my recollection" consistent with the reference to my "recollection" in line 3. I have since become aware of a few emails in the public domain that appear to show I used my official EPA email account to communicate with a real estate agent.
Page 52, line 7:	Clarify that the response was based on the "best of my recollection" consistent with reference to "recollection" in line 3.
Page 79, line 2:	Change "billing" to "building".
Page 79, line 13:	Change "billing" to "building".
Page 80, line 5:	Change "him" to "them".
Page 85, line2-5:	Clarify that the response "yes" in line 5 is modified by the qualifier "to my knowledge" in line 2.
Page 101, line 8:	Change "Nunez" to "Munoz".
Page 101, line 17:	I have since learned that Mr. Munoz continues to be an EPA employee.
Page 101, line 22:	Change "Nunez" to "Munoz".
Page 102, line 8:	Change "Nunez" to "Munoz".
Page 103, line 13:	Change "Nunez" to "Munoz".
Page 104, line 6:	Change "Nunez" to "Munoz".
Page 106, line 6:	Change "Nunez" to "Munoz".
Page 110, line 11:	Change "Nunez" to "Munoz".
Page 110, line 24:	Change "Nunez" to "Munoz".

Page 111, line 1: Change "Nunez" to "Munoz".

Page 118, line 1: Clarify that Kevin Chmielewski was not supervisor at that time.

Page 124, line 23: Change "Nunez" to "Munoz".

Millan Hupp

Transcript Reviewed on June 6, 2018

Washington, D.C.

Message

From: Lyons, Troy [lyons.troy@epa.gov]
Sent: 4/7/2017 4:45:54 PM
To: Brown, Byron [brown.byron@epa.gov]; Clowser, Jessica (Fischer) [Jessica_Clowser@fischer.senate.gov]
Subject: RE: Inquiry about Phase 2 standards for Heavy Duty Vehicles

Thanks, Byron!

Jessica—let me find the correct POC on this issue and we will be happy to arrange a call

---

From: Brown, Byron
Sent: Thursday, April 6, 2017 6:06 PM
To: Clowser, Jessica (Fischer) <Jessica_Clowser@fischer.senate.gov>
Cc: Lyons, Troy <lyons.troy@epa.gov>
Subject: RE: Inquiry about Phase 2 standards for Heavy Duty Vehicles

Hi Jessica – hope all is well. I am copying Troy Lyons, who is the new appointee heading up Congressional affairs who can help set this up. If you want to keep it close hold to the policy staff, just let us know.

From: Clowser, Jessica (Fischer) [mailto:Jessica_Clowser@fischer.senate.gov]
Sent: Thursday, April 6, 2017 10:11 AM
To: Brown, Byron <brown.byron@epa.gov>
Subject: Inquiry about Phase 2 standards for Heavy Duty Vehicles

Hey, Byron,

I am reaching out regarding Phase 2 Standards for Heavy Duty Vehicles. We are hearing from grain trailer manufactures about the impact these standards will have on trailers. I have also touched base with the Food Distributors who share the same concerns. Can we please set up a call to discuss a path forward? I want to run a legislative idea by you and gather your thoughts on and administrative fix (if it's even possible). I am out tomorrow. Friday, April 7 – Tuesday, April 11.

Thank you so much!
Jessica
4-5908

Jessica Clowser
Legislative Assistant
Office of U.S. Senator Deb Fischer
454 Russell Senate Office Building | Washington, DC 20510
202.224.5908 (direct)
202.224.6551 (main)
Jessica_Clowser@fischer.senate.gov

Message

From: Deveny, Adrian (Merkley) [Adrian_Deveny@merkley.senate.gov]
Sent: 7/21/2017 1:35:42 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
CC: Kelly, Albert [kelly.albert@epa.gov]; Brown, Byron [brown.byron@epa.gov]
Subject: Re: RE:

Del friscos works for me- but there are 2. I assume the one by EPA?

Sent from my iPhone

On Jul 21, 2017, at 6:49 AM, Jackson, Ryan <jackson.ryan@epa.gov> wrote:

> What sounds good? The usual spot near Capitol Hill is gone. Del friscos has a patio.
>
> _____
> Ryan Jackson
> Chief of Staff
> U.S. EPA
> **Ex. 6**
>
> On Jul 20, 2017, at 11:32 PM, Deveny, Adrian (Merkley) <Adrian_Deveny@merkley.senate.gov> wrote:
>
> > That works. Where?
> >
> > Sent from my iPhone
> >
> > On Jul 20, 2017, at 3:46 PM, Jackson, Ryan <jackson.ryan@epa.gov> wrote:
> >
> > > 4:30?
> > >
> > > **From:** Deveny, Adrian (Merkley) [mailto:Adrian_Deveny@merkley.senate.gov]
> > > **Sent:** Thursday, July 20, 2017 3:33 PM
> > > **To:** Jackson, Ryan <jackson.ryan@epa.gov>; Kelly, Albert <kelly.albert@epa.gov>; Brown, Byron <brown.byron@epa.gov>
> > > **Subject:** RE:
> > >
> > > Thanks Ryan. Would you all be available at 3:30pm?
> > >
> > > **From:** Jackson, Ryan [mailto:jackson.ryan@epa.gov]
> > > **Sent:** Thursday, July 20, 2017 10:17 AM
> > > **To:** Kelly, Albert <kelly.albert@epa.gov>; Brown, Byron <brown.byron@epa.gov>; Deveny, Adrian (Merkley) <Adrian_Deveny@merkley.senate.gov>
> > > **Subject:**
> > >
> > > Can we all get together on Friday afternoon at some point convenient to talk about the Port in Portland. We are all on the same page and if we can sketch this out for our principals further they can meet and we will have made some significant progress on this site. This is a pretty good opportunity.

Ryan Jackson
Chief of Staff
U.S. Environmental Protection Agency
Ex. 6

Message

From: Tomassi, Chris (Appropriations) [Chris_Tomassi@appro.senate.gov]
Sent: 8/12/2018 10:26:51 PM
To: (b) (6) [redacted]
Subject: Moving On
Attachments: Chris Tomassi

Hi All – After slightly more than 15 years, today marks my last day in the Senate. It has been an honor and a privilege to work in the Senate and specifically for Chairman Shelby, Chairman Murkowski, and former-Chairman Cochran on the Appropriations Committee. And, before my current role, to work for Senator Enzi and for the EPW Committee. I have made some great friends and learned so much over the past 15 years and appreciate all the opportunities the Senate has provided.

I am not going far as I am headed to the ClearPath Foundation (https://clearpath.org/). I have attached my contact info and it is pasted below.

If you need immediate assistance on the Appropriations Committee, please contact Leif Fonnesbeck at leif_fonnesbeck@appro.senate.gov.

Thanks to all of you for your work and friendship over the years. I hope we can stay in touch.

Best,
Chris

Personal: Personal Matters / Ex. 6
Work: tomassi@clearpath.org; tomassi@clearpathaction.org
Cell: Personal Matters / Ex. 6

Chris Tomassi
Professional Staff
Senate Appropriations Committee
Subcommittee on Interior, Environment, and Related Agencies
Chris_Tomassi@appro.senate.gov

Contact

Full Name: Chris Tomassi
Last Name: Tomassi
First Name: Chris
Company: ClearPath Foundation

Mobile Phone: Personal Matters / Ex. 6

E-mail: tomassi@clearpath.org

Message

From: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Sent: 7/21/2017 8:04:03 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: RE: CERCLA Letter coming around for signature
Attachments: S. Rept 96-848.pdf

From: Brown, Byron [mailto:brown.byron@epa.gov]
Sent: Friday, July 21, 2017 3:33 PM
To: Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov>
Subject: RE: CERCLA Letter coming around for signature

Thanks, Susan. Do you have a copy of the Senate report referenced in the letter?

From: Bodine, Susan (EPW) [mailto:Susan_Bodine@epw.senate.gov]
Sent: Tuesday, July 18, 2017 5:45 PM
To: Brown, Byron <brown.byron@epa.gov>
Subject: FW: CERCLA Letter coming around for signature

In case you did not yet receive this.

Susan

From: Williams, Andrew (Heller)
Sent: Tuesday, July 18, 2017 5:41 PM
To: Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov>; Wright, Jennie (Inhofe) <Jennie_Wright@inhofe.senate.gov>; Earl, Andrew (Crapo) <Andrew_Earl@crapo.senate.gov>; Parker, Darren (Risch) <Darren_Parker@Risch.senate.gov>; Cox, Ed (Hatch) <Ed_Cox@hatch.senate.gov>; Hansen, Heath (Lee) <Heath_Hansen@lee.senate.gov>; Valanos, Eleni (Rubio) <Eleni_Valanos@rubio.senate.gov>; Marino Thacker, Meghan (Daines) <Meghan_Thacker@daines.senate.gov>; Dickson, Lane (Energy) <Lane_Dickson@energy.senate.gov>; Wiegard, Pierce (Sullivan) <Pierce_Wiegard@sullivan.senate.gov>
Subject: RE: CERCLA Letter coming around for signature

All-

Thanks again for signing on. Attached is the signed copy sent to EPA.

Andrew

From: Williams, Andrew (Heller)
Sent: Tuesday, July 18, 2017 3:25 PM
To: Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov>; Wright, Jennie (Inhofe) <Jennie_Wright@inhofe.senate.gov>; Earl, Andrew (Crapo) <Andrew_Earl@crapo.senate.gov>; Parker, Darren (Risch) <Darren_Parker@Risch.senate.gov>; Cox, Ed (Hatch) <Ed_Cox@hatch.senate.gov>; Hansen, Heath (Lee) <Heath_Hansen@lee.senate.gov>; Valanos, Eleni (Rubio) <Eleni_Valanos@rubio.senate.gov>; Marino Thacker, Meghan (Daines) <Meghan_Thacker@daines.senate.gov>; Dickson, Lane (Energy) <Lane_Dickson@energy.senate.gov>; Wiegard, Pierce (Sullivan) <Pierce_Wiegard@sullivan.senate.gov>
Subject: CERCLA Letter coming around for signature

Hi all,

Thanks again for your boss's support on the CERCLA 108(b) letter. We will be circulating it for signature this afternoon, so please let your front offices know that it's coming.

Thanks,

Andrew
4-4313

Calendar No. 933

96TH CONGRESS, 2d Session } SENATE { REPORT No. 96-848

ENVIRONMENTAL EMERGENCY RESPONSE ACT

REPORT

OF THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

TO ACCOMPANY

S. 1480

together with

MINORITY, ADDITIONAL, AND SUPPLEMENTAL VIEWS

JULY 11, 1980.—Ordered to be printed

U.S. GOVERNMENT PRINTING OFFICE
64-808 O WASHINGTON : 1980

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ED_002512_00000026-00002

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Calendar No. 933

96TH CONGRESS 2d Session | SENATE | REPORT No. 96-848

ENVIRONMENTAL EMERGENCY RESPONSE ACT

JULY 11, 1980.—Ordered to be printed
Filed under authority of the order of the Senate of July 2 (legislative day, June 12), 1980

Mr. CULVER, from the Committee on Environment and Public Works, submitted the following

REPORT

[To accompany S. 1480]

together with

MINORITY, ADDITIONAL AND SUPPLEMENTAL VIEWS

The Committee on Environment and Public Works, to which was referred the bill (S. 1480) to provide for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and the cleanup of inactive hazardous waste disposal sites, having considered the same, reports favorably thereon with amendments and recommends that the bill as amended do pass.

PREFACE

The Committee reported a bill on June 27, 1980, which actually has its roots in the liability and funding provisions provided in the Clean Water Act of 1972. The current legislation, S. 1480, was introduced on July 11, 1979, and creates a liability and compensation scheme to address spills and all other releases of hazardous substances into the environment.

The Committee held a total of 11 days of hearings from March 28, 1979, to September 7, 1979, including 8 hearing days in Washington, D.C., and one each in Niagara Falls, New York, Charles City, Iowa, and San Francisco, California. A total of 74 witnesses gave public testimony at these hearings, which along with submitted testimony comprised 1,723 pages of printed record.

This report shall include a general statement which will discuss the problems addressed in S. 1480 and the goals and basic elements of the new legislation; a general summary of the reported bill; and a more specific analysis of major provisions.

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GENERAL STATEMENT

I. The Problem

Modern chemical technology has produced miracles which have greatly improved this Nation's standard of living. But the increased generation of hazardous substances associated with these new products has proved to be a serious threat to our Nation's public health and environment.

The legacy of past haphazard disposal of chemical wastes and the continuing danger of spills and other releases of dangerous chemicals pose what many call the most serious health and environmental challenge of the decade. Chemical spills capable of inflicting environmental harm occur about 3,500 times each year, and an estimated $65 to $260 million is needed to clear them up. More than 2,000 dumpsites containing hazardous chemicals are believed by the Environmental Protection Agency to pose threats to the public health. The costs of containing their contents is estimated to be an average of $3.6 million per site.

Federal legislation has been passed and regulations have been developed which authorize government review of new toxic chemicals being placed on the market, and impose standards for new hazardous waste disposal facilities.

But the Committee on Environment and Public Works encountered additional national environmental problems caused by dangerous chemicals—problems which could not be addressed by the Toxic Substances Control Act or the Solid Waste Disposal Act. These problems involve the pollution of our people and our land by improper disposal, by accidents or misuse of those products.

Today, more than 43,000 chemical substances are in commercial production, and thousands of new ones are introduced each year. Worldwide chemicals sales of the top 50 U.S. chemical producers was $90 billion in 1979. In 1978, 32 of the 50 leading chemical producers had sales of more than $1 billion each, and 5 of those 50 had sales of $5 billion or more. The growth of the chemical industry was even greater in 1979 than in 1978. As a result, the potential impact of toxic chemicals on the general public and environment through unsound hazardous disposal sites and other releases of chemicals is tremendous.

The acceptance of man-made chemicals—to the extent that they are hardly recognized as such anymore—has become a fact of daily life in the United States. We are dependent on synthetic chemicals for health, livelihood, housing, transportation, food, and for our funerals.

But within recent years, there has been a realization that what is our meat may also be our poison.

Item.—On June 6, 1980 the Director of the National Institute of Environmental Health Sciences testified before the Senate Subcommittee on Health and Scientific Research as follows:

ED_002512_00000026-00005

QUESTION. Is it likely that there is a person in this room who is not contaminated by some synthetic chemical?

Dr. RALL. * * * most unlikely.

There are a series of resident pesticides beginning with DDT, aldrin, dieldrin, heptachlor, chlordane and so forth. Most people carry traces of those compounds today.

The polychlorinated biphenyls, probably most people carry body burdens in their fat, on the order of 5 parts per million * * *

Over 95 percent of the people in the United States have detectable levels of pentachlorophenol * * * (which) is contaminated with significant amounts of hexa-, hepta-, and octachlorinated dibenzodioxins.

QUESTION. What sorts of health problems might these chemicals cause?

Dr. RALL. A great variety of health problems. The hexachlorodibenzodioxin is probably a carcinogen. Many of the other compounds can cause neurological or renal damage, cause mutations and so forth.

QUESTION. What is the size of the population at risk here?

Dr. RALL. * * * The size of the population could extend up to the entire population of the United States.

Item.—In a report dated March, 1980 the Library of Congress concluded that damages to natural resources of the United States because of toxic chemicals were "substantial and enduring." The report identified damaged resources ranging from all five of the Great Lakes to the aquifer underlying the San Joaquin Valley, possibly the richest agricultural area in the United States.

Item.—In a report to the President of the United States, the Toxic Substances Strategy Committee concluded that the cancer death rate in the United States had increased sharply and that "occupational exposure to carcinogens is believed to be a factor in more than 20 percent of all cases of cancer."

Item.—In a report released in the Spring of 1980, by the Office of Technology Assessment, agricultural losses because of chemical contamination were placed at $283 million. OTA said the value was based on economic data from only six of the fifty states and was therefore "likely to be a gross underestimation of the actual costs."

In 1979, the total production of chemicals in the United States was 565 billion pounds. Of this amount, 347 billion pounds was of chemicals officially classified by the United States government as hazardous. Production growth is increasing at a rate of 7.6 percent in 1979. At that rate, production will double in ten years.

HAZARDOUS WASTES AND WASTE SITES

The Environmental Protection Agency estimates that 57 million metric tons of hazardous wastes are produced annually in the United States, or about 690 pounds of hazardous wastes per American in a year, and that this amount grows at a rate of 3.5 percent per year. More than 90 percent of this waste is believed to be disposed of in environmentally unsound ways. These unsound disposal methods include

haphazard land disposal, improper storage of dangerous substances and illicit dumping.

The effects of poor disposal methods and abandoned waste disposal sites can be the contamination of surface water and groundwater, causing contamination of drinking water supplies, destruction of fish, wildlife and vegetation, and threats to public safety due to health hazards and threats of fires and explosions.

Because there is no required reporting or data collection system in any one centralized government agency, the evidence sustaining the conclusion that a grave problem exists is best presented by anecdotes and a variety of studies.

Examples of waste site incidents include:

At Toone, Tennessee, a chemical company dumped pesticide wastes for years in an area close to groundwater supplies. In 1978, after continued assurances to the community from government officials that their water was safe to drink, the water supply of Toone was found to be contaminated six years after the closure of the nearby landfill site.

In 1978, the Cedar River, near Charles City, Iowa, was found to contain poisons leached from a nearby dumpsite. The poisons were detected as far away as 60 miles downstream. This river and the aquifer underlying the dump supply drinking water to 10% of the State's population.

About 25 miles south of Louisville, Kentucky, 17,000 drums were disposed of at a seven acre site. Six thousand drums, in this area which became known as the "Valley of the Drums," were oozing toxic chemicals onto the ground. Other drums with hazardous contents were buried in subsurface pits. The Environmental Protection Agency identified approximately 200 organic chemicals and 30 metals in the drainage area.

A variety of recent studies and surveys highlight the scope of the problem:

Using existing documentation, the Agency identified some 250 hazardous waste sites involving damages or significant threats of damages. Among the reported incidents were 27 sites associated with actual damages to health (kidneys, cancer, mutations, aborted pregnancies, etc.), 32 sites which have resulted in the closure of public and private drinking water wells, 130 sites with contaminated groundwaters and 74 sites where natural habitats have been damaged and are adversely affecting indigenous species.

As of June 1, the Agency's Hazardous Waste Enforcement and Response Task Force has identified 5,790 hazardous waste sites which were to be investigated to determine whether problems requiring cleanup exist. The Agency had inspected 1,001 of these sites, and concluded that remedial actions are warranted at 342 sites. No action was deemed necessary at 221 sites, and investigations were continuing at the remaining sites inspected.

A survey requested by Representative Robert Eckhardt for the House Committee on Interstate and Foreign Commerce found 3,283 waste disposal sites used by the 53 largest chemical companies since 1950. Of these, one third (1,092) are outside any authorized Federal

regulatory scheme. These 1,099 sites include "orphan" sites and inactive sites with known owners and contain 100 million tons of chemical wastes. The survey found that since 1950, some 960 waste haulers were employed by the 53 largest chemical companies to transport 4.8 million tons of wastes to locations unknown to the companies. Eleven percent of the facilities (176) operated by these large companies reported they did not know where any of the wastes generated since 1950 were disposed, and 37 percent (594 facilities) did not know the disposal location of all of their chemical wastes. Not all of the wastes in this survey are hazardous.

A Department of Health and Human Services' report released in June, 1980 concluded that "the scope of the health problem that could derive from chemical waste dumps cannot be precisely estimated at present. The problem could be enormous".

The preliminary findings of a joint States/EPA survey of pits, ponds and lagoons used to treat, store and dispose of liquid wastes identify 11,000 industrial sites with 25,000 such surface impoundments. At least one-half of the sites are believed to contain hazardous wastes. The survey found that virtually no monitoring of groundwater was being conducted and that 30 percent of the impoundments, or 2,455 of the 8,221 sites assessed, are unlined, overlie usable groundwater aquifers and have intervening soils which would freely allow liquid wastes to escape into groundwater.

SPILLS AND OTHER RELEASES

The problem is much broader than those incidents involving disposal of hazardous substances. When confronted with an incident of toxic chemical contamination, it is often difficult to distinguish whether it is the result of a spill, a continuing discharge, an intentional dumping, or a waste disposal site. Any legislative solution would also have to address, in addition to disposal sites, the closely related problems of spills and other releases of dangerous chemicals which can have an equally devastating effect on the environment and human health.

Frequently, these releases have resulted in the contamination of drinking water and long-term contamination of wells, in massive fish kills, air pollution, loss of livestock and food products to contaminated drinking water and feed, and the destruction of wildlife.

Spills have taken place because of transportation accidents involving pipelines, trucks, rail cars, and barges or tankers, and also non-transportation facilities such as storage tanks, holding lagoons and chemical processing plants.

Thomas Jorling, the Assistant Administrator for Water and Waste Management for the Environmental Protection Agency, testified before the Subcommittees on Environmental Pollution and Resource Protection in 1979, saying:

> * * * there are about 3,500 incidents involving chemicals per year from sources which have the potential of releasing significant quantities of hazardous substances either onto land or into water. Of these, it is estimated that about 50 percent of 1,700 spills would reach navigable waters * * * there are about 700 to 1,200 significant spills per year.

Some examples of the type of accidents that have resulted from spills and other non-waste disposal incidents include:

—PCB's, a cancer-causing insulating fluid whose manufacture is now banned, leaked from an out-of-service transformer, entered the food chain and spread through 19 states and two foreign countries. Hundreds of thousands of hogs, chickens, turkeys, and a large quantity of other foodstuffs had to be destroyed.

—One-third to one-half of the drinking water and irrigation wells in the San Joaquin Valley have been contaminated by a pesticide, DBCP. In sufficient amounts, this pesticide is known to cause sterility in workers. It is suspected also of causing cancer.

—From 1970 to 1977, the number of railroad transportation incidents involving hazardous substances increased 700 percent. Fatalities increased by 300 percent. A witness from the National Transportation Safety Board testified that 85 percent of those releases would have been prevented by the installation of relatively inexpensive safety devices.

—Portions of Lakes Ontario and Erie have been closed to commercial fishing because of chemical contamination. The taking of coho salmon, stocked throughout the lakes to encourage a viable commercial and sport fishery, is banned because of chemical contamination.

Additional studies reveal that the spread of dangerous chemicals by spills and other incidents is presently a major environmental problem in this Nation:

—A 418 page report recently released by the Environmental Protection Agency contains information on 3,076 incidents (mostly spills) involving hazardous substances.[1] These incidents were reported voluntarily to the Agency over the last two years. Of the 1,766 incidents reported in fiscal year 1979, 42 percent involved non-transportation sources, 40 percent involved transportation sources, and 15 percent involved "mystery" sources. The majority of these hazardous substance spills involved releases to groundwater, air and land. The report appears to greatly underestimate the problem.

—The Congressional Research Service of the Library of Congress recently completed a catalogue of natural resources lost or destroyed through releases of hazardous or toxic substances.[2] It is almost 250 pages long, yet the Congressional Research Service says it is an incomplete effort. All of the reported incidents are essentially anecdotes.

—In a recent report, the Department of Agriculture identified surface water basins which were contaminated by chemicals.[3] These basins included practically the entire middle South.

In a report "Objectives for the Nation", working groups sponsored by the Department of Health and Human Resources identified toxic pollution as one of the 15 priority areas for preventing disease and promoting health.

---

[1] "Hazardous Materials Incidents Reported to U.S. Environmental Protection Agency Regional Offices from October 1977 through September 1979" EPA January 1980

[2] "Resource Losses From Surface Groundwater and Atmospheric Contamination: A Catalog, by the Congressional Research Service, Library of Congress, for the Committee on Environment and Public Works U.S. Senate March 1980

[3] "Program Report and Environmental Impact Statement" Soil and Water Resources Conservation Act, U.S. Department of Agriculture (Review Draft), 1980.

BEFORE LOVE CANAL

Long before shocking incidents at Love Canal gained wide attention and propelled the problems of inadequate hazardous chemical waste disposal into the national spotlight, other incidents involving the spilling of hazardous substances and oil gave rise to a legislative response which passed the Senate in the 95th Congress.

Hoping to prevent further oil spill accidents after the huge spills caused by the wrecks of the *Argo Merchant* and the *Amoco Cadiz*, Senators Muskie, Stafford and Chafee introduced S. 2900 in the spring of 1978 to establish a uniform regime for oil pollution liability and compensation. S. 2900 was an expansion of section 311 of the Clean Water Act, which since 1972 had covered hazardous substances as well as oil. The effects of incidents involving the release of hazardous substances convinced the Committee at that time that hazardous substances should continue to be included within the framework of cleanup, damages and liability.

Three of these incidents were the kepone contamination of the James River, the release of polychlorinated biphenyls (PCB's) into the Hudson River, and the contamination of Michigan livestock by the ingestion of polybrominated biphenyls (PBB's).

Kepone was discharged into the environment around Hopewell, Virginia, from [illegible] to 1975 from two manufacturing operations. The Allied Chemical Company produced kepone, which was used primarily against potato beetles in Europe, for eight years through 1974. [illegible] summer of 1975 [illegible] employees stricken with several [illegible] speech, nervousness, tumors, liver damage, loss of memory [illegible]. Although no one is known to have died from the contamination, scientists do not know the extent of damage. Extensive medical bills [illegible] from the contact with kepone.

The careless manufacturing and disposal practices also resulted in atmospheric emissions which settled [illegible]. Wastewater discharges passed through a sewage treatment plant and contaminated the James River, which the Environmental Protection Agency says will take an amount of time from [illegible] to clean itself. The pollution killed a major fishing industry in Virginia because of fish contamination. Douglas Costle, the Administrator of the Environmental Protection Agency, said:

> It is estimated that the kepone discharges could have been properly controlled at a cost of $[illegible]. But they were not controlled. As a result, known claims against the company total more than $20 million. And the cost of cleaning up the James River has been put at roughly $8 billion—which means, as a practical matter, that it will probably never be done. Figures like these suggest that much federal regulation does pay its own way—even allowing for the uncertainties of benefit calculations.

The episode involving the contamination of the Hudson River also demonstrates the harms and costs that contamination of the environment by toxic chemicals can cause.

The General Electric Company discharged PCB's, an electric insulating fluid, into the Hudson for many years. As a result, commer-

cial fishing, which was making a comeback as a result of other pollution controls, was largely stopped. The New York State Office of Environmental Conservation has estimated that to clean up the river will cost more than $30 million. This amount, however, does not include compensation for losses, such as to the fishermen who lost their livelihood, or for the lost revenues in recreational use.

The 1973 incident in Michigan involved the contamination of cattle feed by PBB's, a fire retardant. Livestock had to be destroyed and dairy products were contaminated. It is estimated that direct losses of $100 million have resulted. But this does not include costs of health effects on the population of Michigan. Some scientists estimate that 90 percent of the residents of the State may have ingested PBB's through dairy products.

As the threat of the release of hazardous substances began to be documented, the committee in considering the oil spill liability legislation in 1978 agreed that hazardous substances should be included in any legislation dealing with oil spills. Thus, S. 2900 included hazardous substance spills within the framework of cleanup and damages liability. Uncompensated claims were to be compensated from a fund established through a fee paid by the oil industry, until a separate fund for hazardous substances was established.

The oil and hazardous substance spill liability legislation passed the Senate in September, 1978. Final resolution of differences between the House and Senate did not occur by the end of the 95th Congress.

By the end of 1978, however, the incident at Love Canal more clearly demonstrated the national problem of hazardous chemicals. A solution of broader dimensions was needed to deal with the litany of contamination incidents that was being uncovered.

LOVE CANAL

The Love Canal tragedy, the most familiar example of the dangers of hazardous substances in our society, also paints the clearest picture of just how serious the problems involving toxic chemicals can be.

In January of 1979, Michael H. Brown, a reporter for the *Niagara Gazette*, who wrote over 100 stories on Love Canal, contributed a piece on the contaminated neighborhood to the New York Times Magazine.

The following excerpt from that article, entitled "Love Canal, USA", summarizes the Love Canal chain of events:

> Sometime in the 1940's—no one knows or wants to remember just when—the Hooker Chemical Company, which is now a subsidiary of Occidental Petroleum, found an abandoned canal near Niagara Falls, and began dumping countless hundreds of 55-gallon drums there. In 1953, the canal was filled in and sold to the city for an elementary school and playground (the purchase price was a token $1), and modest single-family dwellings were built nearby. There were signs of trouble now and then—occasional collapses of earth where drums had rotted through, and skin rashes in children or dogs that romped on the field—but they were given little thought until the spring of 1978. By then, many of the homes were deteriorating rapidly and were found to be infiltrated

by highly toxic chemicals that had percolated into the basements. The New York State Health Department investigated and discovered startling health problems: birth defects, miscarriages, epilepsy, liver abnormalities, sores, rectal bleeding, headaches—not to mention undiscovered but possibly latent illnesses. In August, President Carter declared a Federal emergency. With that, the state began evacuating residents from the neighborhood along the Love Canal, as it is named after the unsuccessful entrepreneur, William Love, who built it in 1894. Two hundred homes were boarded up, the school closed and the nation got a glimpse of what Senator Daniel Patrick Moynihan called "a peculiarly primitive poisoning of the atmosphere by a firm."

But it was clearly not so peculiar. Since then, new dumping grounds have been reported in several precarious places. Under a ball field near another elementary school in Niagara Falls health officials have found a landfill containing many of the same compounds; it was discovered because the ball field swelled and contracted like a bowl of gelatin when heavy equipment moved across it. Officials have discovered, too, that Hooker disposed of nearly four times the amount of chemicals present in the Love Canal several hundred feet west of the city's municipal water-treatment facility, and residues have been tracked inside water-intake pipelines. Across town, near Niagara University, a 16-acre Hooker landfill containing such killers as Mirex, C-56 and lindane—essentially chemicals that were used in the manufacture of pest killers and plastics—has been found to be fouling a neighborhood stream, Bloody Run Creek, which flows past drinking-water wells. About 80,000 tons of toxic waste are said to have been dumped there over the years.

Still worse, as the company recently acknowledged, Hooker buried up to 3,700 tons of trichlorophenol waste, which contains one of the world's most deadly chemicals, dioxin, at various sites in Niagara County between 1947 and 1972. Investigators immediately sought to determine whether dioxin had seeped out and, indeed, the substance was identified in small quantities within leachate taken from the periphery of the Love Canal, an indication that it may have begun to migrate. There are now believed to be an estimated 141 pounds of dioxin in the canal site—and as much as 2,000 pounds buried elsewhere in the county. The Love Canal is above the city's public water-supply intake on the Niagara River but a quarter of a mile away; the other sites are closer—in one case within 300 feet—but downstream of the intake. However, the Niagara flows into Lake Ontario, which Syracuse, Rochester, Toronto and several other communities make use of for water supply. Although health officials regard the dioxin discovery as alarming, they do not yet consider it a direct health threat because it is not known to have come into contact with humans or to have leached into water supplies. Academic chemists point out, however,

that as little as three ounces of dioxin are enough to kill more than a million people. It was dioxin, 2 to 11 pounds of it, which was dispersed in Seveso, Italy, after an explosion of a trichlorophenol plant: Dead animals littered t' streets, hundreds of people were treated for severe skin lesions and 1,000 acres had to be evacuated . . .

Since the publication of this article, new events at Love Canal have raised serious concerns over the residents' health. President Carter recently authorized the temporary relocation of 800 additional families from the polluted area.

Problems like Love Canal pose a series of problem questions:

—How should the government respond?
—Who should pay for response d damages?
—Is there adequate information determine health risks?
—Can the causes of illnesses and injuries be specifically identified?
—How broad should compensation provisions of a Federal program be?
—Who will pay for health tests, relocation costs, medical compensation and other third party damages that might arise?
—What should the statute of limitations be with respect to discovered illnesses?
—What is the best technical manner to respond to leaching chemicals and other releases?

The range of problems explored by the Committee went beyond waste disposal sites. Senator Stafford addressed these in his opening remarks at the first hearing on March 18, 1979.

> Mr. Chairman, it is important to emphasize, I think, at the outset that these hearings deal with more than just the problem of abandoned hazardous waste sites. The orphaned site problem is important, and it is justly receiving a great deal of attention. Not only are water supplies being contaminated, but untold number of innocent persons are exposed to extremely toxic and hazardous chemicals. Some places, such as Love Canal, have become environmental ghettos. But these hearings are to inquire into the universal problems caused by the release of toxics into the environment.
>
> If these hearings were to deal only with the Love Canal or Toone, Tenn., we wound be neglecting the radium sites in Denver. And if we were to deal with the Denver sites as well, we would still be neglecting PCB's in the Hudson River and PBB's in Michigan. If we restrict ourselves just to the waste, we will leave a large gap because in the chemical business one man's meat is literally another man's poison. Waste from one company is feedstock to another. What we must explore is the entirety of how and why toxics are entering the environment, whether they are injuring people, and if so, how. Then we must decide whether there should be a scheme to compensate victims, and if so, for what injuries.

INADEQUATE LEGAL AUTHORITY

There is limited authority to solve these problems. Regulations promulgated in May under subtitle C of the Solid Waste Disposal

Act, which impose tough new standards for operating toxic waste disposal facilities, are expected to greatly upgrade the Nation's active toxic waste disposal sites. But the regulations do not address those situations where an owner is unknown or is unable to pay the cleanup costs, nor do they address the clean up of spills, illegal dumping, or releases generally.

In cases like Love Canal, where the disposer is known and able to pay, and where there is significant danger, the Federal Government, under the Solid Waste Disposal Act, does have authority to sue the disposer or owner of the disposal site to seek clean up. But the uncharted legal pathway will be lengthy and uncertain.

In addition to the Solid Waste Disposal Act, there is a patchwork of other existing Federal statutes which ostensibly deal with hazardous substance problems.

Section 311 of the Clean Water Act imposes liability for cleanup and mitigation of spills of oil and approximately 300 designated hazardous substances. A $35 million appropriated revolving fund is available for immediate cleanup activities and any money recovered from the spiller is returned to the fund. As of May, 1980, the fund was virtually depleted. Section 311 is triggered only by spills into navigable waters and does not cover most groundwater incidents or other releases.

Section 504 of the Clean Water Act provides authority for the cleanup and mitigation of environmental emergencies which present an imminent and substantial threat to health or welfare. A $10 million appropriated revolving fund is authorized for such actions, but no appropriations have ever been made available for this fund.

The Safe Drinking Water Act has two provisions which seek to address contamination incidents. Section 1431 provides basic emergency authority when a contaminated public water supply system presents an imminent and substantial threat to the health of citizens. Section 1442 authorizes the Environmental Protection Agency to make grants to assist States and cities in responding to emergency situations when a public water supply is threatened.

These statutes provide a legal basis for emergency response to clean up and mitigate a limited number of environmental emergencies. But in most cases, funding is inadequate or has not been made available. And more importantly there is no general Federal law establishing liability in the case of accidents or other incidents involving hazardous substances. So, even when a responsible company has been identified, recovering cleanup costs and damages can be extremely difficult or impossible. Often, whether the government is suing for cleanup costs or individuals are suing for property or personal damage, cases must be brought in State courts under laws which vary from State to State.

There is no available source of funds for the expensive remedies needed to help solve hazardous chemical contamination problems. Millions of dollars will be needed in some cases just to contain releases. For example, the State of New York and the Environmental Protection Agency have already spent over $30 million at Love Canal, largely on emergency and short-term response. The total remedial costs of Love Canal alone are expected to reach $125 million.

These legal gaps in responding to such incidents prompted the Committee to include three major concerns in its reported legislation:

First, provide incentive for maximum care in handling hazardous substances and for minimizing the effects of any releases by establishing strict liability for responsible parties for cleanup costs, mitigation, and third-party damages.

Second, provide a mechanism for rapid response, including an immediately available source of funding for cleanup and mitigation, when hazardous substances are released into the environment; and

Third, provide prompt and adequate compensation for injured parties.

II. Goals and Elements of New Legislation

The Environmental Emergency Response Act, S. 1480, is designed to help address many of the problems faced by society as a result of chemical contamination.

The bill is not intended to replace other laws which aim to correct a variety of toxic chemical concerns. The Clean Air Act, the Clean Water Act, the Toxic Substances Control Act, the Solid Waste Disposal Act, and other statutes are only beginning to build regulatory foundations to address the wide range of toxic contamination incidents. The reported bill, S. 1480, is structured to complement these laws.

Environmental Protection Agency Administrator Douglas Costle spoke in May, 1980, about the need for new legislation:

> * * * the framework for a national program to control the wastes now being generated is rapidly falling in place * * *.
>
> * * * there is as yet one important element missing from the regulatory framework. Our current laws give us the authority needed to control the wastes now being generated, and to begin to regulate disposal sites now in use. But they do not give us the resources we need to clean up the dumpsites left by the companies that have gone out of business, or those created by outlaw dumpers. We have been forced to rely on a patchwork of authorities, which provide at best limited funds—and, in those cases where we can identify a responsible party, on the lawsuit.
>
> We have not hesitated to use these tools. We have already filed 19 lawsuits, for example, including a series of actions against Hooker Chemical. But what we need, at this point, is * * * a revolving fund that would allow us to go in and clean up hazardous waste sites first, then try to recover the costs of cleanup later.
>
> If we had a superfund a few months ago, we could have cleaned up the site in Elizabeth, N.J. * * * and each day that passes without it raises the odds that yet another dumpsite will become a source of imminent danger to public health.

Because the problem of hazardous substances in the environment is complex, the legislation seeking to rectify those problems must contain several essential elements if it is to be effective.

To achieve these goals five basic elements are included in legislation to broadly address the problems. These are:

First, assuring that those responsible for any damage, environmental harm, or injury from chemical poisons bear the costs of their actions;

Second, providing a fund to finance response action where a liable party does not clean up, cannot be found, or cannot pay the costs of cleanup and compensation;

Third, basing the fund primarily on contributions from those who have been generically associated with such problems in the past and who today profit from products and services associated with such substances;

Fourth, providing ample Federal response authority to help clean up hazardous chemical disasters; and

Fifth, providing adequate compensation to those who have suffered economic, health, or other damages.

LIABILITY

The goal of assuring that those who caused chemical harm bear the costs of that harm is addressed in the reported legislation by the imposition of liability. Strict liability, the foundation of S. 1480, assures that those who benefit financially from a commercial activity internalize the health and environmental costs of that activity into the costs of doing business. Strict liability is an important instrument in allocating the risks imposed upon society by the manufacture, transport, use, and disposal of inherently hazardous substances.

To establish provisions of liability any less than strict, joint, and several liability would be to condone a system in which innocent victims bear the actual burden of releases, while those who conduct commerce in hazardous substances which cause such damage benefit with relative impunity.

Without the bill's liability provisions, victims of a hazardous chemical incident face a difficult burden in seeking redress through the courts.

In testimony during hearings on S. 1480, several witnesses testified that victims who were poisoned by toxic chemicals faced barriers in the legal system to presenting their cases.

One example was that of Mr. Frank Kaler of Jamesburg, New Jersey, whose well was contaminated by synthetic chemicals. Mr. Kaler testified that he was "economically bludgeoned out of the courtroom" when his counsel presented the grim economic facts of appealing his unexpected low first award.

A 500-page Library of Congress Study[4], requested by Senators Stafford and Culver, and released on June 17, 1980, came to three basic conclusions on victim compensation with respect to releases of hazardous substances:

First, the legal mechanisms in the States studied are generally inadequate for redressing toxic substances-related harms, and traditional tort law presents substantial barriers to recovery.

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[4] "Six Case Studies of Compensation for Toxic Substances Pollution: Alabama, California, Michigan, Missouri, New Jersey and Texas," Congressional Research Service, Library of Congress Serial No. 93-13, June, 1980.

Second, seeking compensation for pollution-related injuries is usually cumbersome, time-consuming and expensive. In the releases studied (some involving many exposures), few cases were filed and final judgments were rarely obtained.

Third, as a consequence of these difficulties, the compensation ultimately provided to injured parties is generally inadequate.

While sustaining such actions through complete litigation is difficult, the current case law is generally supportive of the imposition of strict, joint and several liability with respect to hazardous substances.

Even though relatively few of the toxic tort problems addressed in the bill have been brought into court and adjudicated until recently, the U.S. Justice Department and independent legal authorities have stated that the basis for imposing such liability currently exists.

The most analogous areas of the law are product liability and liability for abnormally dangerous activities. For example, the law of product liability imposes strict, joint and several liability on manufacturers of unavoidably dangerous products.

James W. Moorman, the Assistant U.S. Attorney General for Land and Natural Resources, said before the joint subcommittees:

> The evidence compiled through Congressional hearings on the subject of hazardous waste overwhelmingly supports the conclusion that the generation of hazardous wastes is what the law would consider to be an ultrahazardous activity. By their very nature, hazardous wastes create a high degree of risk that their release will cause substantial harm.

Another source of legal precedent for strict liability for hazardous substance disposal sites or contaminated areas is nuisance theory. Damage actions involving the maintenance of a public or private nuisance often involve a kind of strict liability standard.

An important aspect of strict liability is that it would create a compelling incentive for those in control of hazardous substances to prevent releases and thus protect the public from harm.

In April 1978, in his opening statement on hearings to establish comprehensive pollution liability and compensation legislation, Senator Edmund Muskie, then Chairman of the Subcommittee on Environmental Pollution, said that a major question was what kinds of incentives would be included for transporters and facility operators to adopt strict measures to guard against spills.

Again, on June 20, 1979, in joint subcommittee hearings to discuss the Administration's superfund proposal, Senator Muskie said to Thomas Jorling, Assistant Administrator for Water and Waste Management of the Environmental Protection Agency:

> I am not sure this legislation * * * would provide the added deterrent law to effectively discourage not only spills, but the deposit of hazardous materials in sites which are environmentally dangerous. * * * What type of deterrent is there in this fee approach?

Mr. Jorling responded:

> The basic point is this fee is not designed to be a deterrent. This fee is designed to generate revenues for the Government to respond.

> The deterrent aspect comes from the fact that if Government spends money out of that fund, there is recovery back against those who discharge, plus penalties * * *.
>
> This fee system is not designed to be a deterrent, nor is it designed to be a fee that can be construed as a right to pollute. It is liability provisions that are the deterrent.

In correcting the historic neglect of hazardous substances disposal, it is essential that this incentive for greater care focus on the initial generators of hazardous wastes since they are in the best position to control the risks. Generators create the hazardous wastes, they have more knowledge about the risks inherent in their wastes and how to avoid them, and they determine whether and how to dispose of these wastes—on their own sites or at locations controlled by others. Without a strict liability standard for generation of hazardous wastes, generators will have a strong incentive to transfer control of their wastes to others as quickly as possible—a practice whose social and environmental consequences are documented almost daily in news reports.

As Mr. Moorman testified further before the joint subcommittees:

> Society needs to insure, to the greatest degree possible, that those who control hazardous wastes throughout the whole process of disposal have the expertise and resources to handle those wastes properly. The only way society can insure this is to place on the generator of the waste the highest possible incentive to make sure that the waste is passed on to those that can fulfill these requirements. The best incentive is strict, joint and several liability * * * I should also note, that a joint and several and strict liability standard will encourage generators to remedy hazards created in the past as well as to discourage them from creating new hazards.

Several precedents exist for federally-imposed liability regimes. One Federal regulatory program with a direct and significant effect on State liability laws was the Federal Safety Appliance Act. Another program, directly overlaying State regimes with new and different Federal liability standards and remedies, is section 10(b) of the Securities Act, which creates a federally enforceable remedy for securities fraud. And finally, strict liability has already been established for cleanup costs and natural resource damages due to oil and hazardous substances spills in navigable waters under section 311 of the Clean Water Act, as well as general strict liability schemes for damages and cleanup costs for oil spills under the Deep Water Port Act and title III of the Outer Continental Shelf Lands Act Amendments of 1978.

For releases authorized under Federal permit programs, the bill would allow the use of the Funds to respond to harm or to a threat of harm. In the case of a permitted release, however, the Fund, and injured third parties as well, would not seek recovery under the liability provision of S. 1480. The Fund and injured parties would seek recovery under other State or Federal statutes or under common law.

ESTABLISHMENT OF A FUND

Present statutes do not provide adequate compensation for those affected by chemical contamination, and are inadequate to respond to

releases of hazardous substances. To meet these needs, the bill creates a special fund.

Three sections of the Clean Water Act authorize funds for cleanup of chemicals released into navigable waters and mitigation of damages. These are:

—Section 115, authorizing $15 million for removal and disposal of hazardous materials from navigable waterways and critical port and harbor areas;

—Section 311, authorizing a $35 million fund (replenishable by appropriation and recovery) to clean up and mitigate spills affecting navigable waters or natural resources; and

—Section 504, authorizing a $10 million replenishable fund to clean up pollution creating an "imminent and substantial endangerment to the public health or welfare."

Aside from the inherently limited response authority in each of these sections, each also is hampered by limits of appropriations.

Sections 115 and 504 have never been funded. Section 311 received additional funding of $13 million in 1979, but due to the number of spills and slow recovery rate in court, that fund is currently depleted.

Also, these sections of the law are not well constructed to deal with abandoned and inactive sites or with new cases of "midnight dumping" onto the ground, or with general releases into the environment.

The Solid Waste Disposal Act mandates safe disposal of hazardous wastes in the future, and creates a regulatory structure intended to track all hazardous waste streams. But it does not provide funds to clean up improper dumping, and its authority is limited to hazardous substances which are wastes.

This situation causes an array of problems. In the absence of a fund, a financially solvent perpetrator must be found, sued, and collected from before any money is available for any purpose. This obstacle is compounded by the high cost of identifying chemicals in the environment and tracing them to their source, by a lack of records for old dumpsites and other releases, the difficulty in determining the assets of responsible parties, by the inability of small firms to pay, and by the likelihood that out-of-court settlements will often be smaller than damages if the perpetrator can wait out the government and victims.

In addition, none of the existing authorities compensates victims. Nor often do third parties have access to the Federal courts, leaving a victim to seek compensation under State tort laws often applying negligence or nuisance theories. The victim must bear the cost and burden of proving technically complex causes and effects.

Actions by State agencies are sometimes haphazard and are hampered by a lack of funds. In many cases, States have shown unwillingness to assume the expense of cleanup without a matching Federal commitment; in others, States have been unwilling to hold responsible major industries which are economically significant. In addition, chemical pollution lawsuits require technical expertise and commitments of time that few States have shown willingness to finance.

Thus, existing systems of response and compensation are not adequate.

The argument in favor of creating a fund was well stated by the Interagency Task Force on Compensation and Liability, composed of representatives of various Federal agencies convened to study this problem. It reported as follows:

> The principal difficulty with existing federal programs is that, even when taken together, they fall far short of a comprehensive strategy for dealing with the damages caused by hazardous materials. Even the most ambitious programs (such as Price-Anderson and Section 311) are constrained in some way. Victims of hazardous materials releases face a denial of compensation under federal statutory schemes due to the various funds' limits on the hazardous substances covered, the environmental pathway (water, air or land) for damage, the type of incident or the type of damage.
>
> The present system's array of narrowly defined programs may create administrative problems as well. Typically the funds that exist are adjuncts to other regulatory prrograms and are limited by the scope of specific licensing activities. As a result the goal of compensating the injured may be complicated by questions of the regulatory jurisdiction of the various federal agencies. For example, when an oil spill occurs it would be necessary to track down the source of the spill before either the Deepwater Port Liability Fund, the Trans-Alaska Pipeline Liability Fund or the Offshore Oil Spill Pollution Fund would be liable. Such excursions into causation prior to compensation undermines one of the purposes behind a strict liability fund system.

Aside from those sections of the Clean Water Act, there are several precedents for the establishment of a fund. These include the Offshore Oil Spill Pollution Fund, the Fisherman's Contingency Fund, the Trans-Alaska Pipeline Authorization Act, the Deepwater Ports Act, the Surface Mining Control and Reclamation Act, the Black Lung Benefits Reform Act, the Jones Act's provision for merchant seamen, and the Federal Employee's Compensation Act for railroad workers.

The bill authorizes a 6-year fund. Over that period, a total of $4.083 billion would be derived from fees and appropriations. In the first year, fees and appropriations would be $255 million; in the second year, $600 million; and in each of the third through sixth years, $900 million. Two-thirds of the annual revenues would be reserved for government response, including removal and remedy actions, restoration of natural resources, epidemiological studies, victim registries, and other health effects surveys. One-third of annual revenues would be available to compensate third-party damages.

In the third through sixth year, $534 million will be available annually for government response. A fund providing $534 million annually will permit government response only to the most significant releases. At this level of funding, response will not be possible at a large number of releases posing imminent or substantial threats to public health or the environment. The Environmental Protection

Agency estimates that in the first 4 years, S. 1480 will finance removal (emergency assistance only) at 600 hazardous waste disposal sites, remedy of the problems at only 235 of these sites, and response to approximately 2,800 spills or other releases. At some 360 sites, the need for remedy will be ascertained, but will have to be deferred for lack of funds.

Even these projections substantially overstate the level of government response the Fund can actually afford. The Agency's estimates do not include permanent relocation, epidemiological studies, victim registries, other health studies, or the costs of operating and maintaining long-term remedial measures. Estimates indicate these omitted items may require annual Fund expenditures ranging from $100 million to $445 million by the sixth year, reducing even further the number of cases to which the fund will be able to respond. In addition, the estimates may overstate the level of government response because the costs of remedy are assumed to actually decline over the four years from $3 million to $2.2 million per site, and the impact of inflation is ignored.

The Fund created by S. 1480 may not be adequate to remedy sites which are already known and which the Agency has at least tentatively concluded need remedial action. The Agency is investigating some 5,790 sites identified in the past year. To date, it has determined that State or Federal response actions are required at 111 sites and tentatively concluded that such actions are needed at an additional 231 sites. These determinations are based on inspections of fewer than one-fifth of the 5,790 known sites. The number of sites which contain hazardous wastes is estimated to total at least 50,000.

Estimates based upon available information indicate that third-party damages could require between $170 million and $300 million annually, depending on the incidence of damages, the number of claims honored by liable parties, the number and size of catastrophic releases, and the costs of claims adjudication. Obviously such estimates at this time could be subject to error.

The use of the Fund for third-party damages was limited to actual medical expenses paid within six years of the date of discovery of the injury, and two years' lost wages or salary from the date the loss began. In addition, separate provision was made for agricultural and fishery losses.

If the amount set aside in the bill for third-party damages is too large, the Fund administrator has authority to reduce fees and appropriations in the next year. If the amount is too small, monies may be borrowed from the Treasury, but since they must be paid back from future revenues, the Fund administrator will be forced to ration claim payments in later years, based on hardship to the claimant and other criteria.

The legislation would also establish a second Federal fund which would assume the liability from owners and operators of hazardous waste disposal facilities which were permitted under Subtitle C of the Solid Waste Disposal Act and closed in accordance with the regulations under that Act.

That Act requires that site owners prove their financial capability to pay for the repair of those facilities which release a hazardous sub-

stance after closure. The Agency has deferred the implementation of this provision because site owners have been unable to secure private insurance establishing such financial responsibility. This has proved to be a serious stumbling block to the establishment of the desperately needed new capacity to dispose of hazardous substances.

This legislation would transfer such liability only if the permitting authority certifies that a facility closure was in compliance with the Solid Waste Disposal Act permit and regulations and that hazardous substances were not likely to migrate off-site.

This revolving post-closure liability fund of $200 million would be financed by a fee imposed on hazardous wastes.

SOURCES OF REVENUES FOR THE FUND

The Committee concluded that the Fund should be supported by a combination of fees on industry and appropriations. Fees provide most of the Fund's revenue. This decision raised two additional issues:

On what portions of industry should a fee system be centered? and,

How much should the assessment on industry be?

A fund based only on appropriations would not be in the public interest. Taxpayers too often are asked to remedy problems they do not help create. Relying on general revenues to clean up past industrial mistakes could be interpreted by some as a public policy precedent, implying that the longer it takes for problems to appear, the less responsible those who cause the problem are for the solution.

Further, a Fund derived exclusively from appropriations would subsidize those generators and users of hazardous substances who, while benefiting economically, have exposed society to the risks of commerce in hazardous substances.

Also, to assure the billions of dollars needed to deal with hazardous chemical problems are available, while meeting the equally desired goals of restrained Federal spending, a fee on those who benefit from the commercial and industrial practices which expose society to hazardous substances is especially appropriate to these related national concerns.

The economic impact of an industrial fee system will not be disruptive.

In a September 25, 1979, letter to the Environment and Public Works Committee Chairman, Jennings Randolph, Environmental Protection Agency Administrator Douglas Costle said that virtually all of the costs of the fee system would be passed on to consumers of products made from the chemicals subject to the fee.

"In an industry with a historic annual average of six to eight percent profits and equally high rates of growth," Mr. Costle wrote, "fees of less than two percent will, at most, produce a slight reduction in the rate of growth."

In determining how industrial fees should be levied, the Committee, in the two years of deliberation on the bill and its predecessor, moved away from imposing fees on wastes and hazardous end-products, and instead approved a system which imposes fees on the relatively few basic building blocks used to make all hazardous products and wastes. The initial fee proposal in S. 1480 as introduced would have involved

the collection of fees from at least 200,000 generators of hazardous substances, assuming fees would not be imposed on several hundred thousand very small firms. It was determined that such a system would have significantly increased government paperwork on industry, been difficult to defend in court, been impossible to administer, involved long delays before implementation, resulted in potential significant economic inequities, and induced industrial behavior contrary to the environmental purposes of the bill.

The imposition of a fee on the building blocks of all hazardous substances has several advantages. It raises more revenue without creating significant economic impact in the national economy than a fee on wastes and products because it spreads costs more broadly throughout the chain of commerce of hazardous products and wastes. Collection of such a fee also would be simple. It would be levied on fewer than 1,000 sources, instead of at least 200,000 and on just 46 basic building blocks (primary petrochemicals, inorganic raw materials and petroleum oil).

Also, because a fee on feedstocks can be passed on to customers, it does not single out the chemical industry's profits as its source of revenue. Virtually all hazardous wastes and substances are generated from these primary petrochemicals, inorganic raw materials or petroleum oil. The costs of a fee imposed at this early step in the industrial chain of production, distribution, consumption and disposal will be more evenly passed along to all industrial sectors which produce and consume hazardous substances and generate hazardous wastes. The fee system utilizes the efficiency of the marketplace to distribute the fees through the chain of commerce rather than relying upon a large Federal bureaucracy to select out who should be subject to what fee.

Seven-eighths of the annual revenues of the Fund, exclusive of recoveries, is to come from fees, and one-eighth from appropriations. These appropriations were authorized for three reasons: (1) they will help assure startup of the program by allowing cleanup and third-party compensation to begin without the delays that could occur while procedural fee regulations are being promulgated and the fees collected; (2) the appropriations process will assure scrutiny of the use of the Fund by the Administration and the Congress; and (3) appropriations provide a safeguard against court tests which could halt the start of cleanup and compensation.

The initial allocation of fees between petrochemicals, inorganics, and oil approximately reflects the ratio of hazardous wastes generated from each. Wastes representing 92 percent of annual hazardous waste generation, after correction for weight bias, were found in surveys to be in a ratio of approximately three to one, organic (petrochemicals) to inorganic. In addition, fees would be collected from crude oil to reflect the high incidence of waste oils found in hazardous waste disposal sites. This results in the following allocation of fees (in 3 years, when the Fund is authorized at $800 million annually): Primary petrochemicals, 65 percent of the total fees, or $450 million; inorganic raw materials, 20 percent, or $150 million; and petroleum oil, 15 percent, or $100 million. These fees would be collected on imports and exports as well as domestic production. Federal appropriations would make up the additional $100 million.

The fees would be phased in over a 3-year period. After 3 years and biannually thereafter, both the categories paying the fee and the actual amount paid may be administratively adjusted to reflect the empirical degree of hazard based on the payout experience of the Fund. However, any such adjustment cannot exceed the statutory limits on fees which are designed to preclude significant economic impacts. After 4 years, a report will be made to the Congress to evaluate statutory changes that could better reflect who and how much should be paid into the Fund according to the pay out experience of the Fund.

To facilitate rapid implementation, the first year fees are specified for each substance in the reported legislation. The second and third year fees are included in this report. The specific fee rates are based on production volumes. After 3 years, any changes in the fees will be established by public rulemaking, thus allowing those affected industries to participate. A number of provisions are included in the fee system to assure an equitable fee which avoids unintended economic impacts, including: a provision which allows only one fee collection on any given quantity, statutory maximums which the fees cannot exceed, and exclusions from the fees for primary petrochemicals and inorganic raw materials which are used as a source of fuel, produced solely as a by-product of pollution control and used commercially, or derived from recycled material.

In testimony before the joint subcommittees, the Administration identified three criteria to apply in establishing a legislative fee system: "First was equity, a nexus to the problem. The second was administrative complexity in the collection system. Can you penetrate a very complicated commercial system and do it efficiently without creating the need for a huge bureaucracy to apply rule-making and guidance, and interpretations to collect the fee? The third feature was economic impact on the basic systems of production that exist in this country in oil and chemicals."

These three criteria were used to develop a fair fee system. In addition, the Committee considered the speed with which fees could begin to be collected and the legal defensibility of any fee system. The economic impact, with the precautions included in the legislation, will be minimal. The annual fund is small compared to the Gross National Product, and since the fee is not indexed to inflation, the impact will lessen with time. The Congressional Budget Office, in reviewing the fee system embodied in S. 1480, agreed with the conclusion of the economic analyses carried out for the Committee by the Environmental Protection Agency: "The effect of the fees on prices and production volumes of final products is small," and, "the fees should have at most a very small effect on GNP, the price level, or unemployment."

The American chemical export business has done extremely well in recent years. Through the first half of 1979, exports were running at an annual rate of more than $16 billion, a 39 percent increase over the previous year's pace.

Concern was expressed by some industries about the possible effects of an industrial fee on the exports of American chemicals. The Congressional Budget Office has determined that the maximum possi-

ble decline in petrochemical profits, if U.S. companies found they could not pass on the fees from an $800 million annual fund to export consumers, would be $67.5 million from the multi-billion dollar industry. However, both the Congressional Budget Office and the Environmental Protection Agency analyses find that it is highly unlikely that the fees could not be passed on. The impact of fees appears miniscule compared to oil price changes and changes in the international exchange rates. In recently resisting European tariffs, the U.S. chemical industry has argued that some American competitive advantage will still exist after oil price decontrol due to the greater efficiencies in U.S. plants. The Committee has made adjustments in the fee system in two areas where analyses suggest economic impacts could have been troublesome, the copper and fertilizer industries.

GOVERNMENT RESPONSE MECHANISM

In a joint subcommittee field hearing in Niagara Falls, New York, Lois Gibbs, the president of the Love Canal Home Owners Association, testified:

> Neither the state nor the federal agencies who could help were responsible for the situation (Love Canal). And neither wanted to take financial responsibility for cleaning it up.

Because present law does not provide adequate authority for emergency actions involving hazardous chemicals a major goal of this legislation is to provide clear authority to act and an adequate response to emergencies caused by toxic and hazardous chemical emergencies.

The response mechanism in section 311 of the Clean Water Act, which established a hazardous substance spill control program, was a result of congressional concern that the public health and environment might not be protected from chemical spills. The Committee has learned, however, that a response to spills into or affecting navigable water is just not enough. With such narrow authority for response, the questions of what to do about abandoned waste sites, midnight dumping and other harmful releases would go unanswered. Major questions would also remain about just how much to do at hazardous waste sites. Is containment enough? How long is monitoring of a site necessary? Are both removal and remedy of abandoned sites possible within cost limitations?

The Chemical Transportation Emergency Center (Chemtrec) is a service provided by the Chemical Manufacturers Association to provide immediate advice for accidents involving the transportation of chemicals. A government emergency response system was needed not only for transportation spills, but for releases of all kinds. The thrust of the Environmental Emergency Response Act is to provide for immediate emergency response actions and application of the best engineering techniques for containment and remedy.

Therefore, the reported legislation would require that the appropriate agency be notified of any release of a hazardous substance into the environment by any person in charge of a vessel or facility from which a release occurs. Failure to report such releases could result in a fine or imprisonment.

In the event of a release of a hazardous substance, the legislation gives the President the authority to provide necessary remedial action, including any emergency action essential to protect the environment or human health or welfare. The President is directed to revise the National Contingency Plan, presently in existence pursuant to section 311 of the Clean Water Act, in order to create clear response procedures under the requirements of the reported legislation.

COMPENSATION

In determining ways to pay for the costs borne by the victims of chemical contamination, any decision must weigh the enormous scope of the problem and the potential immensity of these costs.

Several studies, discussed above, have shown that economic losses are substantial and that the rate of compensation for victims is extremely low. Sizeable losses due to out-of-pocket medical expenses, lost wages, lost recreational businesses revenues and contaminated agricultural and seafood products have occurred. A Library of Congress study has also concluded that, ". . . damage to natural resources in the United States by toxic chemicals is substantial and enduring."

The need for compensation must be balanced with the fiscal problems that would result if a fee-based fund were required to compensate for all damages due those who have been or might become victims of such losses.

With regard to the medical expenses of victims, the bill expresses the following priorities:

—That injured victims be assured they receive immediate medical attention;

—That when no liable source can be identified or the liable source is not financially viable, chronically injured victims not be denied treatment;

—That government-supplied diagnostic and treatment services be made available whenever possible.

As reported, S. 1480 covers certain losses, but it also places limitations on compensation. One requirement is that claims against the Fund for damages must be brought within three years of the discovery of the loss or of enactment of this Act, whichever is later. A second limitation is that, with the exception of food production losses (described elsewhere), the Fund will reimburse victims only for out-of-pocket medical expenses incurred within six years of discovery of the illness or injury and 100 percent of lost wages in the first year following the loss and 80 percent of lost wages in the second year.

Another limitation is that third-party damages resulting from exposure completed prior to January 1, 1977, would not be compensible from the Fund, nor subject to the liability provisions of this bill, if the injured party knew of his injury before that date. A person exposed to a hazardous substance before January 1, 1977, could seek compensation from the Fund for medical expenses and lost income within the limits of the bill, if the injury did not become apparent until after January 1, 1977, but any recovery from the liable party would have to be under common law.

The Fund also pays for expert witness fees, health studies, and diagnostic examinations.

DISCUSSION OF MAJOR PROVISIONS

Definition of Hazardous Substances

The provisions of the bill apply to discharges, releases, and disposal of hazardous substances. Thus, the characterization of a substance as hazardous under section 2(b)(13) is important for several reasons: first, in most cases that is the key to government response and the use of the Fund; secondly, release of designated hazardous substances invokes the requirement for notice to the government under section 3(a)(3) and (4); and thirdly, discharge, release or disposal of designated hazardous substances applies the liability under section 4 of the bill for removal, remedial action, and damage costs.

There are two basic mechanisms for substances to be designated as hazardous for purposes of the bill. The first under section 2(b)(13)(A) through (E) is through the operation of the statute itself. By the terms of those provisions those substances listed as hazardous or toxic under certain other Federal laws are incorporated by reference and upon the date of enactment of this bill such substances become statutorily defined as hazardous substances for purposes of this bill. And the release of any of them or any constituent of them invokes the notice requirements and response provisions and any costs of removal or remedial action or any damages are subject to the liability provisions of the bill.

Section 2(b)(13) of S. 1480 defines as a hazardous substance all those substances which are listed under sections 311 and 307 of the Clean Water Act; section 112 of the Clean Air Act; subtitle C of the Solid Waste Disposal Act; and section 7 of the Toxic Substances Control Act. As substances are added to these lists they would be automatically designated as hazardous substances for purposes of S. 1480.

Following are lists of substances which will be hazardous substances under S. 1480 upon enactment.

At the present time 297 substances have been listed as hazardous substances under section 311 of the Clean Water Act, as follows:

Acetaldehyde
Acetic acid
Acetic anhydride
Acetone cyanohydrin
Acetyl bromide
Acetyl chloride
Acrolein
Acrylonitrile
Adipic acid
Aldrin
Allyl alcohol
Allyl chloride
Aluminum sulfate
Ammonia
Ammonium acetate
Ammonium benzoate
Ammonium bicarbonate
Ammonium bichromate
Ammonium bifluoride
Ammonium bisulfite
Ammonium carbamate
Ammonium chloride
Ammonium chromate
Ammonium citrate
Ammonium fluoborate
Ammonium fluoride
Ammonium hydroxide
Ammonium oxalate
Ammonium silicofluoride
Ammonium sulfamate
Ammonium sulfide
Ammonium sulfite
Ammonium tartrate
Ammonium thiocyanate
Ammonium thiosulfate
Amyl acetate

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Aniline
Antimony pentachloride
Antimony tribromide
Antimony trichloride
Antimony trifluoride
Antimony trioxide
Arsenic disulfide
Arsenic pentoxide
Arsenic trichloride
Arsenic trioxide
Arsenic trisulfide
Barium cyanide
Benzene
Benzoic acid
Benzonitrile
Benzoyl chloride
Benzyl chloride
Beryllium chloride
Beryllium fluoride
Beryllium nitrate
Butyl acetate
n-Butyl phthalate
Butylamine
Butyric acid
Cadmium acetate
Cadmium bromide
Cadmium chloride
Calcium arsenate
Calcium arsenite
Calcium carbide
Calcium chromate
Calcium cyanide
Calcium dodecylbenzenesulfonate
Calcium hypochlorite
Captan
Carbaryl
Carbofuran
Carbon disulfide
Carbon tetrachloride
Chlordane
Chlorine
Chlorobenzene
Chloroform
Chlorpyrifos
Chlorosulfonic acid
Chromic acetate
Chromic acid
Chromic sulfate
Chromous chloride
Cobaltous bromide
Cobaltous formate
Cobaltous sulfamate
Coumaphos
Cresol
Crotonaldehyde
Cupric acetate
Cupric acetoarsenite
Cupric chloride
Cupric nitrate
Cupric oxalate
Cupric sulfate
Cupric sulfate ammoniated
Cupric tartrate
Cyanogen chloride
Cyclohexane
2,4-D Acid
2,4-D Esters
DDT
Diazinon
Dicamba
Dichlobenil
Dichlone
Dichlorobenzene
Dichloropropane
Dichloropropene
Dichloropropene-Dichloropropane Mixture
2,2-Dichloropropionic acid
Dichlorvos
Dieldrin
Diethylamine
Dimethylamine
Dinitrobenzene
Dinitrophenol
Dinitrotoluene
Diquat
Disulfoton
Diuron
Dodecylbenzenesulfonic acid
Endosulfan
Endrin
Epichlorohydrin
Ethion
Ethylbenzene
Ethylenediamine
Ethylene dibromide
Ethylene dichloride
EDTA
Ferric ammonium citrate
Ferric ammonium oxalate
Ferric chloride
Ferric fluoride
Ferric nitrate
Ferric sulfate
Ferrous ammonium sulfate
Ferrous chloride
Ferrous sulfate
Formaldehyde
Formic acid
Fumaric acid
Furfural
Guthion
Heptachlor
Hexachlorocyclopentadiene
Hydrochloric acid
Hydrofluoric acid
Hydrogen cyanide
Hydrogen sulfide
Isoprene
Isopropanolamine dodecylbenzenesulfonate
Kelthane
Kepone
Lead acetate
Lead arsenate
Lead Chloride
Lead fluoborate
Lead fluoride
Lead iodide
Lead nitrate
Lead stearate
Lead sulfate

Lead sulfide
Lead thiocyanate
Lindane
Lithium chromate
Malathion
Maleic acid
Maleic anhydride
Mercaptodimethur
Mercuric cyanide
Mercuric nitrate
Mercuric sulfate
Mercuric thiocyanate
Mercurous nitrate
Methoxychlor
Methyl mercaptan
Methyl methacrylate
Methyl parathion
Mevinphos
Mexacarbate
Monoethylamine
Monomethylamine
Naled
Naphthalene
Naphthenic acid
Nickel ammonium sulfate
Nickel chloride
Nickel hydroxide
Nickel nitrate
Nickel sulfate
Nitric acid
Nitrobenzene
Nitrogen dioxide
Nitrophenol
Nitrotoluene
Paraformaldehyde
Parathion
Pentachlorophenol
Phenol
Phosgene
Phosphoric acid
Phosphorus
Phosphorus oxychloride
Phosphorus pentasulfide
Phosphorus trichloride
Polychlorinated biphenyls
Potassium arsenate
Potassium arsenite
Potassium bichromate
Potassium chromate
Potassium cyanide
Potassium hydroxide
Potassium permanganate
Propargite
Propionic acid
Propionic anhydride
Propylene oxide
Pyrethrins
Quinoline
Resorcinol
Selenium oxide
Silver nitrate
Sodium
Sodium arsenate
Sodium arsenite
Sodium bichromate
Sodium bifluoride
Sodium bisulfite
Sodium chromate
Sodium cyanide
Sodium dodecylbenzenesulfonate
Sodium fluoride
Sodium hydrosulfide
Sodium hydroxide
Sodium hypochlorite
Sodium methylate
Sodium nitrite
Sodium phosphate, dibasic
Sodium phosphate, tribasic
Sodium selenite
Strontium chromate
Strychnine
Styrene
Sulfuric acid
Sulfur monochloride
2,4,5-T acid
2,4,5-T amines
2,4,5-T esters
2,4,5-T salts
2,4,5-TP acid
2,4,5-TP acid esters
TDE
Tetraethyl lead
Tetraethyl pyrophosphate
Thallium sulfate
Toluene
Toxaphene
Trichorfon
Trichloroethylene
Trichlorophenol
Triethanolamine dodecylbenzenesulfonate
Triethylamine
Trimethylamine
Uranyl acetate
Uranyl nitrate
Vanadium pentoxide
Vanadyl sulfate
Vinyl acetate
Vinylidene chloride
Xylene
Xylenol
Zinc acetate
Zinc ammonium chloride
Zinc borate
Zinc bromide
Zinc carbonate
Zinc chloride
Zinc cyanide
Zinc fluoride
Zinc formate
Zinc hydrosulfite
Zinc nitrate
Zinc phenolsulfonate
Zinc phosphide
Zinc silicofluoride
Zinc sulfate
Zirconium nitrate
Zirconium potassium fluoride
Zirconium sulfate
Zirconium tetrachloride

At the present time 67 categories of chemicals have been designated as toxic pollutants under section 307 of the Clean Water Act, as follows:

Acenaphthene
Acrolein
Acrylonitrile
Aldrin/Dieldrin
Antimony and compounds*
Arsenic and compounds
Asbestos
Benzene
Benzidine
Beryllium and compounds
Cadmium and compounds
Carbon tetrachloride
Chlordane (technical mixture and metabolites)
Chlorinated benzenes (other than dichlorobenzenes)
Chlorinated ethanes (including 1,2-dichloroethane, 1,1,1-trichloroethane, and hexachloroethane)
Chloroalkyl ethers (chloromethyl, chloroethyl, and mixed ethers)
Chlorinated naphthalene
Chlorinated phenols (other than those listed elsewhere; includes trichlorophenols and chlorinated cresols)
Chloroform
2-chlorophenol
Chromium and compounds
Copper and compounds
Cyanides
DDT and metabolites
Dichlorobenzenes (1,2-,1,3-, and 1,4-dichlorobenzenes)
Dichloroethylenes (1,1- and 1,2-dichloroethylene)
2,4-dichlorophenol
Dichloropropane and dichloropropene
2,4-dimethylphenol
Dinitrotoluene
Diphenylhydrazine
Endosulfan and metabolites
Endrin and metabolites
Ethylbenzene
Fluoranthene
Haloethers (other than those listed elsewhere; includes chlorophenylphenyl ethers, bromophenylphenyl ether, bis(dichloroisopropyl) ether, bis(chloroethoxy) methane and polychlorinated diphenyl ethers)
Halomethanes (other than those listed elsewhere; includes methylene chlorid methylchloride, methylbromide, bromoform, dichlorobromomethane, trichlorofluoromethane, dichlorodifluoromethane)
Heptachlor and metabolites
Hexachlorobutadiene
Hexachlorocyclohexane (all isomers)
Hexachlorocyclopentadiene
Isophorone
Lead and compounds
Mercury and compounds
Naphthalene
Nickel and compounds
Nitrobenzene
Nitrophenols (including 2,4-dinitrophenol, dinitrocresol)
Nitrosamines
Pentachlorophenol
Phenol
Phthalate esters
Polychlorinated biphenyls (PCBs)
Polynuclear aromatic hydrocarbons (including benzanthracenes, benzopyrenes, benzofluoranthene, chrysenes, dibenzanthracenes, and indenopyrenes)
Selenium and compounds
Silver and compounds
2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)
Tetrachloroethylene
Thallium and compounds
Toluene
Toxaphene
Trichloroethylene
Vinyl chloride
Zinc and compounds

At the present time six chemicals have been designated as hazardous air pollutants under section 112 of the Clean Air Act, as follows:

Asbestos
Beryllium
Mercury
Vinyl chloride
Benzene
Radionuclides

At the present time there are no chemicals which have been listed as toxic under section 7 of the Toxic Substances Control Act.

Under section 3001 of the Solid Waste Disposal Act a waste is listed as hazardous for any one of the following three reasons:

—First, the Administrator of the Environmental Protection Agency has determined that it meets one of the statutory characteristics

*The term "compounds" shall include organic and inorganic compounds.

of hazardous waste in the definition under section 1004(5) of the Solid Waste Disposal Act;

—Secondly, the Administrator has determined that the waste has been found to be fatal to humans in low doses (or has a low animal oral, inhalation or dermal LD/LC 50) or otherwise is capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible, illness.

—Finally, the Administrator has determined that the waste contains any of some 400 acutely hazardous chemicals, unless after considering such factors as the concentration of those chemicals in the waste, the amount of waste generated, and the potential of the chemicals to migrate from the waste, the Environmental Protection Agency concludes that the waste is not capable of posing a substantial present or potential hazard to human health or the environment when improperly managed.

Under section 2(b)(13)(C) of the reported bill, any material which is listed as a hazardous waste under section 3001 (including listed process wastes) or identified as a hazardous waste pursuant to the characteristics published under section 3001 is a hazardous substance under S. 1480.

At the present time the Environmental Protection Agency has promulgated rules providing for the identification and listing of hazardous waste at 40 CFR Part 261 (45 FR 33119, May 19, 1980). These regulations must be referred to to determine the hazardous wastes and their constituents which are hazardous substances for purposes of S. 1480. Any material listed as a hazardous waste or hazardous constituent is a hazardous substance for the purposes of S. 1480 regardless of whether it is a waste.

It should be noted that any substance or material for which regulation is specifically suspended by Act of Congress under the Solid Waste Disposal Act is excluded from designation as a hazardous substance for the purpose of S. 1480, notwithstanding the presence in such substance of any hazardous or toxic chemical.

Thus drilling muds and brines, which will have been excluded from regulation by the 1980 amendments to section 3001 of the Solid Waste Disposal Act, are not hazardous substances under S. 1480.

The second basic mechanism for designating hazardous substances under section 2(b)(13)(F), is the addition of substances just for the purposes of this bill under section 3(a)(2).

Section 3(a)(2) authorizes the President to designate as hazardous substances those compounds, elements, mixtures, and solutions which may present substantial danger to public health and welfare and the environment. This provision essentially authorizes the President to augment the existing lists of hazardous substances derived from existing statutes (see, section 2(b)(13) (A), (B), (C), (D), and (E)). The language of this provision has a lower threshold for designation than that currently in place in section 311(b)(2) of the Clean Water Act. This is intended to afford the President broad discretion in designating substances which may adversely affect public health or the environment.

Section 3(a)(2) also authorizes the President to establish for each additional hazardous substance so designated a single quantity which,

if released, discharged, or disposed of, must be reported pursuant to section 3(a)(3)(A). This does not in any way imply or require that such quantities be determined for any other hazardous substances as defined in section 2(b)(13) (A) through (E).

The provision intentionally omits from the requirement to determine "reporting" quantities any reference to harm or hazard. A single quantity is to be determined for each hazardous substance, and this single quantity requires notification upon release into any environmental medium. It would be virtually impossible to determine a single quantity applicable to all media while at the same time linking such quantity to any subjective concept of harm.

It is essential that such quantities be relatively simple for those subject to notification requirements to understand and comply with. Since releases in such quantities trigger notification requirements, but do not, in and of themselves, give rise to other liabilities under this Act, the Presidents' broad discretion to select quantities will not unfairly burden those persons subject to the Act.

In determining reportable quantities under this paragraph, the President may consider any factors deemed relevant to administering the reporting requirements or the President's other responsibilities under this Act. Administrative feasibility and practicality should be primary factors. In addition, the President may revise such regulations from time to time if under-reporting or over-reporting is occurring under existing regulations.

In addition, under section 2(b)(13)(G) a "hazardous substance" is defined generically as follows:

> any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring.

This generic definition is included because hazardous substances characteristically are not included on a governmental list until after they have demonstrated their danger by killing or injuring people or causing significant environmental damages. The actual listing of a substance lags behind release and exposure by years and sometime decades. This happens even though the persons responsible for manufacturing or handling the substances usually know, either through experience or scientific studies, of the substance's dangerous propensities.

Examples of substances added to lists only after they caused harm, even though there was reason to know of their dangerous qualities earlier, include asbestos, kepone, and organic mercury. Some substances have not been included on one of the relevant lists even after they have, in fact, caused grievous injuries.

On April 11, 1980, Senator Stafford wrote the Environmental Protection Agency to ask whether certain substances were included on any of the lists referenced in subparagrapahs (A) through (F) of S. 1480.

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The chemicals that he asked about were selected because they had, in fact, caused documented injuries. Dibromochloropropane, for example, is known to have caused sterility in workers, yet it is not included on any of the referenced lists.[5] It is for this kind of example that subparagraph (G) is included in the bill.

Subparagraph (G) describes substances which are harmful to humans and includes them within the scope of S. 1480 whether they are included on a regulatory list or not. The definition was intentionally made broad in order to assure that any substance or agent which causes disease in humans, whether it is an element, chemical, pathogen, or mixture, is included. Of course, if a substance is determined as "hazardous" only by virtue of section 2(b)(13)(G)—that is, it meets the subparagraph (G) definition, but is not a designated hazardous substance under subparagraphs (A) through (F)—the consequences under this bill are less than if it has been on one of the lists. Under S. 1480 as reported, the Fund is available for government response and claims for damages caused by a substance considered hazardous under section 2(b)(13)(G) but cannot collect its costs under the special liability provisions of the bill. Instead, the Fund and any private damage action must rely on common law or other tort which would otherwise apply.

If, however, the President has responded to a release of such a substance as an imminent or substantial danger to public health or welfare under section 3(c)(1), the Fund and any private damage party may use section 4 to recover. The ability of the President to respond to substance defined as hazardous under section 2(b)(13)(G), however, should make response to such substances under a declaration of imminent or substantial danger less necessary or common.

Under section 2(b)(13), petroleum, including crude oil and including fractions of crude oil which are not otherwise specifically listed or designated as hazardous substances under subparagraphs (A) through (F) of the definition, is excluded from the definition of a

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[5] The reply is reprinted as follows:

U.S. ENVIRONMENTAL PROTECTION AGENCY,
Washington, D.C., April 15, 1980.

Hon. ROBERT T. STAFFORD,
U.S. Senate,
Washington, D.C.

DEAR SENATOR STAFFORD: This is in response to your letter of April 11, 1980 requesting information on whether several chemical substances are included on lists compiled pursuant to certain environmental statutes.

None of the chemical substances listed in your April 11 letter are included on lists compiled pursuant to section 307 or section 311 of the Federal Water Pollution Control Act. No chemical substances have had actions taken against them under section 7, the "Imminent Hazard" section, of the Toxic Substances Control Act (TSCA). However, the following chemical substances, along with their Chemical Abstract Service (CAS) number, are listed in the inventory required by section 8(b) of TSCA:

ONA—Orthonitroaniline [88-74-4]
DBCP—dibromochloropropane [96-12-8]
PBB's—polybrominated biphenyls [several numbers]
Isobutyronitrile [78-82-0]
Hexachlorobicycloheptadiene [3389-71-7]

The listing of chemical substances which will be defined as hazardous waste under section 3001 of the Resource Conversation and Recovery Act will be promulgated by the end of April. We would be happy to inform you of the status of the chemical substances under section 3001 at that time.

Finally, one substance you inquired about, hexachlorobicycloheptadiene is on a list of 43 chemical substances under assessment for listing under section 112 of the Clean Air Act.

I hope this letter has responded fully to your inquiries. Please let me know if you need any further information.

Sincerely yours,

SUSANNE L. WELLFORD,
Acting Director,
Office of Legislation.

hazardous substance. The reported bill does not cover spills or other releases strictly of oil. It is also important to note that natural gas, liquified natural gas (LNG), and high BTU synthetic gas of pipeline quality (or mixtures of natural gas and such synthetic gas) are not considered hazardous substances within the purposes of S. 1480.

LIABILITY

Section 4 of the reported bill provides that—

(1) the owner or operator of a vessel or a facility,

(2) any person who at the time of disposal of any hazardous substance owned or operated any facility or site at which such hazardous substances are disposed of,

(3) any person who by contract, agreement, or otherwise arranged for disposal, treatment, or transport for disposal or treatment by any other party or entity of hazardous substances owned or possessed by such person, at facilities or sites owned or operated by such other party or entity and containing such hazardous substances, and

(4) any person who accepts any hazardous substances for transport to disposal or treatment facilities or sites selected by such person,

from which a hazardous substance is discharged, released, or disposed of or from which any pollutant or contaminant is released resulting in action under section 3(c)(1) of the Act, shall be jointly, severally, and strictly liable for all removal costs and specified damages.

S. 1480 provides incentives to all involved with hazardous substances to assure that such substances are handled with the utmost of care. Consistent with the concept of strict liability, persons can not escape liability by "contracting away" their responsibility or by alleging that the incident was caused by the act or omission of a third party. The only exception to this liability scheme arises where the person can prove that the discharge, release, or disposal was caused solely by an act of God or an act of war. This liability scheme essentially codifies the common law liability standard applicable in cases involving hazardous substances and materials. This liability standard is intended to induce potentially liable persons to voluntarily mitigate damages rather than simply rely on the government to abate hazards.

The specific items of removal costs and damage which may be recovered under the authority of S. 1480 are enumerated in section 4(a) (1) and (2). The purpose of those provisions, taken together with the rules for proving medical and natural resource losses, is to calculate the economic losses caused by a release as closely as possible. Since S. 1480 is designed to assure that products reflect their true costs, the bill is at its most efficient when such actual costs are calculated to the penny. The converse of this is that certain items of damage which are not economic in nature are not recoverable under the provisions of S. 1480. The most notable of these is pain and suffering.

The specific items recoverable under the provisions of S. 1480 are as follows:

(1) all costs of removal or remedial action incurred by the United States Government or a State, and any other costs or expenses incurred by any person to remove a hazardous substance as the terms "remove" or "removal" are defined in section 311(a)(8) of the Clean Water Act; and

(2) all damages for economic loss or loss due to personal injury or loss of natural resources resulting from a discharge, release, or disposal of a hazardous substance, including—

(A) any injury to, destruction of, or loss of any real or personal property;

(B) any loss of use of real or personal property;

(C) any injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss;

(D) any loss of use of any natural resources, without regard to the ownership or management of such resources;

(E) any loss of income or profits or impairment of earning capacity resulting from personal injury or from injury to or destruction of real or personal property or natural resources, without regard to the ownership of such property or resources;

(F) all out-of-pocket medical expenses, including rehabilitation costs or burial expenses, due to personal injury; and

(G) any direct or indirect loss of tax, royalty, rental, or net profits share revenue by the Federal Government or any State or political subdivision thereof, for a period of not to exceed one year.

It should be clear, as under section 311, if an innocent third party's property is damaged pursuant to authorized removal or remedial operations those damages are part of the cost of removal or remedy payable from the fund and chargeable to the owner or operator.

The general rule is that to hold the person factually responsible for damage to another liable, a victim must show "fault" or negligence. But for abnormally dangerous activities, the law imposes a rule of strict liability, under which the victim is not required to show that the person who injured him was guilty of moral misconduct.

The rule of strict liability applies to "abnormally dangerous" activities, and a variety of other fields as well. The most notable of these other areas is products liability, but also included are intentional torts (such as trespass, assault, battery, and intentional infliction of mental distress). In addition, the Congress and State legislatures have codified the rule of strict liability in a variety of other fields as well. These include oil pollution, nuclear incidents, and spills of hazardous substances. S. 1480 extends the statutory affirmation of strict liability found in these specialized statutes to hazardous substance incidents generally.

S. 1480 declares the manufacture, use, transportation and disposal of hazardous substances to be abnormally dangerous activities for the purposes of this Act and, therefore, subject to a rule of strict liability. For some types of these abnormally dangerous activities, there are specific exclusions from the strict liability regime of S. 1480. In those areas, the Fund or injured third parties must rely on common law or other statutes for recovery.

Strict liability has been imposed either judicially or legislatively for a variety of activities. At one time strict liability (or "no fault" liability) was the prevailing way of allocating loss. One reason for imposing strict liability was laid out in 1866 in the English case of *Rylands* v. *Fletcher*—

> We think the true rule of law is that the person who for his own purposes brings on his land and collects and keeps there anything likely to do mischief if it escapes, must keep it at his peril, and if he does not do so is prima facie answerable for all the damage which is the natural consequence of its escape.

The rule of *Rylands* v. *Fletcher*—strict liability for ultra hazardous activities—has been accepted and applied throughout the United States, under one name or another. Incidents to which it has been applied include the transportation of hazardous substances; the spraying of hazardous substances; the emission of noxious gases; the impoundment of slimes; and the keeping of explosives and flammables.

One other major area where a strict liability regime applies is products liability, where manufacturers and sellers are held strictly liable for damages caused by a product sold in a "defective" condition. The "defect" may include a failure to warn of the dangers associated with the product, even where the warnings would not have reached the ultimate consumer. An illustrative application of the rule was the tragic poisoning of a New Mexico family. In that case, the "consumers" of the product were the children of a janitor who had obtained feed corn from a granary. The corn was fed to the families' hogs, which were slaughtered and eaten. The grain—intended to be used as seed, not food—had been treated with an organic mercury compound to prevent loss due to spoilage or disease. The children were stricken by organic mercury poisoning and suffered permanent, irreversible loss of sight, speech, and hearing. The court held that failure to warn of the specific consequences of ingestion of the mercury compound constituted a defect, although under the facts of the case this information would not have been communicated to the father, much less the children.

POLICY CONSIDERATIONS

Strict liability is applied to these and other cases for a variety of reasons. Chief among these are questions of fairness and equity. One additional purpose of S. 1480's strict liability scheme is to assure that the costs of injuries resulting from defective or hazardous substances are borne by the persons who create such risks rather than by the injured parties who are powerless to protect themselves. Most risks are not inevitable. On the contrary, many can be minimized or eliminated altogether through the exercise of greater care. By holding the factually responsible person liable, S. 1480 encourages that person—whether a generator, transporter or disposer of hazardous substances—to eliminate as many risks as possible.

But some risks cannot be eliminated. The question then is whether the loss should fall on the victim or the person who created the risk. The issue is really one of fundamental fairness.

The approach of S. 1480 was well expressed in *Green v. General Petroleum Company* (a 1928 California case) where the court held oil drilling in a residential area to be an ultra hazardous activity for which strict liability should be invoked:

> Where one, in the conduct and maintenance of an enterprise lawful and proper in itself, deliberately does an act under known conditions, and, with knowledge that injury may result to another, proceeds, and injury is done to the other as the direct and proximate consequence of the act, however carefully done, the one who does the act should, in all fairness, be required to compensate the other for the damage done.

In some of these cases the choice is not between an innocent victim and a careless defendant, but between two blameless parties. In such cases the costs should be borne by the one of the two innocent parties whose acts instigated or made the harm possible.

The advantage of this approach is not only that it is fair, but that it will cause the economy to operate better. Strict liability is, in effect, a method of allocating resources through choice in the market place.

The most desirable system of loss distribution is one in which the prices of goods accurately reflect their full costs to society. This therefore requires, first, that the cost of injuries be borne by the activities which caused them, whether or not fault is involved, because, either way, the injury is a real cost of these activities. Second, it requires that among the several parties engaged in an enterprise the loss be placed on the party which is most likely to cause the burden to be reflected in the price of whatever the enterprise sells.

Two benefits flow from imposing strict liability in this manner:

(1) the adverse impact of any particular misfortune is lessened by spreading its cost over a greater population and over a larger time period; and

(2) social and economic resources are more efficiently allocated when the actual costs of goods and services (including the losses they entail) are reflected in their prices to the consumer.

OTHER STRICT LIABILITY SCHEMES

S. 1480 represents an attempt to fill voids left by a variety of other Federal strict liability statutes which respond to and compensate the victims of hazardous substance releases. Most of these statutes are single purpose, concerned only with a narrow class of victims or a narrow class of substances. These other statutes include the following:

Section 311 of the Federal Water Pollution Control Act

Section 311 of the Federal Water Pollution Control Act establishes a revolving fund to finance the Federal cleanup of spills into navigable waters of oil or designated hazardous substances. The response includes restoration of natural resources. Although the fund is maintained through appropriations, dischargers are strictly, jointly and severally liable for all costs incurred during cleanup. Section 311 does not, however, include third party damages.

Outer Continental Shelf Lands Act

Unlike section 311 of the FWPCA, the Outer Continental Shelf Lands Act Amendments of 1978 create fund and liability schemes designed specifically to compensate third parties for damages caused by oil production on the Outer Continental Shelf (OCS).

a. *Offshore Oil Spill Pollution Liability and Compensation.*—This Fund is available to finance cleanup costs and compensate injuries caused by discharges from certain vessels and offshore facilities operating on the OCS. Compensable economic losses include:

—Injury to, destruction of, or loss of use of real or personal property;
—Injury to, destruction of, or loss of use of natural resources;
—Loss of profits caused by damage to real property, personal property or natural resources; and
—Loss of tax revenue for 1 year due to injury to real or personal property.

Payments may be made initially from the Fund (which is maintained by a 3 cent per barrel fee on oil obtained from the OCS), but the responsible parties are strictly, jointly and severally liable. If they do not step forward, the Fund may sue them as a subrogee.

b. *Fisherman's Contingency Fund.*—The OCS Amendments also provide a special compensation mechanism for a select class of injured parties, commercial fishermen.

This Fund covers "actual and consequential damages, including loss of profits, due to damages to, or loss of, fishing gear by materials, equipment, tools, containers, or other items associated with oil and gas exploration, development or production activities." The Fund's efforts are coordinated with Department of the Interior regulations aimed at color coding, stamping or labeling of oil production equipment used in the OCS.

The Price-Anderson Act

The Price-Anderson Act amended the Atomic Energy Act to add the equivalent of a Federal liability and compensation scheme for damages caused by those serious "nuclear incidents" designated by the Nuclear Regulatory Commission as "extraordinary nuclear occurrences" The coverage is broad, as a "nuclear incident" may potentially include "any occurrence . . . causing . . . damage . . . arising out of . . . the radioactive, toxic, explosive or other hazardous properties . . ." of nuclear materials. The Price-Anderson Act imposes strict liability for all offsite public damages caused by an extraordinary nuclear occurrence.

The Trans-Alaska Pipeline Safety Act

The Trans-Alaska Pipeline Safety Act (TAPS) establishes a liability and compensation mechanism comparable to that of the Outer Continental Shelf Lands Act. The law imposes a strict liability on those handling Alaskan oil for damages caused if it is spilled. The regime applies not only to ruptures of the pipeline, but accidents involving a release of pipeline oil at United States ports or other such terminals.

As in the OCS Act, a fund is available to compensate third parties if the spiller either cannot or will not. The Fund may then sue the spiller as a subrogee. The liability standard remains one of strict liability whether the plaintiff is the fund or the original injured party.

Deepwater Port Act

The OCS Lands Act pattern is also replicated in the Deepwater Port Act: the spiller of deepwater port oil is strictly liable, but a Fund is available to compensate parties if the responsible party cannot or will not.

State Strict Liability Laws.—States have responded to the specific problems of hazardous substance releases by the enactment of a variety of laws. Responding to a request from the Senate Committee on Environment and Public Works, the Library of Congress identified twelve states which had enacted laws recognizing a right of recovery for damages suffered by private persons. Most of these expressly impose strict liability. Those states were: Alaska, California, Florida, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, North Carolina, Oregon, South Carolina, and Washington. Pennsylvania also expressly imposes strict liability, though its statute is apparently restricted to escapes of oil from pipelines which pollute wells.

Federal Causes of Action

Out of respect for the Federal system created by the Constitution, the Congress is generally reluctant to create a cause of action found on Federal law which might duplicate causes founded on State law. Indeed, it is primarily for this reason that the cause of action established by this bill is restrained in the types of incidents covered, the types of damages which are compensable, the classes of victims protected and the like. Nevertheless, the Congress has not hesitated to enact remedial legislation conferring a Federal cause of action where there was a clear need. The Library of Congress identified thirty examples of such laws based on a brief review of the United States Code, but some of the notable examples include the following:

Fair Credit Reporting Act.—A consumer credit reporting agency which fails to comply with the act is liable under a Federal cause of action to the consumer for not only actual injuries resulting from the failure, but for attorney's fees and court costs if the action is successful.

Securities Acts of 1933 and 1934.—A person who acquires a security (e.g. stock or mutual fund shares) because of false representations in the registration statement filed with the Securities and Exchange Commission (or some other corporate statements) has a Federal cause of action against the registrante.

Clayton Antitrust Act.—A person injured because of a violation of this act enjoys a Federal cause of action under which treble damages, attorney's fees and court costs are recoverable.

Taft-Hartley Act.—A person injured by an unfair labor practice, whether a union's or an employer's, has a Federal cause of action for recovery of damages.

Magnuson-Moss Warranty Act.—A consumer damaged by the failure of a supplier, warrantor or service contractor to comply with the provisions of the Act has a Federal cause of action.

These statutes and the others identified by the Library of Congress include only those Federal laws which authorize money damages, not the many others under which injunctive relief may be granted. In addition, these are statutes where the purpose was not to supplement Federal enforcement (e.g. by creating "private attorneys general"),

but to compensate victims. Generally, however, they share a common quality with S. 1480: they respond to a need for remedial legislation required because State systems have been unable to provide redress for injured persons.

Effective Dates of Liability Provisions

Section 4(n) specifies how claims for certain damages occuring before the date of enactment will be handled under S. 1480. Costs of removal (cleanup and containment) are not affected by this provision, nor are any damages associated with continuing releases.

Section 4(n)(1) provides that neither the liability scheme in S. 1480 nor the Fund can be used to recover for natural resource and property damages when the damages and the release of hazardous substances causing such damages occurred prior to enactment of S. 1480. This provision allows for recovery only of prospective natural resource and property damages. The bill does not preclude use of the remedies which were available for recovery of damages prior to enactment. Damages which are being repaired as part of a cleanup action under the Fund are not affected by this provision, and the Fund may recover for such cleanup expenditures.

Section 4(n)(2) provides that the liability scheme of S. 1480 and payment from the Fund would not be available for recovery of damages for medical expenses and personal injury-related loss of income for a claimant whose exposure to a hazardous substance release was completed prior to January 1, 1977, and who discovered a resultant injury or illness prior to January 1, 1977. Such a claimant could seek such damages under common law or other tort law. The intent of this provision is to limit claims for personal injury to those when the exposure and the discovery of the resultant injury or disease have both occurred before a specific point in time.

The January 1, 1977, date was chosen to assure that certain well-known hazardous substance disposal occurrences, such as Love Canal, would be covered by the liability scheme of S. 1480. The date also approximates the enactment of the Resource Conservation and Recovery Act amendments to the Solid Waste Disposal Act, which provide for implementation of strategies to control the transportation, storage, and disposal of hazardous wastes.

Section 4(n)(3) provides that the liability provisions of S. 1480 are not available to a claimant seeking damages whose exposure to a hazardous substance release was completed prior to January 1, 1977, but who did not discover a resultant illness until after January 1, 1977. A claimant is not precluded from recovery of medical expenses and personal injury-related loss of income, profit, or impairment of earning capacity from the Fund, but would not be able to sue the responsible party under the causes of action provided in the bill. The Fund would seek recovery of any compensation under the existing common law or other applicable statutory law. The claimant could also pursue the liable party under such existing remedies.

This provision specifies that the costs of permanent and temporary relocation of residences and providing of alternative water supplies are considered removal or cleanup costs. Such costs are not affected by the effective dates in this subsection.

This provision does not preempt or change in any way the liability of any individual under other existing law for damages or losses resulting from hazardous susbtance releases.

Apportionment Factors

Section 4(f)(1) provides for modifying the rule of joint and several liability by limiting liability under certain limited conditions. Any such limitation may be considered only following determination of liability under section 4(a). Limitation occurs where a liable person can demonstrate by a preponderance of the evidence that his contribution to the discharge, release, or disposal can be distinguished or apportioned. Such person must also demonstrate by the preponderance of the evidence that his contribution was not a significant factor in causing or contributing to the discharge, release, or disposal, or the damages resulting therefrom. If the liable person establishes these two prerequisites, the court must limit such liable person's liability to that portion of the release or damages to which such person contributed.

Any person found jointly and severally liable with one or more other persons is entitled, after paying into the fund of the court the amount for which he is held liable, to seek contribution from such other persons to the extent of their proportionate liability. In addition, if a person held liabile alleges that the release, discharge, or disposal or th consequent damages are due in whole or in part to the acts or omissions of a third party, such liable person retains all rights against such third party, and may join such party in an action under section 4 or section 6(c). In any action under section 4(f)(1) or (2), the claimant is not to be considered an indispensable party.

Section 4(f)(4) provides a list of factors the court may consider in limiting or apportioning lability under section 4(f)(1) and (2). This section provides guidance for the courts in (1) limiting the liability of a person who is an insignificant factor in a release to his proportionate share of the costs or damge or (2) in apportioning liability among those significant factors in causing a release, who are, under section 4, to be held jointly and severally liable for costs or damages.

As between a claimant and a releaser, this provision does not authorize the limitation of liability of a person who is a significant factor in a release; the ordinary rule of joint and several liability applies to those who are a significant factor in a release. However, courts have exercised their equitable powers to occasionally limit liability even for significant contributors, and this discretionary power is likely to continue to be exercised. In addition, under section 4(f)(2), or in the ordinary course of litigation after judgment has been rendered, some courts may have applied the rule of *pro tanto* contribution in apportioning liability among several tortfeasors. Section 4(f)(4) provides the courts with guidance on factors to consider in more equitably apportioning liability, rather than relying on the *pro tanto* rule, as well as in limiting liability in the situations discussed above.

The factors which may be considered include the following:

(1) The ability of the party to demonstrate that his contribution to the release can be distinguished;

(2) The amount of hazardous substance involved. Of course, a small quantity of a highly toxic material, or above which releases

or makes more dangerous another hazardous substance, would be a significant factor;

(3) The degree of toxicity of the hazardous substance involved;

(4) The degree of involvement of the person in the manufacture, treatment, transport, or disposal of the hazardous substance; and

(5) The degree of cooperation between the person and the Federal, State, or local government in preventing harm to public health or the environment from occurring from a release. This includes efforts to mitigate damage after a release occurs.

Medical Expenses Causation

Section 4(c), the medical causation provisions of S. 1480, attempt to adapt the system of proof developed originally for use with accidents to one more suitable for proof of disease. The effect of the bill's provisions is to prevent a victim-plaintiff from being thrown out of court on procedural grounds when there appears to be merit to a claim.

The causation provisions are among the most discussed and closely examined of any in the bill. Indeed, they were revised and perfected throughout the course of S. 1480's consideration. Even though the provisions were often examined and often rewritten, they were included in the reported legislation because a review of toxic substances complaints and litigation leads to the inescapable conclusion that changes need to be made.

GENERAL PROVISIONS OF SECTION 4(C)

First, section 4(c) specifically authorizes the admission of medical and scientific studies in a court of law. Such evidence (e.g. tests on laboratory animals or microorganisms) has been excluded by some courts. The practical consequence of such exclusion is to wrongfully deny the plaintiff the opportunity to prove his case. Such evidence sometimes does not meet the high standards of probative value preferred by courts, but it may be the only evidence available. Such evidence ordinarily ought to be allowed to be considered by the trier of fact, whether the defendant is seeking to eliminate it on the basis of irrelevancy or on the basis of the waste of time, confusion or prejudice grounds.

Second, the bill provides that when the plaintiff has shown a reasonable likelihood that his disease resulted from release of the toxic substance, a presumption is created in his favor. This presumption does not guarantee that the plaintiff will win nor does it place on the defendant the "burden of disproof". However, the presumption does assure that the plaintiff will not be thrown out of court on purely procedural grounds. The burden of proof remains with the plaintiff, as under existing law, but the procedural advantage which the law confers on the defendant is eliminated.

BACKGROUND

The American judicial system is accustomed, by and large, to dealing with questions of cause in the context of accidents, not diseases. Accidents are dramatic, time-definite events for which there is a clear

and immediate relationship between cause and effect. In contrast, diseases develop over time and may fail to manifest themselves until distant from the cause. Moreover, diseases sometimes result from a combination of causes, not just one. This is not to say that the cause of disease is not provable; it is. The problem is that rules evolved in the context of broken bones or violent explosions are often inadequate to deal with the long-latency diseases. This view is shared by many legal and scientific commentators.

> The case studies also indicate that plaintiffs in toxic pollution suits may have substantial difficulty in proving that a particular exposure to a pollutant was the cause in fact of an injury. The case studies reinforce the notion that such problems of proof can be significant barriers to recovery, both in current litigation and in litigation that may arise upon the manifestation of any latent health effects.
>
> Six Case Studies of Compensation for Toxic Substances Pollution: Congressional Research Service, Library of Congress (June, 1980).

> Over and over, scientists prove to their satisfaction that cause and effect are related by virtue of their strong statistical association. For example, a certain lung disease develops in persons exposed to a chemical and not in those not exposed.
>
> This may be either an 100 percent relationship or of some lesser degree, but high enough to give the scientist confidence in his position. However, most courts tend to reject statistical testimony as "hearsay" or the like. Courts are in error in rejecting statistical evidence. It is of the highest quality and entirely acceptable to scientists. Further, no issue is being finally determined on this basis. There will be other evidence on the issue presented to the jury. Many experts, in testifying as to etiology, rely upon statistics, whether or not they acknowledge it or are even aware of it. A few courts have expressly allowed statistics.
>
> *Toxic Torts*, Tort Actions for Cancer and Lung Disease Due to Environmental Pollution, The Association of Trial Lawyers of America.

> It is only occasionally possible to demonstrate cause and effect between a toxic substance and a specific health condition. An example where this direct relationship exists is asbestosis. In order to have asbestosis, a person must have been exposed to asbestos. Such relationships are a rare phenomenon, however, since most health effects of toxic substances are not specific. Most conditions caused by exposures to toxic substances, as examples, liver cancer, miscarriage, or spontaneous abortion could also occur in populations not exposed. It is necessary, therefore, to make presumptions of causal relationships based upon statistical relationships and epidemiological evidence. The incidence of miscarriage and spontaneous abortion of those living in the Love Canal area was beyond that which could be expected in the general population. Thus a presumption of cause can be made.

We agree with the approach taken in . . . S. 1480. It should again be stressed that proof of direct causation may not be available, but presumption of cause can be made.

Dr. John Romani, Former President, American Public Health Association.

Many of the toxic substances that have been involved in recent pollution incidents are of relatively recent origin. Their toxic properties and their harmful effects on human health, especially the long-range effects, have not yet been fully explored, and therefore it has not been possible to establish safe tolerance levels with absolute certainty. Even the methods for detecting and measuring the presence of the substance in the water, the air, and the ground and in human and animal tissue had first to be developed before the danger could be assessed. In several instances, realization of the pernicious nature of the chemical has resulted in voluntary or mandatory discontinuation of production and elimination of existing stocks from the chain of commerce and consumption.

Traditionally, proof of actual harm has been required as a basic condition for recovery under the tort law; on the other hand, there are good reasons for relaxing that requirement or even for shifting the burden of proof on the theory that one who introduced a new manmade substance into commerce or into the environment must make sure that it does not carry an unreasonable risk of harm. The necessary research to determine possible harmful effects and safe levels should come before release; if it is omitted, the resulting uncertainty can reasonably be charged to the producer or the polluter or to both.

American Bar Foundation Research Journal, Spring 1979.

Producing the evidentiary showing required to sustain the substantive proof of legal causation is an undertaking of no small magnitude. Logically, to prove causation, the plaintiff must be able to (1) isolate the harm-causing substance, (2) trace its pathway of dispersal from the polluter to the victim, and (3) show the etiology of the harm-causing substance. Without extensive scientific data these elements of causation cannot be firmly established. But introducing scientific studies—especially a full scale epidemiological study—does not guarantee success in proving causation.

Assuredly, the defense will produce experts who can challenge the techniques of the study and the conclusions drawn from the data compiled. In this endeavor to address issues which often lie at the interface of scientific truth and reasonableness under tort law, a court may retreat from wrestling with scientific probabilities and uncertainties and choose to balance the prospective harm to human health against the social and economic value of the pollutant. In deferring to the practicalities of local economic conditions, courts may put to one side complex, technical scientific data and assumptions about the formation of mixtures, the syner-

gistic effects of pollutants, the problem of joint polluters or the proof of causation itself. This refusal to consider scientific issues is especially likely when the experts disagree.

Harvard Journal on Legislation:

A Proposal for the Administrative Compensation of Victims of Toxic Substance Pollution: A Model Act (June, 1977).

PRECEDENT FOR MEDICAL CAUSATION PROVISIONS

Shifting presumptions are not uncommon in the law when dealing with unusual situations. The issue is whether, as a matter of policy, a presumption ought to apply to a specific set of facts. Some courts and some statutes have already applied not only a presumtion in circumstances covered by S. 1480, but a much more powerful presumption: one which goes not to procedural matters, but to the actual burden of proof.

One line of cases applying a presumption of cause are those dealing with cancer caused by trauma. In a typical case, a plaintiff receives a blow (or sometimes a succession of blows) to a point on the body where a cancer later develops. According to one commentator, the line of such cases began over a century ago and includes over 100 decisions. One court explained the standard of proof as follows:

> We concede that in the great majority of cases such testimony ordinarily is necessary because of the seeming absence of connection between a particular accident and a claimed resulting injury. But in other cases involving special and peculiar circumstances, medical evidence, although highly desirable, is not always essential for an injured employee to make out a prima facie case, especially if the testimony is adequate, undisputed and unimpeached. Thus where, as in the instant case, injury appears in a bodily member reasonably soon after an accident, at the very place where the force was applied and with symptoms believed testimony to the contrary, a natural inference that the injury, whatever may be the medical name, was the result of the employment. Absolute certainty is not required in any case. If the reasonable probabilities flowing from the undisputed evidence disclose a progressive course of events beginning with an external accident in which each succeeding happening including the injury appears traceable to the one that preceded it, medical evidence is not essential for an injured employee to make out a prima facie case.
>
> An inference, if rational and natural, based on proven facts will stand even though not supported by expert medical opinion.

Another field in which a presumption of cause has been applied for chemically induced diseases is workers' compensation. Some States (and for coal miners, the Federal government as well) have adopted a rule of presumptive causation. It is quite common for lung disease in a firefighter to be presumed to have been caused by occupational

exposure, just as a coal miner suffering from coal workers' pneumoconiosis can recover under the Federal Black Lung program. Similarly some courts permit recovery when the worker has been able to show only that it was "probable" that exposure had caused the disease. The types of workers to whom liberalized rules of proof have been extended include fire fighters mentioned earlier exposed to smoke and fumes; wool dyers exposed to analine dyes; a roofer exposed to tar and asphalt fumes; and other workers exposed to benzene or to fumes containing xylol and synthetic resins.

SPECIFIC PROVISIONS OF SECTION 4(C)

In response to the inadequacies of the current system, the reported bill provides the following:

For the limited purpose of recovering out-of-pocket medical expenses and rehabilitation costs, an injured party may utilize the methods of proof and evidence contained in section 4(c). To recover for other injuries (or for costs other than out-of-pocket medical and rehabilitation expenses, an injured party must utilize the methods of proof and evidence ordinarily applied by the courts in his or her jurisdiction.

Paragraph (1) of section 4(c) states what the claimant must prove in order to recover: that there was a release of a hazardous substance; that the defendant was liable for the release; that the release caused or contributed to the claimant's injury; and that his or her medical expenses were incurred in the treatment of the injury or disease. The claimant may be assisted in establishing his or her case by utilizing the presumption created in subsection (c)(3)(A). To invoke this presumption, the claimant must introduce enough evidence to permit a trier of fact to conclude, first, that the claimant had been exposed for a sufficient period of time or in sufficient quantity, to a hazardous substance in the release for which the defendant is liable under this Act; and, secondly, that there is a "reasonable likelihood" that the exposure causes or contributes to a disease or injury of the sort complained of. A plaintiff who meets this burden will benefit from a presumption that he has made a sufficient case for the burden of going forward to shift to the defendant. This provision does not affect the burden of proof, which remains with the plaintiff under rule 301 of the Federal Rules of Evidence. The presumption, once created, is intended to be conclusive against a motion to dismiss before a defendant has presented counterproof.

Subsection (c)(2) permits the use of certain types of medical or scientific evidence in proof of the causal relationship. This is included because some courts have held that, as a matter of law, animal studies, tissue studies, and other types of evidence described in the subparagraph are not probative on the issue of disease causation in humans. Of course, a court must always make the evidentiary determination of whether a specific item of evidence is sufficiently probative to be admitted. This paragraph does not lessen the obligation of the court to do this. It is difficult in any event for the Congress to control how a court will consider evidence. The paragraph does, however, represent the Congressional conclusion that animal studies, tissue studies, micro-

organism studies and the like are, as a class, relevant. Moreover, in cases involving toxic or hazardous substances, courts should, under this paragraph, admit evidence which might be excluded in other kinds of cases on the grounds of prejudice, confusion, or waste of time. Often the practical consequence of excluding such relevant evidence on these grounds is to deny the plaintiff an opportunity to prove his case. The policy in favor of admitting these types of evidence under this paragraph should be interpreted broadly. The Committee concluded, however, that this intent should be expressed in legislative history rather than statutory language in order to avoid unintended damage to areas of the law not within the scope of this bill.

Persons alleging injury as a result of a hazardous substance release are to have access to, and have the right to bring before a court as evidence, any potentially relevant information gathered by the President in the course of investigations, monitoring, surveys, testing, or other information-gathering undertaken to identify the existence and extent of a release, or threat of a release, the hazardous substances involved, the source of such substances, and the danger to public health or welfare or to the environment under section 3 of the reported bill or under other authorities. Such persons alleging injury are to have access to, and have the right to bring before a court as evidence, any epidemiological studies, information from diagnoses, long-term health effects studies, and information from registries maintained or developed under section 6(a)(1)(L) of the bill.

Indemnification Provision

Section 4(i) provides that no idemnification, hold harmless, conveyance, or similar agreement shall be effective to transfer from the owner or operator of a facility, or from a person who may be liable for a release, to any other person the liability imposed under section 4. This subsection does not apply, however, to a transfer in a bona fide conveyance of a facility or site (1) between two parties not affiliated with each other in any way, (2) where there has been an adequate disclosure in writing consistent with section 3(a)(4)(C) of the Act of all facts and conditions (including potential economic consequences) material to such liability, and (3) to a transferor who can provide assurances of financial responsibility and continuity of operation consistent with the degree and duration of risks associated with such facility or site.

Nothing in section (4)(i) is intended to prohibit the purchase of insurance by common carriers to cover the liability imposed by that section, nor is it intended to prohibit agreements among common carriers or between common carriers and shippers by which one or several parties agree to indemnify the indemnitee for losses incurred as a result of liability imposed by section 4.

Pesticide Exclusion From Liability and Claims on Fund

The authorities in the bill for removal and remedial action necessitated by a hazardous substance release would apply to problems caused by pesticide releases, whether or not such releases were in

accordance with existing Federal or State law. However, under section 4(k), no person or State, or the Federal government, may seek recovery under the liability provision of the bill for damages or removal costs resulting from the field application of pesticides registered pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act. The prohibition in section 4(k) is a limitation only upon the liability provisions of this bill; it does not bar any person from seeking recovery under other law, such as existing tort law or common law.

Similarly, section 6(a)(4) prohibits using monies in the Fund to pay claims for personal injury or lost income resulting from the field application of a registered pesticide. This prohibition does not apply to payment of capital losses and losses of income by agricultural producers and processors and to commercial fishermen and fish and seafood processors under section 6(a)(1)(N).

In the course of its deliberations on the bill, the Committee reviewed a substantial body of evidence indicating that injuries to humans and damages to natural resources and food from pesticide releases are widespread.[6] In some cases, these injuries and damages can be traced to spillage, leakage, or improper disposal of pesticides, their residue, and wastes.

The exclusion covers only liability for "field application" of a pesticide. This is intended to mean the use of a pesticide generally in accordance with its purpose. It is not intended that failure to comply with the Federal Insecticide, Fungicide, and Rodenticide Act be a basis for invoking liability for pesticide application under this bill, or that compliance with that Act be made a defense in federal or state court under other laws.

Under these provisions, persons alleging injury or lost income (other than agricultural or fishing income covered by section 6(a)(1)(N)) due to harm by pesticide application must seek remedies other than those provided under sections 4 and 6 of the bill.

However, the prohibition on use of the fund is a narrow one, covering only those releases which are "field applications" in accordance with the purposes of the product. Claimants who are injured by spilling, dumping, disposal, or leaking of pesticides, whether intentional or accidental, would have recourse to the Fund and section 4 liability provisions under this provision. Under the claims procedure with respect to this subsection, the claimant must provide documentation of the nature of the injury and the source of the release alleged to have caused the harm. Upon occasion, it may be difficult or impossible for a claimant to show that the source of a pesticide exposure was a spilling, dumping, disposal, or emission other than a field application. In such

[6] Some of the sources used by the Committee are: "Hazardous Materials Incidents Reported to U.S. Environmental Protection Agency Regional Offices from October, 1977 through September, 1979"; EPA Oil and Special Materials Control Division, January, 1980; "Compensation for Victims of Water Pollution," Committee on Public Works and Transportation, U.S. House of Representatives, May 1979; "Environmental Contaminants in Food," Congress of the United States, Office of Technology Assessment, December 1979; "Six Case Studies of Compensation for Toxic Substances Pollution, Alabama, California, Michigan, Missouri, New Jersey, and Texas," prepared by the Congressional Research Service of the Library of Congress for the Committee on Environment and Public Works, U.S. Senate, June 1980; "Damages and Threats Caused by Hazardous Materials Sites," U.S. Environmental Protection Agency, Oil and Special Materials Control Division, February, 1980; Hazardous and Toxic Waste Disposal, hearings of the Committee on Environment and Public Works, U.S. Senate, March 28 and 29, May 18, June 20, 21, 22, and 29, July 19 and 20, and September 6 and 7, 1979.

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situations, the Fund shall have the burden of showing as a condition of denying benefits, that an application was the most likely source of the pesticide release.

Fertilizer Exclusion From Definition of Release

Section 2(b)(16) excludes "normal field application of fertilizer" from the definition of the types of releases into the environment otherwise covered by the bill.

Certain feedstocks used to produce fertilizer (nitric acid, sulfuric acid, phosphoric acid, anhydrous ammonia) are hazardous substances as defined by the bill, and certain fertilizer products may be listed as hazardous substances as well. Because such products may be hazardous, their release into the environment would bring the owner or operator of the facility from which the release occurred under the notice and penalty provisions of section 3 and the liability provisions of section 4, and could trigger government response under section 3 and payment of claims under section 6.

Under this exclusion, however, the "normal field application" of fertilizer is not a "release" as defined in the bill. The applicator of the fertilizer is not subject to the notification and liability provisions, and the government does not have authority to respond or pay claims.

The term "fertilizer" includes those products identified in the Standard Industrial Classification Manual (OMB, 1972 edition) as SIC Code Nos.: 1474, 1475, 2873, 2873112, 2874, 2874183, 28193, 2810922, and 2819931. The term "normal field application" means the act of putting fertilizer on crops or cropland, and does not mean any dumping, spilling, or emitting, whether accidental or intentional, in any other place or of significantly greater concentrations or amounts than are beneficial to crops.

Federally Permitted Release

Adoption of an express Federal liability mechanism for releases pursuant to certain Federal permit systems seemed inappropriate at this time. Such a proposition was particularly troublesome for permits under section 402 of the Clean Water Act because the Congress had excluded them from the Act's section 311 liability provisions in 1978. The rule of common law is that compliance with a permit is not a defense to liability. Moreover, the Congress has never said or suggested that a Federal permit amounts to a license to create threats to public health or the environment with legal immunity. However, in view of the large sums of money spent to comply with specific regulatory programs, liability for federally permitted releases ought to be determined based on the facts of each individual case. Therefore, the reported bill authorizes response to federally permitted releases, but requires costs to be assessed against the permit holder under the liability provisions of other laws, not S. 1480.

Section 4(l) of the bill preserves the enforcement provisions of the regulatory laws. Permitted releases have some potential for causing harm and that in some emergency situations it will be difficult to distinguish between a permitted release and other sources. The President,

using the Fund, is expressly authorized to respond to problems caused by federally permitted releases. Further, the Fund would be available to pay response costs and damages covered by this bill. The Fund in recouping such costs, or any private damage actions, must rely on other law—common law or Federal or State Statutory law—in lieu of the liability provisions of section 4. The determination of exactly what liability standards, defenses, or other rules apply will be made on a case-by-case basis pursuant to regimes other than that of S. 1480.

The defined term "federally permitted release" (section 2(b)(18)) is a key element in the treatment of these releases under this bill. For purposes of this bill, it includes actions by the appropriate Federal agencies or under Federally approved State programs. Where the term "legally enforceable" is used in section 2(b)(18), to qualify for exemption from liability for any federally permitted release, the relevant terms of such permit must be legally enforceable.

Following is a discussion of the releases encompassed by the "federally permitted release" definition. These releases are excluded from the liability and notification provisions of this legislation.

The Committee continues to recognize the difficulty of marking clearly where the spill response programs of section 311 and of the reported legislation apply and where the general discharge regulatory/permit programs of section 402 apply. This issue was central to an amendment to Section 311 of the Clean Water Act enacted in 1978 and the federally permitted release provisions of the reported bill preserve that Amendment and the rulemaking taken by the Environmental Protection Agency to carry it into effect.

Because of the broadened scope of the reported bill, section 2(b)(18) contains other similar clarifications regarding pollution control programs under the wetlands protection program of section 404 of the Clean Water Act, the Clean Air Act, subtitle C of the Solid Waste Disposal Act, the Marine Protection Act, the Safe Drinking Water Act, and the Atomic Energy Act.

With respect to regulating the discharge of water pollutants under section 402 of the Clean Water Act and the relationship of that program to hazardous substance spill response under section 311 (on which the response provisions of this bill are based), the Congress addressed the problem in 1978 amendments to the definition of "discharge" in section 311. The first three parts of the section 2(b)(18) definition in this bill carry those amendments forward without change. Thus the explanation at that time and the implementing regulations of the Environmental Protection Agency are continued.

While the exemptions from liability for federally permitted releases are provided to give regulated parties clarity in their legal duties and responsibilities, these exemptions are not to operate to create gaps in actions necessary to protect the public or the environment. Thus the reporting requirement under section 402 should be amended by the Environmental Protection Agency to cause owners and operators who release substances designated under section 311 or this bill under circumstances which are now excluded from section 311, to report under section 402 in a manner similar to that required under section 311 so that the appropriate steps may be taken to protect, for instance, drinking water supplies or other downstream

resources. The current 28 hour notice period under the NPDES regulations should be amended to provide immediate notice in the event of a failure of a treatment or operating component which results in a release of a hazardous substance. Such a case recently occurred in Orangeburg, South Carolina. While exclusion from section 311 was claimed, the company's notice, which was filed in a manner consistent with section 402, was too late to protect downstream drinking water sources. This should be repaired by the Environmental Protection Agency in the regulations implementing the notice provisions of section 402.

Also because of its broadened scope, it should be clear that the liability provisions of S. 1480 would apply to any unauthorized discharges by any person into publicly-owned treatment works. Thus discharges of hazardous substances from mobile facilities which are unauthorized by the publicly-owned treatment system (midnight dumpers), or discharges of such substances from fixed facilities into sewer systems which are not authorized under a pretreatment program are releases for purposes of this Act, never excluded as federally permitted releases, and the full authority and responsibilities established by the bill would apply.

Accidents—whatever their cause—which result in, or can reasonably be expected to result in releases of hazardous pollutants would not be exempt from the requirements and liabilities of this bill. Thus fires, ruptures, wrecks and the like invoke the response and liability provisions of the bill.

The fourth element of the definition covers permits for dredged or fill material under section 404 of the Clean Water Act. Permits issued under this process are subjected to a hazardous substance review, as required by the Environmental Protection Agency, during the permitting process. Where hazardous substances are likely to be present in dredged or fill material, testing may be required. According to EPA regulations, section 404 permits will be granted only where evidence indicates that hazardous substances will not result in substantial harm. Permittees who comply with the requirements for permit issuance and the conditions of their permit would be covered by this portion of the definition.

Subparagraph (E) of the definition addresses permits issued under section 3005 (Permits for Treatment, Storage or Disposal of Hazardous Waste) of the Solid Waste Disposal Act. The reported bill tightly limits the types of disposal site releases that would be covered by this definition. First, only final permits are included. Sites or facilities which have interim status under section 3005 (e) do not adequately utilize acceptable levels of technology, and do not qualify for this exclusion. Second, to be covered by this portion of the definition, the permit applicant must specify the hazardous substance to be released and agree to controls on such releases. For example, this subparagraph would not cover permits where the permitee has built a disposal site to a design standard but for some reason it leaks a hazardous substance. For such a situation to utilize the exemption under this section the permittee would have had to designate these releases and made them subject to a standard of practice, control procedure or bioassay limitation or condition, or other control.

Similarly, a properly closed disposal site that subsequently leaked would not be covered by this definition (although such a site might well be covered by the post-closure liability portion of this bill).

The sixth element of the definition encompasses permits under the ocean dumping section (section 102) and the ocean dredging section (section 103) of the Marine Protection, Research, and Sanctuaries Act. These ocean dumping and ocean dredging permits are subjected to a hazardous substance review during the permitting process. Thus, compliance with requirements for permit issuance and the conditions of a permit issued under these sections of the Marine Protection, Research, and Sanctuaries Act would be covered by this portion of the definition.

The seventh portion of the definition addresses the Underground Injection Control program under Part C of the Safe Drinking Water Act. This provision exempts a release to the substrata of the Earth of a specific containment which is designated as hazardous under this bill, if such release is authorized and in compliance with the conditions of such authorization granted under the Underground Injection Control Program of the Safe Drinking Water Act.

Subparagraph (H) of the definition covers several sections of the Clean Air Act, as amended, where they result in the control of air emissions of hazardous substances. In the Clean Air Act, unlike some other Federal regulatory statutes, the control of hazardous air pollutant emissions can be achieved through a variety of means: express emissions limitations (such as control on the pounds of pollutant that may be discharged from a source during a given time); technology requirements (such as floating roof tanks on hydrocarbons in a certain vapor pressure range); operational requirements (such as start up or shut down procedures to control emissions during such operations); work practices (such as the application of water to suppress certain particulates); or other control practices. Whether control of hazardous substance emissions is achieved directly or indirectly, the means must be specifically designed to limit or eliminate emissions of a designated hazardous pollutant or a criteria pollutant. This section of the federally permitted release definition includes any permit or control regulation under one of the cited sections of the Clean Air Act which has this effect.

The ninth element of the definition addresses the Atomic Energy Act of 1954 which establishes a comprehensive Federal regulatory program for specified uses and classes of nuclear materials. Unlike the other environmental statutes referred to in this amendment, the Atomic Energy Act limits any delegated regulatory role for States and their political subdivisions. The most notable exception is section 274 (b), which authorizes the Nuclear Regulatory Commission to adopt agreements with individual States for transfer of regulatory authority over designated source, byproduct, or special nuclear materials.

Under either Federal or State regulatory regimes, releases of source, special nuclear, or byproduct materials that are within the terms of a license or permit issued by the Commission or by an agreement state are covered by this portion of the definition. The definition also applies to releases of designated nuclear materials, defined in sections

11e, 11z, and 11aa of the Atomic Energy Act of 1954, when those releases are made pursuant to Commission order.

The Committee does not intend for the notification elements of the bill to apply to the federally permitted releases defined in section 2 (b) (18). The laws authorizing the permit and regulations that control these releases provide for notification and such notification procedures should provide the same public benefits—especially regarding timely response—as would be provided in S. 1480. Notice is crucial to the removal and remedial operations which are central to the reported bill. The federally permitted release exceptions are not directed at avoiding notice, but rather to make it clear which provisions of law apply to discharging sources.

There are some activities which are subject to Federal or State regulation which do not fall neatly into one of the programs established to protect a particular media such as air or water or land. One of these is the application of pesticides—especially in agricultural practices. The bill provides that damage or removal costs resulting from field applications involving pesticides which are registered under the Federal Insecticide, Fungicide, and Rodenticide Act are not recoverable under the provisions of section 4 of S. 1480. It should also be clear that the notice and penalty provisions do not apply to such routine field applications. Accidents or international disposals which result in the release of a pesticide in other than its intended field application would, of course, be subject to the notice provision of the bill. Only in this manner could the preventive response mechanisms of the bill operate to protect public health.

With respect to spills and future releases, S. 1480 builds upon and carries forward the preventive orientation of section 311 of the Clean Water Act. Thus the spill prevention control program—which has been so successful in the case of oil releases—should be aggressively pursued by the Environmental Protection Agency and the Coast Guard. The Committee is disturbed that the authority of section 311 for the Secretary of Transportation to issue spill prevention programs for rolling stock and vessels has not been implemented. It is essential this authority be implemented immediately, especially with regard to trucks, barges, and railroads.

The Environmental Protection Agency should expedite the issuance of the spill prevention program applicable to designated hazardous substances.

Response Mechanism

Section 3(c) is the basic provision which authorizes the Federal Government to act to abate problems resulting from a release, discharge or disposal of hazardous substances into the environment.

The bill establishes two levels of government response to any release discharge or disposal of hazardous substances—"removal" and "remedial action". Subsection 2(b)(1) provides that "remove" or "removal" has the same meaning as provided in section 311(a) of the Clean Water Act. Subsection 2(b)(17)(B) clarifies that "remove" or "removal" also includes, but is not limited to, provision of security fencing or other measures to separate people from hazardous substances, provision of alternative drinking water supplies, temporary evacuation and housing of threatened individuals if not otherwise provided, and any emergency assistance under the Disaster Relief Act of 1974.

Section 2(b)(7) defines "remedial action" or "remedy" as actions to prevent or minimize any continued discharge or release of hazardous substances or significant threat of such, so that the substances will not migrate further and cause substantial danger to present or future public health, welfare or the environment. The actions taken must be consistent with eventual permanent remedial action if additional actions will be necessary at a later date to obtain a permanent remedy. Remedy is not available for hazardous substance disposal sites which are in compliance with their section 3005(a-d) permit issued under subtitle C of the Solid Waste Disposal Act since such situations are covered by existing law. However, remedy is authorized for disposal sites which are either not in compliance with section 3005 (a-d) or which have only interim status under section 3005(e). The definition of remedy lists a number of examples of the type of actions included in the term. Three of these actions—permanent relocation: offsite transport of hazardous substances or their storage, treatment, destruction or secure disposition offsite; and provision of permanent alternative drinking water supplies—are included as remedial actions only when certain criteria are met.

Subsection (3)(c)(1) allows the President either to remove or arrange for the removal of hazardous substances released, discharged or disposed of and to provide for remedial actions at any time. The President may also provide for removal and remedial actions when there is a substantial threat of a discharge or release of hazardous substances into the environment. The President may also respond to the release or substantial threat of release of any other materials to the environment which may present an imminent or substantial danger to the public health or welfare, regardless of the source of the release. The President may act if he determines that the owner or operator of a vessel, onshore facility or offshore facility at which the discharge, release or disposal occurs or any other responsible party will not properly provide removal and remedial action.

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Removal and remedial actions cannot continue in excess of $1,000,000 or longer than six months from the date of the initial response to that specific release unless either of two conditions exist. Removal may continue if immediately required to prevent, limit or mitigate an emergency; there is an immediate risk; and such assistance on a timely basis will not otherwise be provided. Remedial actions may be undertaken after removal actions have consumed 6 months or $1,000,000 if the President has determined the appropriate remedial actions in consultation with the affected State, and if the State where the release is located has complied with section 6(a)(2)(A).

The limitation on continuing removal actions and beginning remedial actions in no way constrains use of the Fund to identify the existence and extent of a known or suspected release, discharge or disposal or substantial threat of such, the materials involved and their source, or the dangers they may represent. In addition, without regard to any limitations on continuing removal or remedial actions the Fund's resources may be used to determine the appropriate Federal and/or state government response, recover costs of such response and enforce the provisions of the Act.

The President is directed to update the National Contingency Plan originally published for section 311 of the Clean Water Act so that the plan reflects the responsibilities and powers created by S. 1480. In particular the revision will add a new section to the Plan to give some consistency and cohesiveness to response planning and actions under this bill. The Plan would include among other items:

(1) appropriate roles and responsibilities for Federal, State and local authorities and non-governmental entities;

(2) methods for discovering and investigating sites of disposed hazardous substances and in-place concentrations of such substances;

(3) methods and criteria for determining the appropriate extent of response measures;

(4) methods for evaluating remedial actions; and

(5) provision for obtaining prepositioning and maintaining necessary response capabilities.

After the revised plan is published, removal and remedial actions should be in accordance with the Plan to the greatest extent possible.

Subsection 6(a)(2) defines the role and responsibilities of State and local government in all removal and remedial actions paid for by the Fund. In addition, this subsection provides for the establishment of priorities for using the Fund in government response.

Subsection 6(a)(2)(A) restricts use of the Fund for remedial actions unless the State containing the source of the release or discharge first gives adequate assurance that certain conditions, if applicable, will be met. Three of the five conditions require State (or local government) cost sharing. The State must pay at least 10 percent of the costs of remedial actions in all cases. If, however, the facility or site was used for the disposal of hazardous substances and was owned by the State or a local government at that time, then at least 50 percent of the costs of removal must be recovered by the Fund from the State and/or the local government. If these removal or remedial actions will require continuing maintenance, then the State must assume responsi-

bility for performing these maintenance activities. However, the State may obtain compensation from the Fund for 90 percent of these costs during the authorized life of the Fund. The State may also be required to first agree to two other conditions. If offsite storage, destruction, treatment or secure disposition is required as part of the remedial actions, then the State is responsible for assuring the availability of any necessary offsite disposal facilities and for assuring that these facilities comply with the requirements of subtitle C of the Solid Waste Disposal Act. Finally, if State employees or State contractors or subcontractors are to be utilized in government response, then the State is required to assure that the program for health and safety protection of response personnel required under subsection 6(a)(1)(P) will be complied with. Nothing in this section is intended to reduce or apportion the liability of an owner or operator of a site under section 4 of the bill. The State share of costs for any one discharge or release incident is to be reduced by the President for any costs of removal or claims for damages payable under section 4(a)(2)(C), (E), and (F) paid by the State or its political subdivisions for that incident between January 1, 1978 and enactment of this bill.

Subsection 6(a)(2)(B)(i) requires the President to identify and publish criteria for determining priorities among releases, discharges, or disposal incidents, or the threat of such, for the purpose of taking remedial actions and, to the extent practicable, for the purpose of taking removal actions. In addition, the President is required to publish, within 90 days, a priority list of releases, threatened releases, or problem disposal facilities or sites, and thereafter to at least annually update the list of priorities. The criteria and the priorities list are to be based on the President's judgment of the relative risk or danger to public health or welfare or the environment.

In updating the initial priority list, the President is to give consideration to any priorities established by the States under subsection 6(a)(2)(C). State priorities for remedial actions are to be established within one year and revised annually thereafter. These State priorities are to be established in accordance with the criteria published by the President and they are to be consistent with the revised National Contingency Plan.

Clause (ii) of subsection 6(a)(2)(B) requires the President to identify and publish a system describing State response actions in accordance with the national priorities list and authorizes the President to contract with the States to perform these response actions and to pay the reasonable costs of such actions. The terms of such contracts will be delineated in the revised National Contingency Plan.

As used in S. 1480, "remove" or "removal action" is that initial response to any release, discharge or disposal (or threat thereof) of hazardous substances which after discovery must be undertaken quickly to protect or prevent actual or potential injury to public health, welfare or the environment. Thus "remove" or "removal" may refer to actual removal by any means including physical, chemical, biological or any other appropriate method, or such other actions as may be necessary to minimize or mitigate damage to the public health, welfare or the environment. Mitigation efforts include, but are not limited to, activities such as spill containment measures; measures re-

quired to warn the public of, and protect it from acute danger; temporary evacuation and housing; activities necessary to close an existing public water supply system and provide and monitor the quality of temporary water supplies for humans, livestock, and crops forming part of the human food chain; monitoring for spread of the hazardous substances; biological and other monitoring to determine the extent of contamination; physical measures to identify and contain substances contaminated by a release, discharge or disposal; providing security fencing, navigational cautions or other means of separation; providing efforts to raise sunken vessels or to right or seal transport vehicles which contain the hazardous substance; implementation of emergency treatment facilities; and emergency assistance under the Disaster Relief Act of 1974. In addition, if a transport vehicle has created a substantial threat to the public health or welfare or to the environment as the result of a release or discharge, or such a release or discharge is imminent, of large quantities or extremely hazardous quantities of a hazardous substance, the President may, under the definition of "removal," coordinate and direct all public and private efforts toward removal or elimination of the hazard or threat and summarily remove and, if necessary, destroy, such vehicle by whatever means are available without regard to any provision of law governing the employment of personnel. Mitigation may also include efforts necessary to locate the source of the release, discharge or disposal and identify properties of the substances released. The costs of such measures, efforts and activities are recoverable.

"Remove" or "removal" is distinguished from "remedy" or "remedial action." "Removal" refers to actions which must proceed without delay upon discovery of a release, discharge or disposal or threat thereof. In contrast, remedy or remedial action refers to potentially more costly, long-lasting response which may include the construction of major facilities and which must often be preceded by considerable study, investigation, planning and engineering before the appropriate actions can be determined. Such major construction may well mitigate the danger to public health, welfare or the environment. But they are not the type of action which is intended to be performed as removal, which refers to immediate responses and whose application can be decided upon without significant delay.

"Remedy" involves the more permanent, costly measures which may be necessary after the need for emergency action has terminated. In addition, under section 6(a)(2) of S. 1480 certain responsibilities must first be assumed by a State or other non-Federal entity before the fund may be used for remedial actions; removal may be undertaken without any prior State assurances. While removal is limited in time and money by section 3(e)(2) except where the emergency continues, no dollar or time limit is imposed by statute on remedial actions.

Remedial action may be taken in response to a discharge, release, or a significant threat of discharge release, or disposal of a hazardous substance. Expenditures to prevent a threatened release, discharge, or disposal may be necessary if damages are to be avoided while also providing considerable savings when compared to the costs of removal after a release, discharge or disposal has occurred. In some cases, the President may choose to address a threatened re-

lease which does not pose as immediate a threat of exposure to public health, welfare, or the environment as smaller less serious ongoing releases if in his judgment the consequences of the potential exposure may cause a larger expenditure of monies to achieve cleanup or where the threatened consequences of such exposure may have a severe impact on public health or the environment.

Remedial action means stopping or containing the migration of hazardous substances into the environment in such a manner as to assure that the hazardous substances will not cause danger to present or future public health, welfare of the environment. In some circumstances the continued migration of hazardous substances cannot technically be totally stopped and that such an absolute requirement may not be necessary to avoid danger. In some circumstances, such as in kepone in the James River and Chesapeake Bay, efforts to totally stop the spread or migration of hazardous substances may actually increase the risk of damages rather than prevent them. In such circumsances, the President, in his discretion, may take remedial action to minimize, but not stop, the continued migration of hazardous substances.

In order to ensure that the limited moneys made available under this legislation provide protection from the greatest number of the most serious threats to public health, welfare and the environment, the President must carefully fashion the appropriate remedial action in each instance. This may necessitate the selection of remedial actions that do not provide a permanent remedy. To assist the President in determining the appropriate remedial action, specific criteria are included in the definition of remedy for three of the most costly possible actions—permanent relocation; provision of permanent drinking water supplies; and transport, storage, treatment, destruction or secure disposition of hazardous substances offsite.

The term "remedy" includes the cost of permanently relocating residences, businesses, or community facilities when relocation would be more cost-effective than, an environmentally preferable to, other offsite remedial actions. In addition to these considerations, a decision to provide permanent relocation may be based, at least in part, on findings from epidemiological or other health effects studies which, in the opinion of the President, demonstrate that a) there is a substantial probability that exposure to hazardous substances from the site has caused or contributed or is likely to cause or contribute to adverse health effect; b) even after remedial actions are taken, persons remaining in the vicinity of the site would continue to be exposed to hazardous substances; and c) such exposure has a significant likelihood of causing or contributing to adverse health effects or exacerbating existing conditions.

Provision of permanent alternative drinking water supplies for humans may be provided as remedial action only if the President determines that, as compared with other remedial actions, such provision is more cost effective, considering capital, operating, maintenance and replacement costs.

Typically, it is anticipated that remedial actions will be taken onsite. Evidence presented to the Committee on the costs of onsite versus offsite remedies suggests that offsite measures may be as much

as seven times more expensive and that the somewhat greater protection which may be provided by these more expensive measures does not necessarily justify the huge cost differential or the greatly decreased number of incidents to which the Fund could respond. For these reasons, offsite remedial actions are only authorized if the President determines they cause less environmental impact than onsite actions and they are: (a) more cost-effective, (b) are necessary to protect public health, safety or the environment from the otherwise continued onsite presence of hazardous substances, or (c) they will result in a net increase in the capacity (beyond that necessary to handle the hazardous substances in question) to manage hazardous substances in compliance with permits issued under Subtitle C of the Solid Waste Disposal Act.

Remedial actions include those operation and maintenance costs which the President determines necessary with the passage of time to continue stopping migration or releases of hazardous substances into the environment. Examples of such operation and maintenance costs include repair of clay caps and eroded dikes, operation and maintenance of a treatment system, and maintenance of a reverse hydraulic head in contaminated groundwater. Operation and maintenance costs do not include costs which are unnecessary to the continued effectiveness of measures taken to stop migration of releases of hazardous substances into the environment. Operation and maintenance costs are not to continue to be considered a part of remedial actions paid from the Fund where an owner or operator or other person held liable under section 4 of this Act or ordered by a court or by the Administrator of Environmental Protection Agency under subsection 3(b) or under any other State or Federal law is found responsible for such costs.

Section 3(c)(1) encourages persons responsible under section 4 to respond to releases, discharges and disposal of hazardous substances and authorizes government response unless the President determines that the response of such persons will be done properly. The paramount purpose of this section is the protection of the public health, welfare and the environment. It is recognized that government response will often be necessary prior to receipt of evidence which conclusively establishes the substances or materials released or the origin of their release, discharge or disposal. Because delay will often exacerbate an already serious situation, the bill authorizes the President to respond when a substantial threat of release may exist. This standard is intended to be a flexible one and holds that it is preferable to err on the side of protecting public health, welfare and the environment in administering the response authority of the Fund.

The authority under section 3(c)(1) for government response permits removal, remedy and restoration of natural resources to be paid from the Fund in a number of situations where section 4 is in applicable. In these instances, recovery of costs should be sought under any other State or Federal law including common law. Examples of such releases or discharges include field application of a pesticide product registered under the Federal Insecticide, Fungicide, and Rodenticide Act and "federally permitted releases" as defined in section 2(b)(18).

Remedial actions for any release, discharge or disposal of hazardous substances for which a department, agency, or instrumentality of the Federal Government has responsibility should be financed through the responsible institution's budget, rather than through the Fund. Government response to releases, discharges or disposal into the environment would be the same as for any other similar non-Federal vessel or onshore or offshore facility.

Existing law is deficient in many areas in providing appropriate response resources and a means of recovery costs. For instance, contamination of harbors and waterways by releases or discharges of in-place hazardous substances is a serious national problem. Although existing law partially addresses this problem, the funds authorized are clearly inadequate to deal with this problem. Moreover, existing law provides no explicit mechanism for recovering expenditures from responsibile parties. This bill allows the President to consider such releases and discharges of hazardous substances from vessels and onshore and offshore facilities when determining priorities under section 6(a)(2)(B).

A special note should be made about the clean-up of PCBs in New York State's Hudson River. During the full Environment and Public Works Committee mark-up of S. 2725, the Clean Water Act Reauthorization, was adopted an amendment which authorized the use of Clean Water Act Section 201 sewage construction grant funds for the clean-up of PCBs in the Hudson. At that time the Committee agreed that funding from S. 1480 would be a more appropriate source of funding for this cleanup effort. The language of the amendment was therefore altered to indicate that the 201 funding was intended to be applicable only until funding was available from S. 1480 or from an appropriation of section 115 of the Clean Water Act. In short, when funds become available under the provisions of this bill for the PCB clean-up, section 201 funding should not be used.

Section 3(c)(2) establishes a clear, unambiguous point beyond which the State must assume its responsibilities as provided in section 6(a)(2)(A) while enabling the Fund to provide removal actions without delay. Under section 3(c)(2), removal actions may continue after obligation of $1,000,000 or 6 months from the initial obligation of Fund monies for removal actions where an emergency continues and assistance would not otherwise be provided on a timely basis.

The requirement that the State first agree to assume its responsibilities as provided in section 6(a)(2)(A) before remedial actions begin serves two purposes. The States are provided the ability to halt further Federal response actions until disagreements over priority and the extent of remedy are agreed upon. In addition, the public is better assured that adequate arrangements have been made to accomplish the remedy and maintain its effectiveness over time.

Remedial actions must be as nearly in accordance with the revised National Contingency Plan as possible. In order to achieve the maximum protection of public health, welfare and the environment with the limited resources of the Fund, the President may have to balance the need for a capital-intensive remedy at one site or facility against the need to respond to other releases, discharges or disposal. These fiscal considerations may necessitate the selection of remedial actions

that do not achieve permanent remedy. Guidelines (such as, for example, cost-effectiveness and phasing of remedial actions) for such decisions may be set forth in the revised National Contingency Plan and may, in addition, be established by rule.

The State or local government commitments required by subsection 6(a)(2)(A) must be adequate for the President to find that they will be fulfilled; however, it is not necessary that all such commitments be fulfilled before remedial actions are begun. If the remedial actions require off-site transportation, storage, destruction, treatment or secure disposition of hazardous substances, the responsibility of the State to assure the availability of a hazardous waste disposal facility need not be met by such a facility within the borders of the State.

Clause (i) of subsection 6(a)(2)(A) requires the State to assume all responsibility for maintenance (including operation) of any removal or remedial actions which continue to require maintenance, using money from the Fund, and pay 10 percent of the costs of such operation and maintenance (or 50 per cent if the site were publicly-owned at time of disposal). The State may comply with this requirement in any of several ways. It may perform the maintenance itself or contract with others to perform the maintenance (using monies from the Fund to pay the appropriate portion of such costs), establish enforceable means for requiring persons liable under section 4 to perform the maintenance, or develop other means acceptable to the President for performing maintenance. It is not intended that the Fund be available to relieve persons liable under section 4 of their responsibilities to provide for such maintenance. The President may suspend and later resume use of the Fund for other than operation and maintenance of remedial actions if he later determines pursuant to section 3(c) that further removal or remedial actions are warranted.

Clauses (iii) and (iv) of subsection 6(a)(2)(A) provide for non-Federal sources to share in the costs of government response. It is not intended that in-kind contributions be used to fulfill these cost-sharing requirements. However, the President is required to reduce the amount to be cost-shared under clause (iii) to the extent that State or local governments can document that they paid direct out-of-pocket costs for removal and claims for damages under subsections 4(a)(2)(C), (E) and (F) for that facility or site between January 1, 1978 and enactment of this bill. Monies obligated or expended which may be eligible for this credit must be amendable to verification by the Administrator before the credit is granted. Such reductions in the cost-sharing requirement are intended to avoid penalizing those States that already have taken action in response to the problems this bill seeks to address. These provisions are also intended to provide an incentive to other States to begin taking necessary remedial actions even before legislation is finally enacted.

Clause (iv) allows the President to recover more than 50 percent of the costs of removal at a facility or site which was owned by a State or local government at the time of any disposal of hazardous substances. Such recovery is to be from the State or from the local government which owned the facility or site. It is not intended that more than 50 percent of the costs of removal be recovered in those instances in which the State or local government ownership results from a non-

discretionary transfer to title such as a lien for unpaid taxes, a required dedication, or a transfer of title as a result of abandonment.

The provisions of section 6(a)(2)(A) are not intended to apply to federally-owned or operated facilities or sites.

Sections 6(a)(2)(B) and (C) establish the State and Federal roles in government response. Beginning twelve months after enactment of the bill, States would have the primary role in determining priorities for remedial action within their boundaries. The President would have the responsibility of setting priorities nationwide. In exercising his responsibility, the President is to consider any priorities established by the States. Since the Fund cannot pay for remedial actions until the State agrees to assume the responsibilities and costs of section 6(a)(2)(A), the national priority system provides the States with reasonable assurance that their priorities will be considered. At the same time, the national priority system assures that the worst national incidents and threats will receive priority for the limited available monies, expertise, and technical capacities of government response.

Section 6(a)(2)(B)(i) requires the President to publish criteria for determining priorities among releases for the purpose of taking remedial action and, to the extent practicable, for the purpose of taking removal action. It is recognized that removal actions must often be taken under emergency conditions, in which time is of the essence. Thus, the President is not expected to delay removal action to consider such criteria unless he determines that such delay will pose no threat to the public health or welfare or the environment.

These criteria serve only an administrative guidance and priority-setting purpose. Notice and comment procedures are therefore inappropriate. Criteria are to be published following consultation with State and local governments and affected private interests. Such consultation is intended to be informal and conducted in a manner which, in the judgment of the President, will not delay compliance with the schedules required by the bill. Affected private interests should be aware of such criteria and provide any information they deem relevant as expeditiously as possible.

Section 6(a)(2)(B)(i) also requires publication within 90 days of a list of priority remedial actions at known disposal facilities or sites or other releases or discharges, or threats thereof.

The priority list is intended to identify disposal sites and releases which, based on information immediately available, may require remedial action. Because of the need to begin remedial actions at some facilities or sites as quickly as possible after enactment, this initial priority list is not subject to the consultation required before identification and publication of criteria for determining priorities among releases or threatened releases.

The President is required to update the national list of priorities for remedial action at least annually. Subsequent revisions of the Presidents' initial priority list, of course, must consider the States' priorities pursuant to section 6(a)(2)(C).

In compiling and revising their list of priorities, it is expected that the States will consider hazardous substances released, discharged or disposed which are reported pursuant to section 3(a)(3) and those

facilities or sites at which hazardous substances are stored or disposed which are reported pursuant to section 3(a)(4). Since the Administrator and the States will also have access to information on active disposal sites under the notification provisions of section 3010 of the Solid Waste Disposal Act, it is expected that in evaluating priorities the States and the Federal government will consider these reports to the extent practical. Thus the reporting provisions of this Act and existing law will serve as a baseline of information for compilation of priority lists. Any gaps in compiling a more complete inventory may be filled by the results of information collection efforts during removal actions and as provided in section 3(c)(3), as well as by any additional information collected by the States. Use of these information sources will provide a sufficient inventory for establishing priorities. Any collection of additional information should not delay compliance with the schedules in section 6(a)(2)(B) or (C), but should be considered in annual revisions of priority lists.

The criteria for determining priorities, and the State and Federal lists of priorities for remedial actions as well, are to be based upon the relative risk or danger to public health, welfare or the environment. Section 6(a)(2)(B)(i) lists factors to be considered to the extent possible.

The priority lists serve primarily informational purposes, identifying for the States and the public those facilities and sites or other releases which appear to warrant remedial actions. Inclusion of a facility or site on the list does not in itself reflect a judgment of the activities of its owner or operator, it does not require those persons to undertake any action, nor does it assign liability to any person. Subsequent government action in the form of remedial actions or enforcement action will be necessary in order to do so, and these actions will be attended by all appropriate procedural safeguards.

Section 6(a)(2)(B)(ii) requires the President to establish a system which enables States affected by a release or discharge of hazardous substances to provide removal and remedial action and be reimbursed for the reasonable costs of these actions from the Fund. To receive reimbursement from the Fund, such State response actions may be undertaken only at facilities or sites which are in accordance with the national priority list established in clause (i). It is intended that where States have the capability to carry out the response actions authorized by this subsection as determined by the President, and where such States agree to carry out these actions consistent with this Act and the revised National Contingency Plan, the President may contract with the States to take the actions. Under clause (ii) the state may assume by contract as much or as little of the responsibility for response as their willingness dictates and, as in the judgment of the President, their capabilities and the circumstances of the facility or site warrant. Any contract between a State and the President shall specify those actions for which the State may be reimbursed from the Fund, require compliance with the National Contingency Plan and this Act in any such State actions, and any other provisions which the President determines are necessary to accomplish the purposes of this Act.

The intent of section 3(c)(1) is to authorize removal with a minimum of delay in order to assure that injury to the public health, welfare and the environment are prevented or minimized and mitigated. This provision is similar to section 311 of the Clean Water Act. Section 511(c) of the Clean Water Act defines section 311 actions of the Administrator as not constituting a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969. Removal actions may be emergency actions within the meaning of the National Environmental Policy Act of 1969.

In some instances, remedial actions are but a continuation of actions necessary to resolve the emergency and such actions can only prevent injury only if they proceed without delay. For example, the construction of dikes around a hazardous waste disposal facility in anticipation of rising waters from melting spring snows, the provision of permanent alternative drinking water supplies to replace water supplies contaminated by released hazardous substances, and the transport, storage, treatment, destruction, or secure disposition offsite of hazardous substances which are explosive, radioactive, or otherwise dangerous if left on-site, are remedial actions which can only prevent harm only if executed without delay. In developing this bill, a number of similar such situations have been reviewed by the Committee. In such circumstances, remedial actions should not be delayed by the imposition of formal EIS requirements.

In other circumstances, removal actions can effectively postpone any emergency and provide for a longer lead time and a planning process before remedial actions must be undertaken. In such circumstances, it is anticipated that a written assessment of proposed alternatives would be prepared along with measures for mitigating adverse environmental effects of the proposed remedial actions and opportunity for public comment and consultation in the decision-making process would be provided. This requirement is not intended to unduly delay action necessary to protect public health, welfare or the environment, nor are formal hearings necessarily required. In some such circumstances, formal Environmental Impact Statement requirements may be determined to be applicable.

In addition to authorizing such studies and investigations as are necessary to determine and direct removal and remedial actions, cost recovery and enforcement of the provisions of the bill, section 3(c)(3) serves several other information gathering functions which are necessary to accomplish the purposes of the bill. The government response, and in most instances, the liability and victim compensation provisions of the bill results from:

(a) release, discharge or disposal or the threat thereof,

(b) of a hazardous substance as defined in section 2(13), or of substances creating an imminent or substantial threat as provided in section 3(c)(1)(B),

(c) from a vessel or an onshore or offshore facility, and

(d) which is or may result in a danger to public health, welfare or the environment.

Section 3(c)(3) is intended to authorize the President to utilize the Fund to identify the existence and extent of these four factors in

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order to determine the need for government response, whether provisions of the Act are applicable, and to alert the public and the government to a potential threat to public health, welfare or the environment so that persons unknowingly exposed may seek appropriate relief. In addition, under section 3(d) the Administrator of EPA or a State acting on behalf of the Administrator, may require any person contributing to activities which may present a danger to public health, welfare or the environment to ascertain the nature and extent of such danger through administrative order or suit in the appropriate U.S. district court.

To implement the site and facility investigation and response authorities contemplated by this bill, the Administrator will frequently utilize contractors as his authorized representatives. The access, entry, and other information-gathering powers granted to the Administrator and his representatives under section 3007(a)(4) of the Solid Waste Disposal Act, section 114 of the Clean Air Act, section 308 of the Clean Water Act, and section 11 of the Toxic Substances Control Act apply to authorized Federal contractors as the Administrator's representatives.

Removal and remedial actions to protect public health, welfare and the environment should begin without delay and prior to full implementation of the programs, regulations, plans and procedures required by this Act. The many pressing problems which have led to enactment of legislation should not continue unabated pending such administrative actions. Therefore, actions necessary to protect public health, welfare or the environment should begin as soon as feasible. The non-regulatory authorities for response provided in this Act and other laws should be exercised prior to completion of any necessary planning, administrative and rulemaking responsibilities. However, once completed, such statutorily required planning, administration and final rulemaking shall govern subsequent government response actions.

Section 3(e) provides broad authority to assure that government response is not delayed due to existing contracting methods. This section allows the use of alternative contracting procedures in those circumstances in which the existing Federal procurement procedures may cause delay in government response to an environmental emergency.

Existing Federal procurement procedures should be utilized to the greatest extent practicable in order to preserve the competitive bidding process. Unacceptable delays in this process, however, should not be allowed to postpone or in any way hamper response action to emergencies. To avoid such problems, this section is intended to allow the President to establish procedures that will assure rapid response to effect cies. To avoid such problems, this section is intended to allow procedures that will assure rapid response to effect the purposes of this Act.

Section 3(b) authorizes the Administrator to establish and enforce requirements for particular facilities or sites for removal, remedy and other control measures which the Administrator deems appropriate to protect the public health and welfare or the environment. Such requirements are to be enforced under existing provisions of the Solid Waste Disposal Act or the Clean Water Act, and may be issued in the

form of regulations or as an administrative order directed to the owner or operator of any site or facility or to any other person held liable under this bill with respect to such site or facility. Such requirements may apply to any site and facility at which hazardous substances have been stored, treated or disposed of, except a facility in compliance with a permit or accorded interim status under subtitle C of the Solid Waste Disposal Act.

This provision is intended to decrease reliance on the Fund and on Federal response where responsible parties can take necessary control, removal, or remedial actions. This will permit expanded and more efficient use of money in the Fund. For instance, situations will arise where the President has responded to a release, discharge or disposal, and conducted certain removal or remedial activities. The incident or contamination may have been mitigated considerably but may still require additional work to adequately protect public health or the environment. This provision permits the President to require private parties to assume the necessary removal or remedial action. Similarly, the President may learn of the disposal, discharge, or release of hazardous substances or the threat thereof, which require removal or remedial actions, but for which, due to the higher national priority accorded other incidents or other factors, the President determines the Fund should not be utilized for government response. In such circumstances the President may require responsible parties to take any action which, in the judgment of the President, is necessary to protect public health, welfare, or the environment.

Judicial review of any regulation pursuant to section 3(b) would be as provided in section 9(a). An Administrative order pursuant to section 3(b) may be enforced by commencing an action in the appropriate Federal district or State court.

It is important to have those present on the scene or nearby a release, discharge or disposal, who often have the greatest technical capacity to deal with the problems caused by hazardous substances, participate in cleanup efforts. Subsection 4(h) provides that where qualified individuals or organizations are participating in cleaning up hazardous substances in a manner recognized by the National Contingency Plan as appropriate, or taking action at the direction of the on-scene coordinator, such individuals or organizations will not be liable for damages as a result of such actions, except for gross negligence or intentional misconduct. The Chemical Manufacturers Association has organized CHEMTREC, a system for providing clean up advice to transporters of hazardous substances and others who may be on the scene of a release, discharge or disposal incident and in a position to respond. In addition, many chemical companies and other industries have teams of trained and equipped personnel that could respond to nearby releases by other parties. The President is expected to make suitable arrangements with the operators of CHEMTREC and other private emergency response systems for their inclusion in the revision of the National Contingency plan contemplated by subsection 3(c)(5), but only to the extent that such inclusion furthers the objectives of that plan and this Act. This should also apply to qualified response teams of individual companies.

Use of Fund

Section 6(a)(1) describes those purposes for which the Hazardous Substances Response Fund may be used. Monies from the Fund may be used to pay (i) claimants for third party damages and costs of removal due to the discharge or release of hazardous substances from a vessel or a facility; (ii) for actions taken by the President under the authority of section 3(c); and (iii) the President or his designees for other costs of implementing this Act as provided for in section 6. Of course, use of the Fund for government costs in items (ii) and (iii) are subject to appropriation Acts and are not subject to the procedures for claimants seeking third party damages and costs of removal, since this would preclude the government from providing timely response as intended by this Act. These government costs are identified in section 5(h)(1).

The third party damages which may be compensated from the Fund are fewer and of narrower scope than the damages for which a person may be liable under section 4. Section (6)(a)(1) makes the Fund available to victims for rapid relief for acute personal damages to health and income and capital losses to food producers and processors. In addition, this subsection makes the Fund available to assist victims in bearing certain burdens of proof in tort actions to recover the more extensive and long term damages for which a cause of action in Federal courts is established under strict, joint and several liability in section 4. Thus the Fund assists in relieving the acute suffering of victims, but it would not make them economically whole. Recovery by victims of the more extensive, long-term damages is intended to be made possible under section 4 through the courts.

Any person may present a claim to the Fund under this Act for compensation for damages or removal costs resulting from a discharge, release or disposal of a hazardous substance where the source of the discharge or release, or a person liable for such costs of removal or damages is not known, cannot be identified, or where the claim has been submitted to the source or any other person liable under section 4 and has not been satisfied.

Section 6(b)(3)(I) requires claims for damages to be presented to the Fund within three years from the date of the discovery of the loss or the date of enactment of the Act, whichever is later. Further limitations on claims which may be presented to the Fund and receive compensation for releases or discharges prior to enactment of the Act are set forth in section 4(n) and are described in this report in the section entitled "Liability". In addition, payment of some third party damages from the Fund are limited by the period of time for which damages may be computed and the earliest date from which such damages may be computed; these provisions, which are specific to certain third party damages, are described in this section of the report.

Claimants are eligible to seek compensation from the Fund for damages or for the costs of removal due to a "release," "discharge" or "disposal" of a "hazardous substance" from a "vessel" or "facility" as defined in section 2. Section 6 restricts such compensation in two instances. Section 6(d) prohibits use of the Fund to pay for any claim to the extent that the discharge or release involved, or the dam-

ages incurred as a result thereof, was caused by the gross negligence or willfull misconduct of the claimant. Section 6(a)(4) prohibits payment of claims for damages, but not for removal costs or injury, destruction or loss of natural resources, resulting from the normal field application of a pesticide product registered under the Federal Insecticide, Fungicide, and Rodenticide Act. The only exception to the prohibition of section 6(a)(4) is for loss of income or capital sustained by food producers or processors under section 6(a)(1)(N) and (O). In addition, section 8(b) precludes payments to claimants for removal costs or damages if they have received compensation for the same removal costs or damages under any other Federal or State law.

Section 6(a)(1) authorizes use of the fund for the following purposes:

(1) The costs of removal as well as damages resulting from (i) any injury, destruction or loss of natural resources, including reasonable damage assessment costs; (ii) loss of income or profits or impairment of earning capacity due to personal injury or injury or destruction of real or personal property or natural resources; and (iii) all out-of-pocket medical expenses, including rehabilitation costs or burial expenses due to personal injury, where a person liable is not known, cannot be identified, or where a person liable has been presented a claim and has not satisfied it.

(2) All costs of removal and other costs of carrying out the National Contingency Plan, as amended, including removal costs incurred and approved under the plan.

(3) The costs of establishing and maintaining Federal strike forces, emergency task forces or other response teams under the National Contingency Plan, including the costs of equipment, similar overhead, and damage assessment capabilities.

(4) The costs of assessing injury, destruction or loss of natural resources.

(5) The costs of Federal or State restoration, rehabilitation or replacement of injured, destroyed or lost natural resources.

(6) Reimbursement of States who use monies they collected or appropriated to pay claims for costs of removal or damages under section 4(a)(2)(C), (E) and (F), providing such payments are pursuant to the National Contingency Plan and a contract under section 6(b).

(7) The costs of a program to identify, investigate and take abatement action under this Act.

(8) The costs of research related to the natural resource protection purposes of this Act and section 311 of the Clean Water Act, up to a maximum of $10,000,000 per fiscal year.

(9) The costs of research to develop methods and technology for removal and remedial actions, including portable onsite technology.

(10) The administrative and personnel costs of administering the fund and this Act.

(11) The costs of epidemiologic studies, a victim registry for long term health effect studies, and diagnostic services not otherwise available to determine the presence of long-latent diseases in exposed populations.

(12) The reasonable costs of expert witnesses to assist victims and the fund in recovering damages.

(13) Payment for loss of income or capital loss due to destruction, loss, condemnation, or restriction on use of fish, seafood or agricultural products and resources when sustained by agricultural producers or processors or commercial fishermen or fish or seafood processors.

(14) The costs of a program to protect the health and safety of response personnel.

Paragraphs (A) and (B) of section 6(a)(1) provide for the costs of removal and for damages resulting from (i) any injury, destruction or loss of natural resources, including reasonable damage assessment costs; (ii) loss of income or profits or impairment of earning capacity due to personal injury or injury or destruction of real or personal property or natural resources, regardless of ownership of the property or resources; and (iii) all out-of-pocket medical expenses, including rehabilitation costs or burial expenses due to personal injury, where a person liable is not known, cannot be identified, or where a person liable has been presented a claim and has not satisfied it.

Loss of income or profits or impairment of earning capacity refers to direct, calcuable losses. Personal income derived from business in lieu of wages for a claimant who is an owner (as sole proprietor, partner or otherwise) of a firm refers to the amount of average wages regularly received during the twelve months preceding the loss: If the claimant does not regularly receive wages for his or her services, then the claimant's average share of the net profits (after all income taxes and business expenses exclusive of dividends) for the twelve month period provides the basis for determining the loss.

Section 6(a)(3)(B) limits payment of claims for lost wages or other personal income to 100 percent of the actual net amount lost in the first year after commencement of the loss and 80 percent of the actual amount lost in the second year. These limits do not apply to losses provided in section 6(a)(1)(N) or (O). Where the claim is filed after commencement of the loss but before the full first 2 years of the loss and the President determines that the loss will continue for all or a portion of the two years, payment shall be based on the wages or other personal income received in the 12 month period prior to commencement of the loss.

With respect to claims for out-of-pocket medical costs, except for diagnostic services, section 6(b)(3)(G) requires that the claimant incurred or will incur medical expenses of at least $300 before payment may be made. However, if this threshold is met, the claimant is entitled to reimbursement for the total amount certified, including the first $300. The term "out-of-pocket medical expenses" includes the direct costs of diagnostic, medical, surgical, hospital nursing care, ambulance, and other related services, and drugs, medicines, necessary restorative and rehabilitative programs, and burial expenses.

Section 6(a)(3)(A) provides that the Fund can compensate victims for out-of-pocket medical expenses incurred during the period from initial exposure to a hazardous substance through the sixth year following discovery of such exposure. For the purposes of paragraph (A), and with respect to the statute of limitations under section 6(b)(3)(I), a claimant shall be deemed to have discovered or have knowl-

edge of his injury or disease when (i) through medical diagnosis or a comparable statement of a public health official, such claimant is informed of the nature and seriousness of such injury or disease, and (ii) through community recognition, statement of a public health or environmental protection official or similar means, such claimant becomes aware of a likely or alleged relationship between such injury or disease and the release of a hazardous substance.

Section 6(a)(3)(A) should be read in conjunction with section 4(n) for out-of-pocket medical expenses occurring before the date of enactment of the bill. It should be noted that section 6(b)(3)(I) deals with how long after discovery or after enactment a claim can be presented to the Fund while section 4(n) deals with which claimant's medical expenses may be compensable if they occurred before enactment and section 6(a)(3)(A) concerns the time period to be used in computing payment of any medical expenses.

The Committee rejected a time period of six years from initial exposure in section 6(a)(3)(A) because a victim's initial exposure may well have occurred years or even decades before the exposure grew serious enough to be dangerous. Thus, starting the compensation period at the time of initial exposure could exclude many victims from any coverage at all. This should be distinguished from the problem posed by diseases with long term latencies that take many years to manifest themselves. Rather, the Committee was concerned in this section with exposure that is minor at first, but gradually builds to a level at which it inflicts direct harm to health. An example would be a site that develops a small leak that worsens over a period of years to the point where its releases threaten local residents. Instead, section 6(a)(3)(A) uses date of discovery of initial exposure to start the six year compensation period because it is presumably closer to the time when exposure reaches a serious level. Because the occurrence of serious health problems will tend to lead rapidly to discovery of exposure, it is less likely that heavy medical expenses will be incurred during the period between initial exposure and discovery of exposure. Any such expenses should be covered by the Fund, but it is equally if not more important to cover the expenses that occur after exposure is discovered. However, it was also decided that payment from the Fund should not be available for lifetime treatment, rather the Fund covers only the first six years' medical expenses after discovery of exposure. This coverage of medical expenses provides relief during the period when litigation for damages for longer time periods may be underway.

Subparagraph C of section 6(a)(1) makes the Fund available for costs of removal and other costs of implementing the National Contingency Plan as developed under this Act and section 311(c) of the Clean Water Act. Under this section, United States government agencies and States may use the Fund for costs of removal if such costs have been incurred as a result of and approved under the National Contingency Plan. States may be reimbursed for the reasonable costs incurred for removal and remedial actions at facilities or sites accorded national priority when such actions are pursuant to a contract as provided in clause (ii) of section 6(a)(2)(B). Provision for such reimbursement of States is discussed in the "Government Response" sec-

tion of this report. Payments from the Fund under section 6(a)(1)(C) are to be made pursuant to section 3(c), in the same manner as has been used in implementing section 311 of the Clean Water Act.

Subparagraph (G) of subsection 6(a)(1) authorizes reimbursement of a State for payment of claims for costs of removal or damages under section 4(a)(2)(C), (E) or (F) which the State has paid from monies under its control and which it collected or appropriated. Such reimbursement is limited to paid claims if such claims are provided for in the National Contingency Plan and in a contract under subsection 6(b)(1) between the President and the State. Any such contract shall as a condition of reimbursement require State compliance with the National Contingency Plan and any claims procedures established pursuant to section 6(b)(3), at a minimum. Any such contract shall include a provision precluding the State from realizing a double recovery of any amount paid in a claim.

Subparagraph J of section 6(a)(1) provides for research to develop, and integrate as part of government response, mobile or portable onsite technology capable of treating, neutralizing, destroying or otherwise rendering hazardous substances harmless. Other research objectives are to develop methods and technology capable of stopping the spread of hazardous substances into and through groundwater, the air or onto the land and through the food chain. The development and demonstration of such new technologies and methods are essential to reduce the unit costs of and improve the effectiveness of government response actions and thereby make it possible to use the limited monies in the fund to remedy more incidents. Without such an effort, the need for even larger sums of money can be anticipated. The results of these research efforts should be considered in preparing the report to Congress required by section 5(j).

Subparagraph (L) of section 6(a)(1) authorizes the President to use the monies in the fund for epidemiological studies, and development and maintenance of a registry of persons exposed to hazardous substances when the President determines such a registry is necessary to determination of probable long-term health effects in a population which may be at high-risk. In addition, this subparagraph enables the President to use the Fund to provide diagnostic services to special populations who have been exposed to hazardous substances and may be suffering from long-latent illness or disease as a result of such exposure, but are unable to make such a determination because of the costs or limited availability of such diagnostic services.

The personnel, contractor support, laboratory capacity, and the expertise necessary for many of the services authorized by this paragraph are in limited supply. The pressures for such services will exceed the supply for some time to come. Therefore, the President is to be accorded broad discretion in allocating these limited resources so that the greatest protection of public health and welfare can be realized. However, it was also recognized that the ability of this Act to deter risk is substantially assisted by a population informed that it is being harmed and aware of its rights to recover damages. Therefore, it is not intended that use of the authorities provided by this subparagraph be limited to serving only government response actions.

Neither is it intended that such studies, services or registries become prerequisites before government response actions may be undertaken.

Subparagraph (M) of section 6(a)(1) authorizes claims for the costs of expert witnesses employed by claimants in actions to recover damages under section 4, to the extent authorized by the court. In addition, subparagraph (M) enables payment for the costs of neutral expert panels if established by the court, on its own motion, or on the motion of any party. It is the intent of this section to provide claimants and the court access to witnesses and experts to which they otherwise may not have access in litigation. The costs of such experts, the complexity and difficulty of the causation burden which victim's must bear in litigation involving damages resulting from exposure to hazardous substances, the protracted proceedings and attendant costs, and the generally superior resources and expertise frequently available to large companies who may be defendants, make desirable provision of reasonable economic assistance to plaintiffs who may otherwise be denied an opportunity to present their case. In implementing this subparagraph, the President may receive and decide upon claims or contract with others to administer a fixed amount of money so as to best achieve the purposes of this subparagraph.

Fund and Fee Structure

Section 5 establishes a $4.085 billion Hazardous Substance Response Fund in the U.S. Treasury and the means by which the fund will be financed. The fund is administered by the President and the Secretary of the Treasury.

The fund is financed by industry fees, appropriations, recovered moneys, transfer of Clean Water Act section 311 and 504 funds, and interest from investing any monies not required to meet potential immediate obligations of the fund. The fees may not exceed $250 million in fiscal year 1981, $525 million in fiscal year 1982, and $700 million in fiscal years 1983 through 1986. Appropriations in each of the corresponding years are limited to $35 million, $75 million and $100 million.

The fees are derived from levies on 11 primary petrochemicals, 34 inorganic raw materials and petroleum oil as defined in section 2. The fees are levied on each pound of the primary petrochemicals and each short ton of inorganic raw materials which a supplier (producer, manufacturer, importer, or exporter of primary petrochemicals or inorganic raw materials) provides to other or uses himself to make more complex intermediate products, final products, or wastes. The fees on petroleum oil are levied on a per-barrel basis on refinery owners and owners of petroleum oil for export or import. The fees may be levied only once on the same quantity of petroleum oil, primary petrochemical or inorganic raw material, except that refined petroleum used as a feedstock to a primary petrochemical is also subject to the fee as a primary petrochemical.

The terms "primary petrochemical" and "inorganic raw material" are each defined to mean only the specially listed substances in subsection 5(l).

A "refinery" is defined as a permanent facility in the U.S. which refines petroleum oil. The term "petroleum oil" as used in subsection 5 means petroleum, including crude petroleum and any of its fractions or residues other than carbon black.

The term "supplier" means a producer, manufacturer, or generator (including an exporter), or an importer of primary petrochemicals or inorganic raw materials. A supplier either provides primary petrochemicals or inorganic raw materials to others through sale or other transfer for use by others, or himself uses those produced, manufactured, generated, imported, or exported substances subject to the fee.

The initial fees for each of 46 substances are specified in subsection (d)(4). The fees in subsection (d)(4) apply in the first year and continue until modified. After the initial levying of fees, the Secretary of the Treasury, in consultation with the Administrator of the Environmental Protection Agency, may annually establish a schedule of fee rates by rule. The schedule of fee rates may not result in fees which exceed 2 percent of the list price of the primary petrochemical, inorganic raw material or petroleum oil. The fee rates may not exceed $20 per short ton for a primary petrochemical, $10 per short ton of inorganic raw material or 3 cents per barrel of petroleum oil. In addition, the total fee revenues per fiscal year may not exceed the following limits:

[In millions of dollars; fiscal years]

	1981	1982	1983 and each year through 1986
All primary petrochemicals	162	338	450
All inorganic raw materials	50	112	150
All petroleum oil	38	75	100

Within the above limits of fee rates per unit of production, percent of list price, and total revenues per year, subsection (e) describes how the equity of the fees may be improved so that they reflect, to the extent practical, the past and anticipated expenditures of the Fund. The equity adjusments may be made biannually, with the first such adjustment affecting the fourth year's fees. The adjustments are to reflect the incidence (frequency) with which the primary petrochemicals, inorganic raw materials and petroleum oil (or their intermediates, final products and wastes) are encountered in releases requiring payments from the Fund. Three kinds of adjustment in fees are provided for: (i) the distribution of the relative total fees paid by each of the three classes (petrochemicals, inorganics and petroleum oil); (ii) the fee rate for each of the 46 substances subject to a fee; and (iii) the industrial categories which are paying the fee.

Based upon the criteria of subsection (e), fees during the first three years on ammonia, phosphoric acid, nitric acid and sulfuric acid are set at zero when these substances are supplied to the fertilizer production industry. Similarly, fees during the first three years are imposed upon copper sulfate, cupric oxide and cuprous oxide rather than all copper. Thereafter, adjustments in fee rates for the fertilizer production industry and for copper or its intermediate compounds, would be determined by the Fund's payout experience as provided in subsection (e).

To assure equity and encourage recycling and reuse, primary petrochemicals or inorganic raw materials are not subject to a fee to the extent they are used as a source of fuel, produced solely as a byproduct of pollution control and used commercially, reintroduced into the production of other substances subject to the fee (e.g. benzene used to lighten heavy crude oil), derived from recycled material, or removed from wastes and recycled into a production process.

The industry fees are assessed and collected by the Secretary of the Treasury, acting under his existing authorities. The President annually determines the level of income sufficient to immediately meet potential obligations of the Fund, but in no event may such amounts cause the limits established in subsections (b) and (d) to be exceeded. Any excess in the Fund may be invested and the earned interest credited to the Fund. In addition any excess may be used to purchase reinsurance if such reinsurance increases the ability of the Fund to meet its potential obligations. To the extent necessary to meet potential obligations as determined by the President, the balance in the Fund (including monies collected, transfered, recovered and loaned) may exceed the sum of the amounts derived from industry fees and from appropriations. Monies credited to the Fund in any fiscal year remain available until expended.

In any fiscal year, two-thirds of the moneys from industry fees and from appropriations credited to the fund in that year may be used for government costs of locating releases of hazardous substances, assessing their potential harm, costs of removal, assessment of natural resources damage, restoration of natural resources, and associated administrative and personnel expenses, including expenses of recovery of such costs. The remainder of fees and appropriations is available for third-party damages and other expenses authorized in section 6.

If in any fiscal year the balance in the fund is insufficient to meet obligations, the Treasury may lend money to the fund in amounts not to exceed the total of fees and appropriations authorized in subsection (b) for the next fiscal year. Such loans are to be used for third-party damage claims and for (1) removal costs as necessary during the first two years, and (2) costs of removal for unanticipated catastrophic releases. Treasury loans are to be repaid from future fee revenues.

Within four years after the fee is initiated, the Administrator is to submit a report to Congress on the adequacy of the size of the fund and its authorized life and on the need for any statutory changes in the fee system.

The Hazardous Substance Response Fund created in section 5 is to pay for Government response to releases or potential releases of hazardous substances and third party claims attributable to such releases. The evidence before the Committee clearly illustrates that the demand for moneys for Government response far exceed the amounts authorized in this bill. The moneys needed for third party damages are extremely difficult to project from the available information, and therefore the amounts provided have been similarly defined. Thus the $4.085 billion six year fund derived from fees and appropriations is less reflective of demand than it is of a balance

managed and used in the time period allotted and that amount which economic analyses show to not stress the well-being of affected industries. Fees and appropriations equal to the full authorization limits will be necessary to produce adequate money to accomplish the purposes of the legislation.

The fund will be built up over three years with fees and appropriations providing up to $285 million the first year, $600 million the second year, and $800 million the third year and each year thereafter through the sixth year. Authority to collect further fees and appropriations expires after the sixth year. Authority to pay claims does not lapse until there is no longer a balance in the fund. Since a report on the fund and fee system is required within four years, the Congress will have an opportunity based upon experience to determine the need for adjustments in the fund and fee provisions.

Financing the Fund primarily from fees paid by industry is the most equitable and rational method of broadly spreading the costs of past, present and future releases of hazardous substances among all those industrial sectors and consumers who benefit from such substances. The concept of a fund financed largely by appropriations was not adopted. A largely appropriated fund establishes a precedent adverse to the public interest—it tells polluters that the longer it takes for problems to appear, the less responsible they are for paying the consequences of their actions, regardless of the severity of the impacts. Too often the general taxpayer is asked to pick up the bill for problems he did not create; when costs can be more appropriately allocated to specific economic sectors and consumers, such costs should not be added to the public debt.

The fee system was adopted after extensive investigation of alternatives. This fee system provides the best balance of equity, rapid implementation, legal defensibility, administrative simplicity, and a minimum of any adverse economic and environmental impacts. The fees are imposed at the beginning of the commercial chain of production, distribution, consumption, and disposal of hazardous substances. The fee is assessed on substances which are either hazardous themselves or are the basic building blocks (primary petrochemicals, inorganic raw materials and petroleum oil) used to make almost all major hazardous substances.

By collecting a fee at the beginning of the production cycle, this fee system uses the efficiency of the marketplace to automatically and broadly distribute the risks associated with chemicals through fees on all industrial sectors in the chain of production, transportation, use and disposal of hazardous substances. This is a more effective mechanism than distributing risks through the rules and regulations of a Federal agency and it is fully consistent with the spirit of regulatory reform.

The 46 substances subject to the fee meet at least two or more of the following criteria: (i) they are inherently hazardous or hazardous in a number of forms (intermediates or final products), (ii) they are hazardous in some form if released, (iii) hazardous wastes are generated in producing them or their intermediate or final products, (iv) they are capable in one or more forms of increasing the hazardous po-

tential of other substances; and (v) they are produced in significant quantities. A fee may attach to a product even though it is itself environmentally benign, since earlier in the chain of production, distribution, consumption and disposal it used a hazardous substance or later in the chain it will be used to generate a hazardous substance.

Because of the urgent need to expand government response to the hazards which have necessitated this bill, the fees begin to be collected 180 days after enactment. To avoid the necessity of establishing fee rates by rule, the bill provides the initial fee rates for each substance needed to raise $250 million annually in subsection (d)(4). It is intended that the fee rates necessary to raise $525 million be computed in the same manner. Therefore, the fees in the second and third years should be as shown in Table I unless the President determines that: (i) fees totalling $525 million the second year or $700 million the third year are not needed; (ii) production amounts of the 46 substances are significantly different than used for Table I; or (iii) the statutory limits specified in subsections (c) and (d) would be exceeded.

Beginning with the fees in the fourth year, subjection (e) provides authority for biannual refinement in equity by adjusting the amount of fees so that they reflect, to the extent practical, the past and anticipated expenditures of the Fund. Fee adjustments may be made by the Secretary of the Treasury by rule, after consultation with the Administrator of EPA.

Subsection (e) is not intended to burden adjustment of the fee with costly accounting or result in any delay in government response, claims processing or fee adjustments. Nothing in subsection (e) is intended to require additional sampling or laboratory analysis to ascertain the specific identity or amount of released hazardous substances or to allocate the costs attributable to each substance or industrial category beyond that which would otherwise be necessary for government response, claims processing, cost recovery or enforcement purposes.

Paragraph (e)(1)(A) provides that the percentage of annual fees collected from petroleum oil, all primary petrochemicals as a class and all inorganic raw materials as a class be approximately proportional to the frequency with which substances in each of these three classes (or that of their intermediates, final products and wastes produced from substances subject to the fee) are detected in releases requiring payments from the fund. In the first three years, the percentage contributions are assumed to be 15 percent from crude oil, 65 percent from primary petrochemicals and 20 percent from inorganic raw materials. This initial distribution of fees among the three classes reflects the generation of hazardous wastes which are expected to be the largest category of expenditures in at least the first three years. Wastes representing 92 percent of annual hazardous waste generation were, after correction for weight bias, characterized as approximately 3 to 1 organic (petrochemicals) to inorganic. The 15 percent from petroleum oil reflects waste generated by the petroleum refinery industry and the high incidence of waste oils found at hazardous waste disposal sites.

TABLE L.—FEES 1ST 3 YR

[Dollars per short ton, fiscal years]

	1981	1982	1983
Primary petrochemicals:[1]			
Acetylene	$3.88	$8.66	$11.95
Benzene	3.88	8.66	11.95
Butane	3.88	8.66	10.24
Butylene[2]	3.88	7.80	7.80
Butadiene	3.88	8.66	11.95
Ethylene	3.88	8.66	11.95
Methane[3]	3.44	3.44	3.44
Naphthalene	3.88	8.66	9.04
Propylene	3.88	8.66	10.92
Toulene[4]	3.88	8.66	11.95
Xylene[5]	3.88	8.66	11.95
Inorganic raw materials:[6]			
Antimony	2.66	10.00	10.00
Antimony trioxide	2.24	10.00	10.00
Antimony sulfide	1.94	10.00	10.00
Arsenic	2.66	10.00	10.00
Arsenic trioxide	2.04	9.70	9.70
Barium sulfide	2.18	2.30	2.30
Bromine	2.66	10.00	10.00
Cadmium	2.66	10.00	10.00
Chlorine	2.66	2.70	2.70
Chromium	2.66	10.00	10.00
Chromite	1.12	1.12	1.12
Potassium dichromate	1.02	10.00	10.00
Sodium dichromate	1.12	10.00	10.00
Cobalt	2.66	10.00	10.00
Copper sulfate	1.13	10.00	10.00
Cuprous oxide	2.37	10.00	10.00
Cupric oxide	2.14	10.00	10.00
Hydrochloric acid	.18	1.05	2.50
Hydrogen fluoride	2.53	10.00	10.00
Lead	2.66	10.00	10.00
Lead oxide	2.48	10.00	10.00
Mercury	2.66	10.00	10.00
Nickel	2.66	10.00	10.00
Nitric acid[7]	.15	.72	3.24
Phosphorus	2.66	10.00	10.00
Phosphoric acid[7]	.19	1.14	8.30
Potassium hydroxide	.11	.27	.58
Sodium hydroxide	.11	.27	.58
Sulfuric acid[7]	.16	.85	1.00
Stannous chloride	2.71	10.00	10.00
Stannic chloride	1.[illegible]	10.00	10.00
Zinc	2.66	10.00	10.00
Zinc oxide	2.15	10.00	10.00
Ammonia[7]	.11	.27	.58
Petroleum oil[1] (cents)	.756	1.59	1.99

[1] Fee on primary petrochemicals and inorganic raw materials expressed in terms of dollars per short ton. Fee on petroleum oil expressed in terms of cents per barrel.
[2] Excluding that portion used to make butadiene.
[3] Excluding that portion used to make ammonia and acetylene.
[4] Excluding that portion used to make benzene.
[5] Excluding meth-xylene.
[6] Excluding that portion used to make fertilizers.
[7] Excluding that portion used to make fertilizers and all nitric acid.

Paragraph (e)(1)(A) does not require determination of the amount or the specific identity of the released substances; it requires determining only whether the release involves oil, another organic substance and/or an inorganic substance. Where the release involves substances in more than one of these three classes, each would be credited on equal share of the total value of payments for that release, unless information otherwise available permitted a more accurate allocation of costs among the three classes. In determining any reapportionment of fee burdens among the three classes, the Secretary of the Treasury may also consider projected expenditures.

Paragraph (e)(1)(B) provides for modification of fee rates—the fee per unit of petroleum oil, each primary petrochemical, and each

inorganic raw material. Paragraph (e)(1)(B) authorizes modification of the fee rates so that rates are approximately proportional to the frequency (not the total amount of the substance) with which the substance subject to the fee (or that of its intermediates, final products and wastes) is detected in releases requiring Fund expenditures. In determining any modification of fee rates the Secretary of the Treasury may also consider available information on projected expenditures from the Fund. Where a release involves more than one substance subject to the fee, each would be credited an equal share of the payments for that release, unless available information made it practicable to allocate the costs among substances to the fee.

Paragraph (e)(2)(A) provides that if in the first three years of expenditures, the Fund does not incur costs for a substance (or its intermediates, final products or wastes) then the fee rate for that substance will be established at the lowest rate applicable to any substance in the next fee year and continue until modified by paragraphs (e)(2)(B) and/or (C).

Paragraph (e)(2)(B) authorizes the fee to be established at zero if by the second biannual fee adjustment a substance (its intermediates, final products and wastes) has not been identified in any releases requiring Fund expenditures. If the Secretary of the Treasury subsequently determines that new expenditures from the Fund for that substance are sufficient to necessitate a contribution to the Fund, then a fee may be reimposed by rule and become effective the next annual fee collection period.

Paragraph (e)(2)(C) authorizes the Secretary of the Treasury, in consultation with the Administrator of EPA, to distinguish between industrial categories when applying paragraph (2)(B). That is, the fee on a substance may be set at zero for one or a few industrial categories if the Administrator advises the Secretary that routinely collected information supports the conclusion that the releases are solely attributable to other industrial categories. The authority to vary the fee for the same substance by industrial category is discretionary. It is intended that this paragraph be used at the discretion of the Secretary to rectify gross inequities which may become evident as the Fund gains experience: for example, those exceptions where substantial expenditures are attributed to a substance but releases of the substance are not caused or contributed to by one of the several industrial categories who generate or use it.

The Secretary may distinguish between industrial categories in several ways. He may: (a) designate certain industrial categories as subject to a fee of zero, or (b) designate certain intermediates or final products as subject to a fee of zero, or (c) designate the primary petrochemical, inorganic raw material or petroleum oil subject to a fee of zero and impose the fee only on specified intermediates or final products made from that primary petrochemical, inorganic raw material or petroleum oil.

While the Secretary has discretion in determining where it may be appropriate to consider differentiating the fee by industrial category, the Secretary is required to modify the fee for a particular industrial category where it is determined that the three statutory criteria in paragraph (2)(C) are met.

The first criterion in paragraph (2)(C) requires that the industrial category not have contributed significantly to Fund expenditures by releases from its own activities or those who supply the substance, its intermediates or final products to the industrial category.

The second criterion in paragraph (2)(C) requires that the substance, its intermediates, final products or wastes as commonly used or generated by the industrial category, not have been present significantly in releases from hazardous waste storage or disposal facilities. The second criterion insures that the historic lack of information on who placed what wastes at hazardous waste storage and disposal facilities not preclude payment of a fee if there is reason to believe, but not conclusive proof, that the industrial category may have been the source of the released hazardous substances. This criterion is intended to protect against shifts in the fee burden to other industrial categories if there is reasonable evidence to conclude that a particular industrial category may have cause or contributed to releases of unknown origin.

The third criterion in paragraph (2)(C) is intended to insure that if an industrial category is made subject to a fee of zero, this action will not prevent other industrial categories who pay a fee on that substance from passing the fee on through the chain of commerce to ultimate consumers. Without such a test, paragraph (2)(C) could increase inequity in the fee system by requiring some industries to absorb the fee rather than distribute it to consumers of the substance.

Because court challenges to the regulations establishing or modifying fees could be lengthy, any interference with the imposition of fees while a challenge was pending could have a serious impact on the ability to keep the Fund sufficiently financed. Therefore, paragraph (c)(2)(B) provides that any stay of regulations relating to the fees is prohibited until completion of judicial review.

Based upon testimony and information supplied by the fertilizer production industry during development of the Act and after consideration of the criteria in subsection (c)(2), the fertilizer production industry is conclusively presumed in subsection (c)(3) to not impose significant costs upon the Fund prior to the first adjustment period for the fee.

A salient portion of the industry's testimony is the statement by Edwin Wheeler, president of the Fertilizer Institute, that:

> "* * * the fertilizer industry has not been a contributor to the problem of abandoned and inactive waste disposal sites, and is not a significant contributor to the hazardous substances spill problem * * *"

The Committee notes that certain acids, which are used as feedstocks in the manufacture of some fertilizer products, are also used for processes in other industries. As spent process chemicals, these acids are upon occasion discovered in dumpsites, where they can pose serious problems. In setting levels of fees, the Committee therefore chose to retain fees on those portions of acid production which find their way into processes in these other industries. In addition, it was decided that the first three years' experience of the Fund would be the most appropriate basis for judging whether fertilizer chemicals or feedstocks used in fertilizer production significantly contribute to spill problems or other releases needing government response. A fee rate of zero is as-

signed to ammonia, phosphoric acid, nitric acid and sulfuric acid supplied to, generated by and used or disposed of by the fertilizer production industry in the first three years after the fee system is first initiated. Nonfertilizer production usage of these substances are not exempt from fees. The term "fertilizer production industry" as used in the bill is to read to include those activities and products described and set forth in the Standard Industrial Classification Manual (OMB, 1972 Edition) and identified therein as SIC Code Nos.: 1474, 1475, 2873, 2873112, 2874, 2874185, 28193, 2810922 and 2819331.

Subsection (e)(4) clarifies that in the first three years of fee collection, the fee on copper will only be imposed on the equivalent weight of copper in copper sulfate, cupric oxide and cuprous oxide. The fee is to be imposed only on these three copper compounds when they are sold by a supplier to any other person, or used on-site to produce other materials besides copper metal. Beginning three years after the fee is first initiated, subsection (e)(4) authorizes the Secretary of the Treasury to impose the fee on additional copper compounds or on copper as an element if necessary to better reflect the expenditure experience of the Fund. In making any decision whether to modify the fee by rule the Secretary is required to consult with the Administrator of EPA. In examining the expenditure of the Fund, the five criteria considered in designating substances subject to the fee shall be considered for copper and its compounds.

The technical judgments of the Secretary of the Treasury and the Administrator of EPA are to be accorded broad discretion and deference in implementing subsection (e). Such discretion and deference are appropriate because of the properties of the chemicals involved, the circumstances in which they are encountered, limitations in available analytical techniques, the need to minimize risks to response personnel and nearby populations. Protection of public health, welfare, and the environment take precedence over all other government responsibilities in a release of hazardous substances. It is not the intent that subsection 5(e) result in a shift of the burden of the fees to a relatively few, easily identified substances, such as oil or heavy metals, and away from substances which are not readily identified (e.g. acids, caustics, reactive hydrocarbons) because they volatize, have short half-lives, are chemically unstable, easily alter chemical composition when in the presence of other reactive chemicals, etc. The Administrator is expected to consider such factors which may increase inequities rather than diminishing them when advising the Secretary on whether to make any adjustments to the fee system.

Subsection (f)(1) would provide suppliers an economic incentive for the recycling and reuse of primary petrochemicals and inorganic raw materials. The Secretary of the Treasury, after consultation with the Administrator of EPA, may by rule reduce the fee in proportion to the extent that any primary petrochemical or inorganic raw material is produced solely as a by-product of pollution controls and used on-site or sold to other persons. Included within the purview of this section is that sulfuric acid produced from pollution control equipment (i.e. acid plants) used on smelters to clean up emissions of sulfur dioxide gas under the Clean Air Act. These plants convert sulfur dioxide gas into concentrated sulfuric acid. Of the 37.9 million tons of sulfuric acid produced in 1979, only 2.89 million tons (or 7.6 percent)

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came from the pollution control equipment on copper, lead, or zinc smelters. Most of this sulfuric acid is sold on the open market at a loss. This is because most smelters are located in isolated desert areas far from commercial markets for sulfuric acid, and the added transportation costs makes the acid economically unattractive.

Though the suppliers of primary petrochemicals, acting on behalf of the Fund, are required to collect fees from consumers of primary petrochemicals, where a portion of the petrochemical may also be used for a purpose that is exempt under subsection (f)(1), e.g. when used as a fuel, the consumer will be responsible for certifying to the supplier the amount of the primary petrochemical subject to the fee. Collection of such fees is intended to be compatible with the standard accounting practices of the supplier. This clarification is necessary, when the supplier in such circumstances knows only how much primary petrochemical was supplied and does not know to what uses it will be or has been applied. In such cases where a consumer must certify to the supplier the amount of the primary petrochemical subject to a fee, the consumer, rather than the supplier, would be responsible for the accuracy of such reporting in the event there is subsequent litigation. The supplier responsible for collecting the fee should be the person from whom the consumer of the primary petrochemical directly purchases the primary petrochemical.

The term "primary petrochemical" and "inorganic raw material" may not include any other substances other than those named in the definitions. The Committee does not intend to include coal-derived primary petrochemicals within the meaning of "primary petrochemicals". In the event that a primary petrochemical is taken from a liquid or gaseous stream containing other chemicals, computation of the fee shall be based only on the primary petrochemicals in the stream that are subject to fees under the Act.

The term "supplier" applies to any person who supplies specifically the substances identified as primary petrochemicals or inorganic raw materials. "Supplier" is not intended to refer to a person who may mine ores containing such substances, extract from the earth petroleum or natural gas containing such substances, or transport such ores, natural gas or petroleum. Such persons do not become "suppliers" unless or until they separate and process the specific primary petrochemicals and inorganic raw materials from the ore, natural gas or petroleum and supply the substances subject to the fee to others or use them themselves to generate intermediate products, final products or wastes. Where a primary petrochemical is taken from a liquid or gaseous stream containing other chemicals the "supplier" is that person who removes or separates the primary petrochemical from the liquid or gaseous stream and uses it to make more complex chemicals.

Livestock, Fishery, and Agricultural Product Coverage

Under paragraph (N) and (O) of section 6(a)(1), the Fund may be used to compensate an agricultural producer or processor or a commercial fisherman or fish or seafood processor for loss of income or capital loss due to destruction, loss, condemnation, or restriction on use resulting from a release of a hazardous substance. The provision allows compensation of agricultural losses since January 1, 1974, and fishing and seafood losses since January 1, 1978.

Testimony and subsequent investigations revealed that the production of food is affected frequently by releases of hazardous substances, and that such releases can have catastrophic effects on the livelihood of individual food producers and processors. It was necessary, therefore, to provide compensation from the Fund for the losses suffered by food producers and processors. The availability of such compensation will create an incentive to early reporting of such incidents, which will afford greater protection of the public health and reduce the spread of losses, particularly those occurring as a result of feed contamination.

Under this provision, the Fund would compensate both income and capital losses of food producers resulting from condemnation or restriction of use when a public health agency determines it to be necessary as a result of a hazardous substance release. "Public health agency" means any Federal, State or local body with the responsibility and authority to condemn or restrict products or the use of land or facilities under police or regulatory authorities arising from a release of a hazardous substance.

Different effective dates are provided for the authority of the Fund to compensate agricultural losses and fishing losses. For losses due to condemnation or loss of use of the following products and resources, the release must have occurred after January 1, 1974:

> pastureland, rangeland, or forestland; crops and croplands; bees, honey, and honeycomb; livestock; poultry and eggs; produce; grain; animal feed, including fish meal; and foods processed from any of these sources.

For losses of fish and shellfish stock, harvested fish and shellfish, seafood, and fish and seafood products (other than animal feed), the release must have occurred after January 1, 1978.

The provision does not cover single-cell proteins grown using alcohol or oil products, or processed foods for human consumption that include such proteins.

For the purposes of this provision, "loss of income" means actual lost sales plus any indirect losses or costs, other than capital losses, arising from a condemnation or restriction of use. For example, if as a result of a release of a hazardous substance the U.S. Department of Agriculture determines that meat packing operations in a given area must be temporarily halted, and as a result farmers and feedlot operators must continue feeding animals which were otherwise scheduled to be harvested, then the additional cost of grain borne by such farmers and feedlot operators is a compensable loss.

If a processor who is also a producer suffers a loss on its own produced (but not yet processed) commodities, then for the purposes of this provision, the income loss shall be:

(1) The arm's-length market price of the commodity in the region or area in which the release or contamination occurred; or

(2) The average of prices paid by that processor to other producers from whom it buys in arm's-length transactions in the region or area in which the release occurred; or

(3) The actual cost of production, whichever is least.

For the purposes of this provision, "capital loss" means the actual lost value of land, buildings, vessels, docks, machinery, equipment, or other facilities which are destroyed, rendered useless, or reduced in

value as the result of a condemnation or restriction of use arising from a hazardous substance release.

This provision creates exceptions to three other limitations upon the uses of the Fund. Section 6(a)(4) precludes use of the Fund for payment of any claims for third-party damages, including lost income, capital losses, and loss of use of natural resources, arising from the field application of a pesticide. This provision was proposed in subcommittee and was endorsed by the joint subcommittee as a provision sent to the Full Committee for consideration. The Full Committee subsequently adopted the provision providing for use of the Fund to compensate agricultural and fishing losses with the intention that it be an exception to the prohibition on use of the Fund to compensate for losses due to field application of pesticides.

In addition, section 6(a)(3)(B) limits payments from the Fund for lost wages or other personal income to 100 per cent of losses in the first year and 80 per cent of losses in the second year. It is the intent of the Committee that this limitation not apply to agricultural and fishing losses under section 6(a)(1)(N).

Finally, the Committee adopted a provision in section 4(n)(2) prohibiting use of the Fund to compensate victims who suffered losses due to releases prior to the date of enactment. The specific dates of the agricultural and fishing loss provisions apply to these losses.

Agricultural claims are to be limited to those claims which are not compensated by insurance or under other government programs.

Claims Procedure

The basic procedure for claims against the Fund is provided by section 6(b), (c) and (d) of the Act. The purpose of the claims process is to assure prompt payment of valid claims where the claimant has been unable to obtain satisfaction from a liable party and has elected to pursue his claim against the Fund, rather than in a court action against the liable party for the same costs or damages. The President is given latitude in promulgating specific procedures aimed at achieving this end. It is intended that the procedures be as streamlined as possible, consistent with the necessity of fairly assessing the validity of claims presented and with sound financial accountability.

Where the Fund pays removal costs or for damages, it is subrogated to the rights of the claimant, and the President is to request the Attorney General to commence an action on behalf of the Fund to recover the amount of such payment from any liable party. As described in the section of this report entitled "Liability", recovery of such compensation occurs under the provisions of liability established in section 4, except where specifically precluded, in which case recovery may proceed under the authority of any other statutory or common law.

Under section 6(b)(1), (2) and (3)(A) the President is authorized to designate by rule Federal officials who may obligate money in the Fund. The President is also authorized to delegate administration of his duties and authorities to the appropriate units of the Executive Branch of the Federal government. The uses of the Fund authorized in section 6(a) include Federal government costs of implementing the Act and claims for removal costs and damages paid to others. Of course, payment of the government costs are subject to appropriation

Acts and are not intended to be subject to the claims procedure for claimants seeking third party damages and cost of removal, since this would preclude the government from providing timely response as intended by this Act and since some of the costs of operating the government program are not attributable to any particular liable party or incident of release, discharge or disposal. It is intended that the President duplicate under the authority of section 6(b)(1), (2) and (3)(A) procedures similar to those which have already been developed to administer the fund established in section 311 of the Clean Water Act. In this way, immediate government response can be assured.

Under section (b)(3)(A) the President is also authorized to promulgate and amend regulations for the presentation, filing, processing, settlement, and adjudication of claims which are compensable by the Fund under subsection (a). The regulations should prescribe appropriate forms and procedures for such claims, including a provision requiring the claimant to make a sworn verification of the claim to the best of their knowledge.

In addition to the general grant of authority in subsection (b)(3)(A), specific procedures are set forth.

Whenever any person alleges to the President that he has incurred damages which are compensable by the Fund, the President is to notify the appropriate liable party under section 4 of the Act, and any such person may, within 15 days of such notification or within 15 days of the presentation of a claim by a claimant, deny the allegations or deny liability for any of the reasons contained in section 4(a). The presentation of claims is facilitated by a requirement that the owner and operator of any vessel or facility from which a hazardous substance is discharged or released provide notice to all potential injured parties.

In all instances the claimant is required to first present his claim to the potentially liable person or persons, if known, prior to pursuing any right under this section. If the claim is not satisfied, the claimant, or in the case of death, the estate of such person, may then elect either to pursue his remedies in the courts or present his claim to the Fund.

With respect to claims for medical costs, the administrator of the Fund is given additional specific guidance. Such claims are to be reviewed promptly, and an order denying or certifying the claimant's injury is to be issued within ninety days. The Fund administrator is authorized to require documentation, verification, and authentication of the amount of the claim and to order any medical tests or examinations of the claimant deemed necessary to confirm the claimant's injury or diagnosis. The claimant is to be paid his certified costs within sixty days of certification by the Fund administrator.

Except in extraordinary circumstances where adequate private insurance and claims adjusting agencies or State agencies are not available, the President is to utilize such agencies in processing claims against the Fund. He is authorized to establish the procedures for processing the claims and to compensate the agencies for their services. It is expected that any procedure the President sets out will be conducive to speedy, informal settlement. For example, the administrator may attempt to promote and arrange a settlement between the claimant and any person who may be liable. If the claimant and the alleged liable person can agree upon a settlement, then the settlement would be final and binding upon the parties and further recourse against

the Fund would be considered waived. If, however, no settlement is reached through negotiation, the Fund administrator may, if satisfied that the information developed during the processing of the claim warrants it, make and pay an award of the claim from the Fund. If at any time it is determined that, because of a large number of claims arising from any incident, it is in the best interests of the parties concerned, the claims may be grouped for purposes of settlement, award, and appeal. If no settlement can be reached or acceptable award decided upon within the time provided in the Act for certification of medical claims, or, in the case of other compensable claims, within a reasonable time period set out by the President, a procedure for resolving disputes is provided.

The President is authorized to appoint one person as an arbitrator or to establish a panel of arbitrators (for a period not to exceed 180 days each) as necessary to hear and decide disputes concerning claims filed pursuant to this section. The President may appoint as many persons as arbitrators as he determines will be necessary to implement this subsection expeditiously and can increase or decrease the number in response to the demand. The arbitrators may be appointed from the private sector or any Federal agency employees except the staff administering the Fund or otherwise implementing this Act. It is anticipated that whenever possible, arbitrators would be selected through utilization of the procedures of the American Arbitration Association. Persons appointed as arbitrators are entitled to compensation and travel and other reasonable expenses in carrying out their duties.

It is intended that any hearings before an arbitrator or a panel will be informal and open to the public, and that the rules of evidence prevailing in judicial proceedings will not be required. The arbitrators, pursuant to procedures set out by the President, should have the power to administer oaths and to subpoena the attendance and testimony of witnesses and the production of evidence. Testimony, in keeping with the informal procedure envisioned, could be taken by interrogatory or deposition.

In any determination to be made by the Fund administrator or by an arbitrator or a panel, the claimant will have the burden of establishing his claim. In the case of a claim for out-of-pocket medical expenses, for example, the burden would consist of establishing to the administrator's or the arbitrator's satisfaction (1) that the claimant was exposed to a hazardous substance found in a release; (2) that the exposure was in such quantity or for such a duration that there is a reasonable likelihood that it is sufficient to cause or significantly contribute to injury or disease of the class or type of which the claimant complains; (3) that there exists a reasonable likelihood that exposure to the hazardous substance causes or significantly contributes to injury or disease of the class or type which the claimant claims to have suffered; (4) that the claimant has incurred out-of-pocket medical expenses as a result of the injury or disease; and (5) that the expenses are in the amount claimed.

If arbitrators feel that additional investigations, monitoring, surveys, testing, or other information gathering would be useful and necessary in deciding a claim, they could request the President to un-

dertake such activities pursuant to his authority under section 3(c)(3)(C) of the Act. The President would grant or deny any such request, based upon his assessment of the competing demands and the availability of the technical and financial capability which exists to undertake such activities. If the President decided to undertake any further investigations, it is expected that the usual time limits for determining claims would be suspended pending the results of the investigation.

The arbitrator's or panel's decision should be rendered within a reasonable time, to be specified by the President in the procedures established for the processing of claims. Any party dissatisfied with the decision should be able to appeal it to a federal district court of competent jurisdiction.

In the case of such an appeal, it is intended that the court give appropriate deference to the arbitrator's or the panel's ruling and that the court not overturn it except in the case of arbitrary or capricious abuse of discretion. Because of the informal nature of the determinations envisioned for claims, any decision by an arbitrator or a panel would not be considered admissible as evidence of any issue of fact or law in any judicial proceeding except an appeal under this section, although data adduced in the processing of claims under this section will, of course, be admissible pursuant to the ordinary rules of evidence.

It should also be noted that under section 5, if the total claims outstanding at any time exceed the current balance of the Fund, the President may, in his discretion, defer payment of all claims or of any class of claims, make partial payment on a prorated basis to each affected claimant, or provide, through regulation, for the payment of claims on a priority basis determined by relative hardship to claimants.

It should in addition be noted that the legal remedies in this Act are cumulative and not exclusive. Nothing in this Act requires pursuit of any claim against the Fund as a condition precedent to any other legal right. Notwithstanding any other provision of law, nothing contained in this Act prohibits a person from bringing a suit in a court of competent jurisdiction to recover for any damages or costs compensable under any other law. However, under section 8(b), any person who receives compensation for removal costs or damages pursuant to this Act is precluded from recovering compensation for the same removal costs or damages pursuant to any other State or Federal law. Any person who receives compensation for removal costs or damages pursuant to any other Federal or State law is precluded from receiving compensation for the same removal costs or damages pursuant to this Act.

Section 6(c) establishes a right of subrogation on the part of the Fund or other persons who pay compensation under the Act and provides that, on the request of the President, the Attorney General must commence an action on behalf of the Fund to recover any compensation paid by the Fund to any claimant pursuant to the Act, and for any costs incurred by the Fund by reason of the claim (such costs, which include, *inter alia*, interest, administrative, and adjudicative costs, are not subject to any limitation of liability set out elsewhere in the Act).

Section 6(d) establishes that the Fund is not to be used to pay for any claim to the extent that the discharge or release involved, or the

damages incurred as a result thereof, was caused by the gross negligence or willful misconduct of the claimant.

Finally, section 6(g) cautions that where government response under section 3(c) has not been undertaken or where the release, discharge or disposal constituted an inconsequential danger to public health or welfare, the Federal government should not seek damages or bring an action to recover *de minimus* damages under this Act.

Natural Resource Damage

The Committee found during its own hearings and from Committee-requested research by the Library of Congress (Report No. 96–13) that damage to natural resources due to releases of hazardous wastes is a very serious problem. In many instances the ramifications for the environment from such releases can be regional or national as well as local in scope. The Committee received testimony indicating that both short- and long-term damages to natural resources resulted from releases of hazardous substances and that standardized techniques for assessing both the biological and economic damages from such releases should be developed. Testimony also indicated that it was appropriate and necessary for the State or in some instances the Federal Government acting as trustee for such resources to seek restitution for such damages or restoration of such resources.

LIABILITY FOR DAMAGE TO NATURAL RESOURCES

In order to preserve the public trust in the Nation's natural resources, S. 1480 establishes strict liability for:

(1) Any injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss;

(2) Any loss of use of any natural resources without regard to the ownership or management of such resources;

(3) Any loss of income or profits or impairment of earning capacity resulting from injury to or destruction of natural resources without regard to the ownership of such resources.

Section 4(b) of S. 1480 states that in the case of injury to, destruction of, or loss of natural resources liability shall be to the United States Government and to any State for natural resources within the State or belonging to managed by, controlled by, or appertaining to such State. In such cases of harm to natural resources the President, or the authorized representative of any State, shall act on behalf of the public as trustee in recovering for such damage, injury, or loss of such resources. In recovering for resource damage under S. 1480, a State acting as trustee will have rights and responsibilities similar to those of an individual claimant under the legislation. As directed in section 6(b)(3)(D), a claim for harm to resources shall in the first instance be presented to the person assumed responsible for such harm. If this claim is unsatisfied, the State or Federal Government may elect to commence an action in court or to present the claim for payment from the Fund. Monies from the Fund should be available to a State or the appropriate Federal agencies for use to restore, rehabilitate, or acquire the equivalent of such resources which have been

injured, lost or destroyed. It should be noted, however, that in a case where the election to pursue an action under this legislation in court is chosen, the measure of such resource damages shall not be limited to the sums which can be used to restore or replace such resources.

In the case where the trustee elects to apply to the Fund for damage to natural resources, a claim must be presented to the Fund and the Fund Administrator is required to promptly review such claim and either certify or deny certification as to such injury. When the Fund makes a payment for resource damage, the Attorney General, at the request of the President, can commence an action on behalf of the Fund to recover an amount equal to the compensation made by the Fund from such parties as may be responsible for such resource damage.

It should be noted that the Committee intended that actions to restore, rehabilitate, or replace natural resources under the provisions of this Act be accomplished in the most cost-effective manner possible. Section 6(f) of the reported bill should help in attaining this goal. This provision mandates that, except in cases where emergency measures are necessary, no restoration action concerning resource damage may take place until a plan outlining the steps to be taken has been developed and adopted by the affected Federal agencies and the Governor or Governors of any State or States where damage to resources has occurred. The process of developing such a plan will be of great assistance in avoiding unnecessary costs involved in restoring, rehabilitating, or replacing natural resources.

NATURAL RESOURCE DAMAGE ASSESSMENT

Investigations by the Committee on Environment and Public Works revealed the need for an improved, fair and expeditious mechanism for dealing with natural resource damages caused by releases of hazardous materials. The principal hindrance to attaining such a mechanism was the absence of a standardized system for assessing such damage which is efficient as to both time and cost.

The reported bill provides in section 6(e) that those agencies with management and protection responsibilities over natural resources should standardize a process through regulation for assessing damages to those resources. This could be done after a thorough review of alternatives for damage assessment. This approach will focus on scientific debate concerning damage assessment in the rulemaking process and result in a decision regarding the best simplified procedures for making accurate and defensible assessments of resource damages.

The rulemaking process would be carried out jointly by the Environmental Protection Agency, the Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration in cooperation with various State governments. Hearings concerning the rulemaking might be carried out on a regional basis.

The rulemaking should produce a range of products. At one end will be simplified assessment procedures requiring a minimum of fieldwork and using a combination of habitat values, species values, and other simplified methods. Such procedures would be of value in dealing with minor releases. At the other end of the range would be damage assessment protocols to be used whenever the extent of natural

resource damage is substantial and extensive fieldwork becomes necessary. The assessment procedures and protocols should include a choice of acceptable damage assessment methodologies to be employed, with the evidentiary status of a rebuttable presumption accorded to the results when the protocols are followed.

There is a need for maximum flexibility in the rulemaking proceeding, so that free scientific discussion will result. Only through this type of discussion will the agencies be adequately prepared to select the most accurate and credible damage assessment methodologies available.

Since the state of the art of damage assessment is a complex matter, a time limit of two years is provided for issuance of initial regulations. Since knowledge in this subject is constantly changing, the regulations will be reviewed and updated on a regular basis every two years.

This subsection calls for the promulgation of two types of regulations. First, a simplified type of regulation is necessary to effectively deal with damage assessment in most "minor" releases of hazardous materials. Natural resource damage assessments based on this type of regulation should require as little fieldwork as possible, and rely on a combination of habitat values, tables of values for individual species, and previously conducted surveys and laboratory studies, related to units of discharge or units of affected area.

The other type of regulations would be employed in large or unusually damaging releases and would be used to guide the site-specific damage assessment. Such a regulation would contain protocols for field assessment of the type and extent of short- and long-term damage and methodologies for determining their value.

The protocols for field assessments should provide uniform instructions that will allow for thorough site investigation in a cost effective manner. Sampling and statistical procedures should be clearly defined. The methods for determining the geographical extent of damage should also be enumerated. It is the intent of the legislation that these protocols be designed to accommodate the majority of potential release sites, including coastal estuaries, open water, freshwater rivers, lakes and wetlands. The classification system of the national wetlands inventory should be of help in accomplishing this task and it should be used to the extent practicable in developing these protocols.

The regulations must also contain procedures for assessing the value of direct losses of organisms and their habitat and indirect losses of organisms and habitat through ecological interactions. The procedures for these types of monetary cost assessments are sometimes hard to define, but the agencies must review procedures available for completing these analyses and make a decision as to which are the most accurate and efficient for accomplishing the mandates in this legislation.

The reported bill also assigns the responsibilities for assessing damages to natural resources among three Federal agencies. The National Oceanic and Atmospheric Administration for marine resources, the Environmental Protection Agency for freshwater and estuarine resources landward of the baseline of the territorial sea, and the Fish and Wildlife Service for living resources and their supporting eco-

systems over which the Service has management or conservation authority, are designated as the agencies responsible for assessing damage and bring natural resource damage claim on behalf of the United States. Where State governments are the public trustees, the National Oceanic and Atmospheric Administration, the Environmental Protection Agency or the Fish and Wildlife Service can make assessments and bring claims on behalf of any State at the request of that State's Governor. There is nothing in this bill that precludes a State from carrying out its own natural resource damage assessments, provided that the State conforms its assessments to the regulations issued under section 6(e)(1)(A) of this Act.

The bill delineates agency responsibility to prevent duplication of effort and allow sharper focus on major environmental components. The U.S. Fish and Wildlife Service has responsibility for damage assessment research for fish and wildlife and their supporting ecosystems in freshwater, estuarine areas and marine waters except where the National Oceanic and Atmospheric Administration clearly has defined authorities for these resources either through Executive order or legislative mandate. The Environmental Protection Agency should have responsibility for water quality and drinking water supply aspects of damage assessments, including human health considerations.

It is the Committee's intention that the damage assessment personnel within the three agencies will be recruited specially for the tasks required in administering this act, and that they should work together to the maximum extent possible in developing these regulations and performing assessments in order to facilitate a close, cooperative, and efficient working relationship among the three agencies involved.

The process of damage assessment, particularly the evaluation of long-term or delayed impacts on biological systems, will entail research activities. It is envisioned that the three agencies will enlist the services of outstanding experts in performing damage assessments where regional fisheries or other biological resources are impaired. These research provisions of the bill are not designed to be applicable to any activity, including research, necessary to perform a damage assessment on a specific release. These costs are covered under section 6(a)(1)(I).

DIRECTED RESEARCH ON NATURAL RESOURCE DAMAGE ASSESSMENT

The reported bill includes requirements for directed research that will provide information needed to carry out damage assessments and determine the value of lost resources. Recommendations for natural resource damage reparations must be based on the best information available, and must assure a fair and consistent approach. The major emphasis should therefore be on development of protocols, methodologies, and procedures that will provide tools for damage assessment and effects research where such work is deemed critical to damage assessment determinations. Research efforts should include, but not be limited to, development of ways to assess (1) long term damage to ecosystems, (2) chronic effects such as those affecting behavior, reproduction, or food supply that result in indirect losses, (3) predictive capabilities to determine potential losses through trophic level interactions, and

(4) information on minimizing the damage caused by release control, dispersal, and cleanup operations. Research should be carried out both at field sites and in the laboratory.

This provision is designed to assure that a continuous and ongoing research effort is made to improve the methods and protocols used in evaluating release damage. The research program will improve the scientific bases for methodologies used in damage evaluation. In addition to research in technical disciplines, this program may include national conferences or other means of communications used to review and evaluate damage assessment methods.

LIABILITY FOR IRRETRIEVABLE COMMITMENTS OF NATURAL RESOURCES

In dealing with the issue of natural resource damage the Committee took note that in certain instances Federal officials make decisions in which resource trade-offs must necessarily be made, and in such cases liability for resource damage under this legislation should be limited. Specifically Section 4(b) contains a provision that no liability to the United States or any State for natural resource damage will accrue where the party sought to be charged under the Act has demonstrated that the damages to natural resources complained of were specifically identified as an irreversible and irretrievable commitment of natural resources in an environmental impact statement, or other comparable environmental analysis, and the decision to grant a permit or license authorizes such commitment of natural resources, and the facility or project was otherwise operating within the terms of its permit or license. For this provision to apply, a Federal agency in proceeding with an action or project must have completed a project- or action-specific environmental impact statement or similar analysis and such analysis must identify the resource damage which will occur from releases of hazardous substances if such action or project is carried out. In such a case where the specific resource trade-offs are understood and anticipated and in issuing the permit for such releases the agency takes into account this knowledge and allows the tradeoff, then no liability under this Act will accrue for resources damaged pursuant to these permitted releases.

This provision is not intended to expand in any way the authority of any Federal official to make irreversible or irretrievable commitments of natural resources. It also does not affect causes of action for damages to privately owned resources or for loss of use of publicly owned natural resources, under this bill or common law.

POST-CLOSURE LIABILITY

In order to assure that a hazardous waste management facility does not pose environmental or public health hazards after closure, and that any potential hazards can be promptly detected and remedied before they cause major damage, it is critical that these facilities be properly maintained and monitored after closure. Sections 4(j) and 5(k) of the reported bill establish a Post-Closure Liability Fund to finance the long term post-closure monitoring and maintenance necessary to protect human health and the environment for hazardous waste disposal facilities permitted and properly closed under subtitle C of the Solid Waste Disposal Act.

This Fund would also fully assume the liability of owners and operators of such permitted sites for any damages or cleanup costs which are incunrred by the site after closure.

The Fund should pay all costs for site restoration, economic damage and personal injury causd by the closed facility, both as recognized under this bill and claims arising under common law or other statutory law. In addition to the money set aside by the site operator during site operation to be available for routine monitoring and maintenance for the 30-year post-closure period, the Fund will pay for any further routine care and testing required and arranged by the regulatory body responsible for the facility after it closes.

The Fund will pay for post-closure monitoring and maintenance and assume liability for damages and cleanup expenses only where a facility has met the following three requirements. First, the facility must have been issued an individual permit under subtitle C of the Solid Waste Disposal Act. Facilities which close prior to the issuance of a final permit (i.e., while they are still in interim status) will not be covered by the Fund.

Second, the facility must have complied with each condition of its permit and applicable Subtitle C regulations relating to closure or affecting the performance of the facility after closure. This encompasses not only closure and post-closure requirements, such as applying cover and revegetating and monitoring the site, but also any other standard or requirement designed to insure the integrity of the facility or to prevent, minimize or monitor the escape of hazardous wastes or their constituents after closure (including, for example, requirements for liners, leachate collection and treatment systems, soil barriers, pumping facilities, and groundwater monitoring systems).

Finally, the facility and surrounding area must be monitored for up to 5 years after closure to demonstrate that there is no substantial likelihood that hazardous substances or hazardous waste constituents will be released into the environment or other risk to public health or welfare occur.

Hazardous waste management facilities will have active lives of 10–20 years during which they will be closely monitored by regulatory officials. Typically, these facilities are operated in phases such that the earliest sections will have been closed for many years before the site finally ceases operation. At the time of final closure, in addition, the subtitle C regulations provide a 6-month period during which intensive engineering is done at the facility to apply the final cover and contour and secure the site. It is not until this process is complete that the facility is properly closed. At this point, the facility operator must notify the Administrator of the Environmental Protection Agency that the facility has been properly closed and have an independent professional engineer certify that closure was properly completed. Under section 4(j) the Administrator will then have up to five years to determine independently that the site has been closed properly. By regulation, the Administrator can determine that a period shorter than five years is sufficient for facilities which, during their active lives, have been closed in cells or phases, closely monitored, and inspected frequently. The post-closure period for monitoring is provided so that the Administrator can test further if it is felt to be necessary or de-

sirable. This requirement is not intended to create a new standard—the facility is to be judged on compliance with the regulations and its closure order.

Section 4(j) provides that the Post-closure Liability Fund will automatically begin to cover a closed facility for all claims arising after that date, starting 90 days after the owner or operator has notified the Environmental Protection Agency that it has complied with the requirements outlined above, unless the Administrator determines that the site is not in compliance or that it has submitted insufficient information to determine whether it is in compliance. A determination that a facility is in compliance is voided at any time that the Administrator receives new information indicating that such determination was erroneous. If the Administrator has cause to believe the facility operator made fraudulent representation or knowingly or willfully violated his permit, the transfer of liability to this fund is cancelled and the Administrator is directed to seek to recover from the operator. The operator is released from liability only if he actually complied with the regulations and his permit and closure order.

These three requirements are intended to limit Post-closure Liability Fund coverage to those sites which have fully complied with subtitle C requirements and have a proven record of good performance. By so doing, this provision should be a significant monetary incentive to site owners and operators to design, construct and operate their facilities in an environmentally sound manner, and to fully comply with all subtitle C requirements. At the same time, limiting fund coverage to low-risk sites should substantially reduce the likelihood that the fund will be significantly depleted by a single incident.

During consideration of this provision, the question arose whether having such a fund pay all post-closure damages would lessen the incentive to operators to exercise due care in the way they manage the wastes. It is expected the regulatory program itself will assure a high standard of care. Beyond that, access to this fund is available only to facilities with final subtitle C permits who have completed proper closure. For others, owners and operators remain fully liable for their facilities, and all are liable for anything occurring during operations. Rather than a disincentive to proper operation, the liability fund mechanism offers an additional "carrot" to supplement the regulatory "stick" to promote proper operation.

With the vast quantities of hazardous wastes which will be subject to regulation for the first time under the subtitle C program of the Solid Waste Disposal Act, this nation will need, in the very near future, 50–60 additional regional hazardous waste management sites with specialized facilities for proper handling, treatment, and disposal of hazardous wastes. The private sector must contribute much of this new capacity and needs to begin developing these facilities now. Such facilities are expensive and require 3 to 5 years for development and construction.

Development of this capacity, however, is being delayed and complicated by public opposition to these sites, and by the unavailability of meaningful insurance coverage for the post-closure period. Creation of a post-closure liability fund offers part of the solution to the problem of siting the additional facilities necessary to meet the Nation's hazardous waste management needs. Assurance that funds are readily

available to clean up and restore problem facilities and to pay future claims for property damage or personal injury will reinforce public confidence. This, along with strict regulatory standards and enforcement will add considerably to public confidence that hazardous wastes will be managed safely. Also, creation of a post-closure liability fund such as outlined above would enable private companies to manage their liabilities and attract the tens of millions of dollars in investment capital which will be necessary to build the next generation of modern hazardous waste management facilities. Without such a fund, responsible companies may seek more manageable risks and pressure will build on municipal, State, and even the Federal government to shoulder the burden of providing these additional facilities.

Section 5(k) creates a $200 million fund which would be replenished by upward adjustments of the fees schedule, if necessary, so that funds would always be available to meet monitoring and maintenance costs or satisfy judgments. The Environmental Protection Agency is directed to conduct a 3-year study on the adequacy of this amount so that the Congress might reexamine this question in several years. It is unlikely that this fund will be required for several years. It could be several years before many permits are granted under subtitle C. Since it makes little economic sense to make the huge investments to obtain a permit (including taking on liability for the 30-year post-closure monitoring responsibility) for a facility with only one or two years remaining, any permitted facilities will probably operate for several years. In addition to the years of operating life, there would be the period of closure and then the potential 5-year period before the transfer to the liability fund would actually occur. Thus, there is no immediate need to be exact at this time in determining the amount of the fund. Two hundred million dollars, to be collected over the first five years after enactment, is an appropriate initial level.

The fund is financed by fees on each unit of hazardous waste which is received by a permitted or interim status facility and which will remain at such facility after closure. Because facilities which do not remove wastes and waste residues prior to closure (e.g., landfills, land treatment facilities, surface impoundments) pose the greatest post-closure health and environmental hazard, it is appropriate to require them to finance the fund. The assessment of fees only on this category of wastes is intended to have the effect of discouraging disposal as a waste management practice and thereby reduce the amount of waste which is handled in a manner which could pose a long-term environmental danger.

The Administrator has broad discretion in establishing this fee. He may choose whatever fee unit (e.g., volume, weight) he deems appropriate. He may set a uniform fee for each unit (other than those of wastes with large volume and relatively low hazard) or he may establish waste-specific unit fees based on the relative hazards posed by the wastes subject to the fee. Even if the Administrator chooses this latter route, he has substantial leeway in setting fees for individual wastes. There are recognized difficulties inherent in establishing a fee system which attempts to rank wastes according to the nature and degree of hazard they present, and it is not expected such a system under this provision could do anything more than draw very rough distinctions among classes of wastes.

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Financing Responsibility

Too often the individuals engaged in the manufacture, transportation, use, or disposal of hazardous substances are financially irresponsible. This has been especially true of persons engaged in hazardous waste disposal, whether they are real persons or corporations. In some cases, the assets consist only of a truck that may be rented. When a corporation has been created, the directors and officers are often shielded from personal liability.

To help prevent this, section 7 of S. 1480 requires those engaged in businesses involving hazardous substances to maintain evidence of financial responsibility commensurate with the risk which they present. This requirement is modelled on similar provisions in the Clean Water Act and the Solid Waste Disposal Act.

In order to avoid severe dislocations and unwarranted intermodal transportation shifts, the requirements other than for vessels are to phase in gradually. The first ones are to be promulgated no sooner than five years after enactment and even then they must phase in over no fewer than three additional years. This phasing was drafted in consultation with representatives of the domestic insurance industry to assure that as the need arose, commercial insurance would be available.

Section 7 provides that the financial responsibility requirements of section 311(p) of the Clean Water Act are to be the model for financial responsibility under this bill, with certain changes and exceptions. For vessels, the financial responsibility requirement is increased to $300 per gross ton or, for a vessel carrying hazardous substances as cargo, the greater of $300 per gross ton or $5,000,000. The existing limits under section 311(p) are $150 per gross ton or $125,000.

The bill requires also that facilities maintain evidence of financial responsibility consistent with the degree and duration of risks associated with the production, transportation, treatment, storage, and disposal of hazardous substances. These requirements are in addition to the financial responsibility requirements promulgated under the authority of section 3004(6) of the Solid Waste Disposal Act. It is not the intention of the Committee that operators of facilities covered by section 3004(6) of that Act be subject to two financial responsibility requirements for the same dangers. The purpose of this provision is twofold: first, to extend financial responsibility requirements to facilities and transporters who are not now covered by any requirements under section 3004(6), and second, to create authority for phasing in financial responsibility requirements for facilities and transporters.

Section 7 provides for a delay of five years from the date of enactment before the financial responsibility requirements for facilities would be promulgated. The requirements would be imposed first on those classes of facilities which have the highest and most frequent damages. The government is required to identify these groups and publish this finding three years after enactment, thus providing two years' notice of which groups will be first subject to the requirements. Once the financial responsibility requirements are developed, they would be phased in over a period of no fewer than three years and no more than six years. The purpose of this approach is to allow time for

the accumulation of information while keeping this market open to commercial insurers. There will be five years in which claims experience can be built up, then another three-year period in which insurers can gradually enter the market.

The problem of insurability is also dealt with in subparagraph 6(b)(3)(E), relating the obligations of guarantors.

It should be clear that section 6(b)(3)(E) should not operate to encourage any guarantor to delay settlement, or increase the difficulty in filing or receiving proper claims. In the event a guarantor raises roadblocks or causes other inappropriate delays in payment of claims, the body of law imposing payments of claims greater than policy limits would continue to apply as a disincentive to such bad insurance practices.

WORKER PROTECTION

The bill contains a series of provisions to assure that workers responding to hazardous substance releases are safe from the substance they are cleaning up and are paid fair wages.

Under section 6(a)(2)(A)(v), States and their contractors are required to make use of the procedures in the revised National Contingency Plan to protect workers involved in response actions. Section 6(a)(1)(P) provides for the Occupational Safety and Health Administration and the National Institute for Occupational Safety and Health to be consulted during revision of this plan by the Environmental Protection Agency in order to establish worker protection procedures for land-based releases and dumpsites, as well as spills to navigable waters, and section 3(e) requires the Administrator to comply with Federal health and safety standards in contracts for response.

Also, the bill requires under section 6(j) that workers used by Federal and State governments and their contractors in responding to hazardous substance releases be paid prevailing wages, as determined by the Secretary of Labor, under the Davis-Bacon Act.

Section 10 of the bill forbids an employer from firing or otherwise discriminating against an employee who reports hazardous substance releases or provides information in legal proceedings, and provides a grievance procedure for cases in which such discrimination is alleged.

These kinds of releases are often extremely serious public health emergencies that can go undetected if they are not reported. People could be drinking water contaminated with extremely dangerous chemicals for months or years and not know it. The worker who sees such a threat being created has a public duty to report it. And he has a public duty as a citizen to appear in the proceedings and tell the facts about what he knows.

Without this amendment, the worker who knows of a release is in jeopardy of losing his job for protecting his fellow citizens. The Love Canal incident demonstrates the results of a serious release going unreported for years. There have been miscarriages, deformed children, and a wide range of other ailments—preventable ailments. This provision is similar to provisions in the Clean Air Act, the Clean Water Act, and the Solid Waste Disposal Act. Its protection does not extend to a worker who deliberately violates a provision of S. 1480 without being directed to do so by his employer.

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Workplace Exposure Exclusion

Under an exception in section 2(16)(B)(i) to the definition of release, an injury caused by a hazardous substance exposure in the workplace is not a "release" under the bill if the employer of the injured party is liable under worker's compensation law.

The intent of section 2(16)(B)(i) is to exclude from compensation through the Fund, from liability under section 4, and from the notice provisions of section 3, an injury which is compensated through worker's compensation law.

The provision does not broadly exempt releases which occur solely within a workplace from the bill. For example, if a release occurring solely within a workplace created a hazard of damage to human life or to the environment, it is contemplated that the Fund would have authority to respond with all of its authorities except for compensating workers whose employers are liable for their injuries under worker's compensation law. In addition, the liability provisions of section 4 would apply to these response costs and to third-party damages (other than those for which the employer of the injured party is liable under worker's compensation law).

Further, the provision does not bar an injured worker from legal action under section 4 of the bill against any party other than an employer of that worker liable under worker's compensation law.

Two further issues were brought to the attention of the Committee during consideration of this provision.

One concern is that under some Federal and State worker's compensation laws, an injured worker who wins a judgment against a third party (such as the manufacturer of hazardous substance used in the workplace) can suffer an interruption of periodic compensation. This can occur when the employer has been paying benefits while the injured worker pursues a lawsuit against the third party. Under the Longshoreman's and Harbor Workers Compensation Act and the Federal Employee's Compensation Act, the employer has a lien against any award for all worker's compensation benefits paid to the date of the settlement and would be free from paying future compensation until the proceeds of the settlement or judgment (including payments for pain and suffering) were actually exhausted as if the entire sum were compensation for lost income.

The second concern is that settlements between workers and third parties are, under some state worker's compensation laws, subject to approval by the injured worker's employer, even if the employer was not a party to the action as coplaintiff or codefendant.

Such provisions can work severely to the economic disadvantage of injured workers. Awards, settlements and the payment of claims under this bill, whether through the Fund or through the liability provisions of section 4, are immune from such provisions of other Federal law or State law. An employer who pays worker's compensation as a result of an injury for which an employee later receives an award or settlement from a third party is entitled (pursuant to this provision and subsection 8(b)) only to a lien for worker's compensation payments made or owed in the future, and the lien is allowed only against

that portion of a judgment or settlement made to replace lost wages and future earnings, not against any portion of a judgment or settlement for pain and suffering or other losses.

In addition, section 2(16)(B)(i) bars compensation from the Fund and through section 4 liability only when the employer of the injured worker "is liable" under worker's compensation law. A mere allegation of an employer's liability under worker's compensation law does not bar either compensation of an injured worker from the Fund or legal action by a worker against a third party under section 4. A finding of liability or a settlement accepting liability by the employer is necessary to come within this exception. In cases where the Fund has paid benefits to a worker injured by a hazardous substance release and the worker's employer is later held liable or consents to compensate the worker under worker's compensation law, the employer must reimburse the Fund for benefits the Fund had already paid in a manner that does not disrupt the disability income of the injured party.

Litigation and Conforming Amendments

Section 9(a) and (b) provide for jurisdiction and venue of actions brought under this Act. The Circuit Court of Appeals of the United States for the District of Columbia is given exclusive jurisdiction to review regulations promulgated under this Act. An application for such review must be made by an interested party within ninety days of promulgation or be barred. The United States district courts are given exclusive original jurisdiction over all other causes of action arising under this Act with venue lying in the place where the wrong or damage occurred or where the defendant resides, is found or does business.

Section 9(c) permits the survival of any hazardous substance litigation commenced prior to the enactment of this Act.

By explicitly stating liability rules in this statute, the Committee does not intend that S. 1480 in any way preempt or weaken any other law. All other remedies are to continue to exist after enactment of this bill, including those under common law, admiralty law, and Federal and State statutory law. This is important to note, in that while S. 1480 in many respects generally codifies existing law, in some specific respects its liability rules are more limited than those under existing law. For instance, while the Fund is precluded from using the rules of section 4 to seek recovery for cleanup costs or payment of damage claims for certain categories of releases, other remedies or provisions of the common law or any other law are available to the Fund and the Fund should use them to recoup its expenses.

Section 9(d) also transfers one half of the funds appropriated under section 311(k) and all the funds appropriated under section 504 (b) of the Clean Water Act to the Fund created by section 5 of this Act. The Fund is made available to reimburse States for costs of removal of hazardous substances under section 311(c)(2)(II) of that Act. Guarantors of owners' or operators' liability under this Act are added to possible defendants whom the United States may sue under sections 311(f) and 311(g) of the Clean Water Act.

Section 9(e) provides that in any conflict between section 311 and the provisions of this bill, S. 1480 prevails.

EXECUTIVE COMMUNICATIONS

THE WHITE HOUSE,
Washington, D.C., June 5, 1980.

HON. JENNINGS RANDOLPH,
Chairman, Committee on the Environment and Public Works, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: One year ago, I proposed comprehensive legislation to protect the public health and environment from the hazards of careless and improper disposal of chemical wastes. Enactment of the "Superfund" bill is one of my top environmental priorities.

Since then, your Committee has provided crucial leadership in moving forward a Superfund bill. Now in the last hectic months of the 96th Congress, this legislation is in a race against time despite widespread support for it. I urge you to do everything you can to report S. 1480 by the July 4 recess.

A number of dramatic events during the past year have reinforced the urgent need for a strengthened emergency response program addressing oil and chemical hazards. The human suffering and financial costs associated with the Love Canal site are a national tragedy. We are concerned that there may be thousands of other sites around the country that also require emergency cleanup to prevent future disasters.

My Superfund proposal has two key features which any legislation you report should include: a strong system of liability to encourage responsible parties to undertake cleanup activities themselves, and assured funding of $1.6 billion over four years, of which at least 80 percent should be provided by industry contributions.

I commend the Committee's action in starting this process this week and am particularly pleased that the strict, joint and several liability provisions have been retained, as my Administration proposed. A strong liability provision will prove to be our most powerful incentive to obtain cleanup by responsible parties and is essential to effective legislation.

I know you share my deep concern about the dangers posed by abandoned hazardous waste sites. I have already mobilized my Administration to address the Love Canal tragedy and we will be prepared to implement the Superfund legislation as soon as the Congress passes it. The Superfund legislation must be enacted this Summer in order to prevent additional human suffering.

Sincerely,

JIMMY CARTER.

THE WHITE HOUSE,
Washington, D.C., February 4, 1980.

HON. JENNINGS RANDOLPH,
U.S. Senate,
Washington, D.C.

DEAR SENATOR STAFFORD: Last June, President Carter submitted a legislative proposal to deal with one of the most important en-

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vironmental and public health issues facing our Nation. The threat caused by the improper handling and disposal of oil, hazardous substances and hazardous wastes, such as the incidents at Love Canal and Valley of the Drums, have highlighted the inadequacy of the existing laws and inability of governments at all levels to respond quickly and efficiently to these dangerous situations. There may be thousands of hazardous waste sites which will need attention in the coming years. An effective public policy is urgently needed to deal with this situation.

The Senate Environment and Public Works Committee has before it President Carter's comprehensive Superfund proposal. In his State of the Union Message, the President reiterated his strong support for this legislation. This legislation is absolutely essential if we are to meet our responsibilities to protect the public from the threat of oil and hazardous substance spills and waste sites. It is important that legislation dealing with this national problem move forward by the May 15 deadline for legislation requiring appropriations.

Therefore, I urge the Committee to give this legislation expeditious consideration. I look forward to working with you in the coming weeks on this important public policy issue.

Sincerely,

STUART E. EIZENSTAT,
Assistant to the President
for Domestic Affairs and Policy.

U.S. ENVIRONMENTAL PROTECTION AGENCY,
Washington, D.C., September 25, 1979.

Hon. JENNINGS RANDOLPH,
Chairman, Committee on Environment and Public Works, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: On September 25–26, 1979, the Subcommittee on Environmental Pollution and Resource Protection will mark-up S. 1480, the "Environmental Emergency Response Act". This bill is similar, although certainly not identical, in a number of important respects to the Administration's "Superfund" proposal, S. 1341. The Administration's proposal would provide a fund based upon fees from industry and general appropriations to cleanup and provide emergency government response at abandoned and inactive hazardous waste disposal sites as well as spills of oil and hazardous substances. In addition, the bill would provide for government notification of such incidents and compensation of victims, as well as establish the liability and financial responsibility of involved parties.

As the President stressed in his letter transmitting the Administration's bill, this legislation addresses several of the "most significant environmental and public health problems facing our Nation". The urgency and importance of this legislation requires that I respond before mark-up to some of the more significant issues raised by the Chemical Manufacturers Association (CMA) in testimony before your subcommittee on July 19, 1979. The testimony made a number of assertions and criticisms of the Superfund proposal which the Administration believes are incorrect.

WHO SHOULD BE LIABLE

The CMA asserts that the Administration's proposal imposes penalties today for past disposal activities which were not considered incorrect or unlawful when they occurred. It also suggests that the proposal constitutes an ex post facto denial of due process and overturns existing liability concepts.

The legislation proposed would establish liability for costs expended by the government to clean up past disposal practices that *today* are threatening public health and the environment, and it does so without reference to prior standards. The supposition of the Administration's proposal is that society should not bear the costs of protecting the public from hazards produced in the past by a generator, transporter, consumer, or dumpsite owner or operator who has profited or otherwise benefited from commerce involving these substances and now wishes to be insulated from any continuing responsibilities for the present hazards to society that have been created. To relieve industry of responsibility for chemicals whose effects only become visible years later, is to sentence our children's society to a potentially enormous burden. Relieving industry of responsibility establishes a precedent seriously adverse to the public interest. It tells polluters and others who introduce hazardous substances into our society and environment for profit that the longer it takes for resultant problems to appear—regardless of their severity—the less responsible they are for solving the problem.

The CMA charge that Superfund constitutes an ex post facto denial of due process on the grounds that it somehow broadens liability beyond that which existed at the time wastes were placed in the site, is politically advocacy, not good law. It is well established that the constitutional prohibition against ex post facto laws, with very narrow exceptions, applies only to criminal laws. The relevant provisions of the proposed legislation are not criminal laws. Further, the evolving case law surrounding hazardous chemicals as well as waste disposal sites has recognized that it is the present condition of the disposal site which must be repaired, regardless of whether the seeds culminating in this condition were sown a number of years ago.

More importantly, the liability provisions of Superfund are not retroactive at all. They merely codify longstanding common law rules relating to liability for hazardous products and undertakings. Existing common law principles hold that in areas of ultra-hazardous activity, liability is attached to any injury resulting directly or indirectly from the activity. This is true regardless of whether the injury was foreseeable or whether negligence or contributory negilgence was involved. There is a great deal of precedent in case law which focuses on ultra-hazardous activity involving explosions, fires, and like hazards. As recent State and Federal court decisions are emphasizing, the reasoning of legal decisions in these cases are applicable to environmental incidents involving hazardous substances and wastes such as dioxin, benzene, PCB's phosgene gas, and carbon tetrachloride, as well. In such instances, the government must be able to act as an agent for the people in providing the protection the common law established. The proposed legislation carries these legal prinicples into statutory law. In this way, society can be more quickly and easily pro-

tected from, and compensated for, damages resulting from exposure to such hazardous substances and wastes.

Finally, the Administration believes the issue goes beyond a mere legal question. The chemical manufacturer in Niagara Falls, New York who contributed most of the wastes at Love Canal, knew of the hazards as long as 20 years ago and still failed to act. A producer of agricultural chemicals has polluted drinking water supplies with DBCP, despite evidence that it is a carcinogen and causes sterility. Numerous chemical companies have been content to contract to have wastes known to be toxic hauled away and then wash their hands by disclaiming any knowledge of how they would ultimately be disposed. In some instances, such as Pittston, Pennsylvania, these past practices continue until those responsible are discovered. Very few, if any, corporations, either big or small, have voluntarily come forward to warn the public of present hazards they have created in the past and of which only they are knowledgeable, despite the fact that approximately 80 percent of hazardous wastes were disposed on-site. These are not, as is being claimed, the failings of inadequate past standards or practices, they are acts of omission today on the part of some elements of industry. As the common law has recognized, knowing failure to take action now to protect society from a hazard created previously, is in practical effect, the same as originally creating the hazard.

WHAT SHOULD BE COVERED

CMA has argued that combining spills of oil, spills of hazardous chemicals, and releases of chemicals from hazardous waste disposal sites are three completely different problems requiring different approaches and remedies.

In the Federal Water Pollution Control Act of 1972, specifically Section 311, Congress established that spills of oil and hazardous substances were not "completely different problems" but, instead, were so similar that they should be dealth with by coverage under the same provision of law. Congress reaffirmed this course of action with passage of the Clean Water Act of 1977. The "Superfund" proposal merely incorporates existing law, in this regard.

Moreover, it is often the case that a spill incident involves both oil and hazardous substances. Spilled PCB-laden oil, for instance, is an example of a commonly encountered situation. Train wrecks which spill oil and such hazardous substances as chlorine or sulfuric acid are also examples. The sites used by many illicit dumpers and the cargoes they dump are very frequently combinations of oil and chemicals. We are finding that many, and possibly most, abandoned and inactive hazardous waste disposal sites involve waste oil as well as chemicals.

From a programmatic point of view, government emergency response to spills and abandoned sites cannot be readily separated. The people who will be implementing any legislation in the field believe that their ability to act to protect public health will be enhanced by one comprehensive system because the need for immediate notification and response, emergency response actions, and engineering techniques required for containment and remedy, are the same for spills of hazardous substances and oil and for hazardous wastes and waste oils at

abandoned and inactive hazardous waste disposal sites. Also similar are many of the threats to public health and the environment as well as the choices faced by response personnel—evacuation, providing alternative drinking water supplies, and ultimate disposition of the spilled materials.

It has been EPA's experience that emergency response must often begin prior to determining whether the pollutants involved include hazardous substances as well as oil or whether the source is a classic disposal site. The present emergency at abandoned coal mines under Pittston, Pennsylvania illustrates the need for a comprehensive approach. Initially the problem was discovered as a 35 mile long oil slick floating on the Susquehanna River. At the request of the State, emergency Federal government efforts were initiated to deal with the presumed spill. The fumes of toxic chemicals combined with the floating oil alerted on-scene personnel to a more complex and dangerous situation, although the nature and source of the toxic chemicals was not known for the first several days while efforts to stop the spread of the oil and chemicals continued. Subsequently, it has been determined that the oil, chemicals, and explosive fumes were coming from illicit dumping of hazardous wastes into abandoned coal mines that drained to the river.

In the field, our people are often required to make emergency response decisions on weekends, in the middle of the night or before the source of the spill is known. In such circumstances, if they cannot respond because of separate laws, they must first determine what substances are involved, whether the source is a classic spill or a waste disposal site, and which legislation authorizes funding the response. The Administration's proposed legislation would protect the public no matter where the contamination occurred, no matter what substance was involved, and no matter how the incident was caused.

From the point of view of bureaucratic and regulatory reform, two or three different programs would be extremely inefficient. The administration of separate response mechanisms, fee collection mechanisms, fund management schemes, liability regimes and claims procedures would require more personnel resources than one comprehensive approach. Most importantly, in regard to an area about which industry, especially CMA, has complained, frequently, several separate programs would unquestionably increase duplication paperwork and the number of regulations.

ARE THERE GAPS IN EXISTING LAW?

CMA states that "there is no need for a Superfund for chemical spills . . . one which duplicates existing laws." The Administration's proposal does not duplicate existing laws with regard to chemical spills: it incorporates and expands upon them. This expansion is necessary because—and this applies to oil spills as well as chemical spills—Section 311 of the Clean Water Act, the existing law does not authorize government action for spills onto the ground only, or spills that result only in the release of gases into the air. It also does not adequately cover spills that contaminate only groundwater. While Section 504 of the Clean Water Act authorizes government response to such incidents as well as to spills of substances that have not been

designated under Section 311, neither Congress nor Democratic or Republican Administrations have funded this section. Furthermore, Section 504 authorizes only $10 million—an amount which is inadequate to clean-up even one abandoned hazardous waste disposal site of significant size. Secondly, existing law does not provide for any compensation of damaged third parties. The Administration proposal provides compensation for property damages and limited economic livelihood damages. Again, this is an expansion and not a duplication of existing law. To provide third party damage compensation for oil spills but not for chemical spills, a position implied in CMA's statement, would be quite unfair and not in the best interests of the public.

FEES VERSUS APPROPRIATION

CMA suggests that the Administration's proposal unfairly places the entire financial burden of Superfund on the chemical industry. Instead, CMA believes that funds should be provided by the general taxpayer. In addition, CMA claims that the proposal assumes that all products of the chemical industry are hazardous, and that the only hazardous products are those of the chemical industry.

The economic impact analysis done for Superfund indicates that virtually all the costs of the fee system can be passed through the chain of commerce to the ultimate consumer of the final products made from the chemicals subject to the fee without significant economic impact. The industry has not provided any analysis to refute the economic impact analysis. Recent articles in *Chemical and Engineering News* confirm this. In the March 5, 1979 issue, for example, Union Carbide Vice President Richard Hughes is cited as stating that despite huge price increases for petrochemical feedstocks, the supply-demand situation now makes it feasible for producers to recover their increased costs. Mr. Hughes' statement refers to price increases which are far greater than those that would result from the Superfund fee. In the July 2, 1979 issue, a leading Wall Street chemical industry analyst states that the chemical industry should be able to pass along feedstock price increases—again in excess of Superfund fees—by raising its product prices. In an industry with an historic annual average of six to eight percent profits and equally high rates of growth, fees of less than two percent will, at most, produce a slight reduction in the rate of growth. In summary, in no way does this amount to a shouldering of the entire financial burden of Superfund. Moreover, the CMA charges fail to point out that the Administration's Superfund would also necessitate, in addition to industry fees, significant funding from Federal and State taxpayers.

The Administration does not believe that funds for the cleanup of abandoned and inactive hazardous waste disposal sites should come exclusively from general Federal revenues as CMA advocates. Rather, as is embodied in its Superfund proposal, the Administration feels that needed funds should be raised from a combination of general appropriations and fees on the industries and consumers who, while benefiting economically have exposed society to these hazardous risks. In an era when a balanced Federal budget has become a paramount national objective, such an approach is the best and perhaps only means to assure the availability of the billions of dollars needed to deal with

the abandoned site problem. The public simply will not stand for being misled by the Administration and Congress into thinking that sufficient general funds will be made available, only to have its raised expectations dashed by equally legitimate balanced-budget considerations.

Finally, in terms of equity, the Administration believes that it is less fair for the general taxpayer to bear this financial responsibility than it is for consumers who benefit from the commerce of hazardous substances to do so. Too often the general taxpayer is asked to pick up the tab for problems he or she did not create. Using special fees to differentiate between the general public and those who benefit from specific commercial and industrial practices is widely accepted, not only in our society but throughout the world, and should be used in this case.

WHO SHOULD PAY

With regard to CMA's assertion that the Administration's proposal assumes that the only hazardous products are those of the chemical industry, this is incorrect. A portion of the hazardous substances and wastes which despoil our environment and affect public health come from industries other than the chemical industry. However, at an earlier step in the industrial and commercial chain of production, all of these hazardous substances and wastes are generated from either petrochemical feedstocks or inorganic raw materials. It was this reasoning, in fact, which led the Administration to recommend the feedstock/raw material fee system. By collecting a fee at this early point in the production process, the Administration believes that the costs are equally passed on to all industrial sectors generating hazardous substances and wastes, while at the same time requiring only 700–900 fee collection points, and, thus, ensuring a minimal fee collection bureaucracy, and a fee system which because of its simplicity, can be quickly implemented.

In contrast, the generator-based fee which CMA has privately advocated, would require that the fee be collected from hundreds of thousands of generators of hazardous wastes, and substances (many of them small companies). A generator-based fee would require two separate fee systems—one for generators of hazardous substances and another for generators of hazardous wastes; sometimes they are the same, but often they are entirely different companies. The dual fee system and hundreds of thousands of companies from which a generator-based fee on hundreds of chemicals would have to be collected, will significantly increase government paper work imposed on industry, be extremely difficult to defend in court, and we believe, effectively render administration of the fee system inoperative. The economic impacts of a generator-based fee, unlike the feedstock/raw material fee system, also has significant environmental and economic impacts. A generator fee is a direct incentive for illicit dumping and avoiding coverage under the manifest and permit programs established under the Resource Conservation and Recovery Act. For example, for land disposal the primary means of dealing with these wastes today the average generator will have to pay at least a one-third increase in the costs of disposal. Electroplaters leather finishing, secondary copper/lead/aluminum smelting, wood fabric dyeing and finishing, steel

industry, primary lead smelting, and woven fabrics are among the dozen industries that would be especially impacted. For example, costs of disposal to the steel industry would jump from $2 per ton to $11 per ton, and woven fabrics from $3 per ton to $12 per ton.

It is also incorrect to assert as CMA does that the Adminisration's proposal assumes all chemicals are hazardous. The feedstock/raw material fee system does assume, however, that many chemicals are hazardous. For this reason the fee is aimed at a specific set of hazardous inorganic chemicals—those which are themselves hazardous, are frequently spilled or found in hazardous waste disposal sites, or form the basic building blocks of the thousands of chemicals found in these sites. As for the fee on petrochemical feedstocks, many organic chemicals and their by-products in the halogenated hydrocarbon, pesticide, and aromatic categories are known to be extremely hazardous. Experience to date tells us that chemical relatives of known problem chemical and their by-products are likely to pose problems. The number and volume of organic chemicals which are not hazardous or likely to be hazardous is relatively small. Also, the complexity of the organic chemical industry would make it extremely difficult to pick and choose among organic chemicals in determining which feedstocks or organic chemicals to impose a fee on.

Since the feedstock fee applies to all organics, costs will be passed on equally to consumers and will result in no dislocations, process changes or plant closings. Thus, whatever slight inequity might exist in theory, it will have virtually no practical effect. If it chose, Congress could further assure against any potential inequities by establishing an exemption from the fee for generators who could show that they neither used a hazardous substance in production, produced a hazardous substance, or generated a hazardous waste. The principle of collecting a fee from all those who initiate commerce in or generate a potentially hazardous material (oil and other chemicals) was embodied in the "Superfund" bills considered by both the House and Senate in the last Congress. It is in no way a penalty but, rather, a recognition that those segments of industry and consumers who most directly benefit from this commerce should share the primary responsibility for necessary public health and environmental protection which results from this commerce. The fee system incorporated in the Strip Mining Reclamation Act adopted this principle and uses it to pay for the reclamation of inactive and abandoned mines.

In summary I hope you will give careful scrutiny to the various views on this legislative issue before you. We have made significant progress in dealing with chemical incidents, but more needs to be done. We must have comprehensive coverage to fill in the many gaps not covered by our current spill control and hazardous waste disposal programs. But authority to protect the environment and public health and compensate damages needs a fee system capable of financing these actions. Without both, the legislation can accomplish little. This Committee has been a pioneer in enacting environmental legislation and the proposals before you represent the next step in finally dealing with one of the most serious environmental and health hazards in our society today.

Sincerely yours,

DOUGLAS M. COSTLE.

THE WHITE HOUSE,
Washington, D.C., June 13, 1979.

HON. WALTER F. MONDALE,
President of the Senate,
Washington, D.C.

DEAR MR. PRESIDENT: Today I am transmitting legislation to address some of the most significant environmental and public health problems facing our Nation. The problems which the legislation is designed to address are extremely serious. Recent months have focused public attention on a series of past improper hazardous waste disposal incidents such as the tragedy of Love Canal, New York. This case clearly demonstrates the unacceptable costs of improper hazardous waste disposal which may accrue from other incidents such as: contamination of surface and ground waters including drinking water supplies; staggering financial costs of cleaning up and containing wastes; and acute poisoning, carcinogenicity, mutagenicity, and promotion of miscarriages and birth defects.

The proposed legislation is a comprehensive program with the financial responsibility shared by Federal, State and local governments as well as industry. For spills of oil or hazardous substances, the legislation establishes a comprehensive and uniform system of notification, emergency response, enforcement, liability and limited economic compensation for such incidents. For uncontrolled sites, the proposed legislation would establish essentially the same program but without economic compensation. This comprehensive program would be implemented by: requiring notification of spills and the presence of uncontrolled hazardous waste disposal sites; empowering the Federal Government to clean up and mitigate pollution in those incidents where the liable parties do not respond adequately or cannot be quickly identified; enforcing higher standards of care in the handling of oil, hazardous substances and hazardous wastes including recovery from liable parties of governmental response costs and economic compensation; and providing compensation for the economic damages sustained by innocent victims of spills.

The States have a significant role in implementing this legislation. Although the proposed legislation authorizes Federal action in emergency situations, the States are expected to provide financing for both the short-term and long-term containment of releases from hazardous dumpsites.

The legislation provides a major innovation in the manner we approach environmental rehabilitation. In particular, those elements of the private sector which produce hazardous chemicals will share, along with the Federal and State governments, in the financial responsibility for meeting the goals of the legislation through a system of fees.

The legislation provides for a mid-term evaluation. Within three years of enactment a report will be submitted to the Congress which would include experience to date in implementing the legislation; the extent, if any, of the critical uncontrolled sites problem; projected funds required for spill response; extent of State participation; and recommendations for statutory modification in such areas as fee structure, fund operation, liability limits, and financial responsibility limits.

It has become abundantly clear over the past several months that exposure of humans and the environment to dangers from spills of oil, hazardous substances and hazardous wartes and from releases at uncontrolled hazardous waste disposal sites are two of the most pressing environmental problems facing the Nation. I believe that the proposed legislation represents a comprehensive and effective approach for protecting people and the environment from such incidents. I am hopeful that this proposal will receive prompt consideration and speedy enactment. The health of the public and the environment cannot afford less.

Sincerely,

JIMMY CARTER.

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Hearings

The Committee held 11 days of hearings on S. 1480. The Administration provided witnesses from the Environmental Protection Agency on March 28, 1979, and again on June 20. The U.S. Department of Justice also presented testimony at a joint subcommittee markup on April 15, 1979.

On March 28 the Committee also received testimony from chemical contamination victims from Niagara Falls, New York and Jamesburg, New Jersey; from State environmental and health officials; and from a representative of the seafood processing industry.

On March 29 the Committee received testimony from industrial representatives; from a chemical engineer; and from Senator Jacob Javits and Representative John LaFalce of New York.

On May 18, Senator Daniel Patrick Moynihan of New York chaired a field hearing in Niagara Falls, New York, and received testimony from local government officials, local chemical industry representatives, Love Canal residents, medical experts and local citizens.

On June 21, the Committee received testimony from State officials from New York, Kentucky, New Jersey, and Michigan; and from Senator Bill Bradley of New Jersey.

On June 22 Senator John Culver of Iowa, chaired a field hearing in Charles City, Iowa, and received testimony from State and local officials, a representative of the EPA's Region VII office; health and environmental witnesses; and a producer of chemical products.

On June 29, Senator John Chafee of Rhode Island chaired a field hearing in San Francisco, and received testimony from West Coast State officials; from local educators, from witnesses of environmental groups; and from representatives of the oil and insurance industries.

On July 19 and 20, the Committee received testimony from industrial, environmental and public health witnesses; from a representative of the National Solid Waste Management Association, as well as from public officials from New Jersey and New York.

On September 6 and 7, the Committee received testimony from additional industrial, environmental, legal and health witnesses.

The Subcommittees on Environmental Pollution and Resource Protection held 12 days of markups on S. 1480. The Full Committee held 5 days of markup on the reported legislation.

Rollcall Votes

Pursuant to section 133 of the Legislative Reorganization Act of 1970, and the Rules of the Committee on the Environment and Public Works, rollcall votes shall be included in this report if not announced at the time such vote was taken.

There were three rollcall votes of the Committee during deliberations of S. 1480.

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S. 1480 was ordered reported by a vote of 11–1. Senators Bentsen, Burdick, Chafee, Culver, Domenici, Gravel, Hart, Mitchell, Moynihan, Randolph, and Stafford voted in the affirmative with Senator Simpson voting in the negative.

Evaluation of Regulatory Impacts

In compliance with section 11(b)(1) of Rule XXVI of the Standing Rules of the Senate, the Committee makes the following evaluation of the regulatory impact of the reported bill.

S. 1480 is not a bill to regulate environmental releases. It creates no new regulatory standards or limits on releases, and it does not require any party to obtain a license, permit, or other authorization, or to fill out any application forms. The bill does not significantly add to the regulatory authority under existing laws, or create a significant impact upon the privacy of individuals.

There is a statutory requirement for notification of the government of any release of a hazardous substance other than a federally permitted release, and of the location of any disposal sites. Otherwise, those regulations which are required generally deal with the administration of governmental programs or the consideration of claims, and not the regulation of individual action.

Cost of Legislation

Section 403 of the Congressional Budget Act of 1974 requires the preparation of a cost estimate by the Congressional Budget Office for legislation reported from Committee.

A complete analysis of the cost of the bill was not available at the time of the printing of this report. Such analysis will be available before the bill is considered by the Senate.

SUPPLEMENTAL VIEWS OF SENATOR STAFFORD

This bill represents not merely an attempt to grapple with the broad health and environmental concerns raised by chemical poisons, but also an attempt to responsibly address the unique problems raised in proof of chemically-caused disease. Numerous commentators have recognized the problems which arise in the context of proving causation when the injury is a disease. Some of these are quoted in the body of this Report. Two others are worthy of quotation in these views, because they are among the commentators who have suggested an approach similar to that taken by the Committee.

> It is not difficult to conclude that the question of causation has been wrongly decided in many of the cases in the cancer field; if the model is a valid representation of scientific cancer causation, then judges frequently deviate from the proper standards of causation. Part of the problem is the nature of an adversary determination of facts: plaintiff presents his expert witnesses, defendant his, and the fact-finder decides whom to believe.
>
> One problem (of causation in the toxic substances cases) could be alleviated if judges would accept as probative testimony that a substance "could have caused" a cancer, and realize that in scientific terminology, such testimony is more than just speculative. Counsel could also raise the level of the causational discussion by introducing studies and scientific papers as evidence, rather than merely relying on "expert" testimony.
>
> Perhaps some problems could be alleviated if state courts adhered to a rule that exposure of a plaintiff to a carcinogen for a period of time reasonable for carcinogenesis shifted the burden of proof of causation to defendant.

"Judicial Attitudes Toward Legal and Scientific Proof of Cancer Causation," 3 *Columbia Journal of Environmental Law* 344 (1977).

* * * * * * *

> (T)he flaw with an individualized approach in the disease setting is that the actual cause of individual manifestations of a disease is usually impossible to determine. Perceptions of work-disease relationships normally rest upon statistics, which are of little use in judging the condition of a specific worker, and courts traditionally shun the use of statistical data since such evidence cannot prove that employment conditions produced an individual's illness. Indeed, even though evidence may show that a high percentage of the incidence of a disease results from the work environment, each individual could lose his case for lack of specific proof of causation. To avoid this outcome, rebuttable presumptions created leg-

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> islatively or administratively could be employed. Thus, where strong support for a work-disease connection existed, the disease could be presumed to be occupational in the absence of an individual showing that factors other than the workplace produced an illness.
>
> The use of presumptions, which allows application of the best available evidence of work-disease linkages, would simplify the problems of proof that victims of occupational disease would face under new compensation schemes.

"Compensating Victims of Occupational Disease," 93 *Harvard Law Review* 916 (1980).

The medical causation provisions contained in the reported bill were debated at greater length and with greater emotion than any others in S. 1480. They underwent four successive public re-formulations and untold non-public ones. With each improvement, the confidence of the Committee in the provisions increased. What the reported bill contains are solid, workable and responsible changes that will permit innocent victims to recover when they ought to.

The Committee did not go as far as some had urged or as far as perhaps it should have. Persuasive arguments can be made for shifting the actual burden of proof to a defendant once a plaintiff demonstrates certain facts. The scientific and medical studies demonstrating what injuries a particular chemical causes (or does not cause) are in the file cabinets of those who produce or handle them, not the public at large.[1] Indeed, the industries guard these studies against public disclosure with a vigilance rarely seen elsewhere. In addition, the patterns of distribution—and hence exposure—are best known to defendants, as are a hundred other facts critical to each case.

Despite these arguments, the Committee concluded that this was an effort best begun with a small step rather than a large one. Hopefully, however, the State legislatures and courts which have already chosen to go further than this bill in their own particular states will continue accumulating the experience with which the Congress can judge the wisdom of going beyond the modest changes in this bill.

EVOLUTION OF S. 1480'S LANGUAGE

When S. 1480 was introduced, it contained the original attempt to deal with the difficult problem of proving causation. That original language provided as follows:

(*c*) *Notwithstanding the ordinary requirements for proof of cause in fact or proximate cause of damage, injury, or loss a person liable*

[1] Kepone, for example, was synthesized by the Allied Chemical Corporation in 1951 and patented in 1952. Allied contracted for the first studies on the chemical's effects in 1958. Beginning in 1961, studies with laboratory animals indicated that Kepone adversely affected nervous and reproductive systems. An unpublished corporate document dated July 1, 1961, indicated that Kepone induced hepatocellular carcinomas. Kepone became a publicly recognized name in 1975 and afterwards, following disclosure of the massive contamination of the James River. But the studies performed on Kepone were not used to register the substance as a pesticide and, therefore, had been kept confidential before then.

Similarly, dibromochloropropane (DBCP), a chemical widely used to control nematodes came into use in 1955. It was banned by the Environmental Protection Agency in 1979, three years after it was found to have caused sterility in workers.

In the late 1950's two California research scientists, working independently of each other, reported that DBCP caused a significant decrease in sperm count and other testicular effects in laboratory animals. Some of this private research was supported by Shell Chemical and Dow Chemical, the two principal manufacturers of DBCP. The studies indicating that DBCP could have adverse health affects were not made public until 1961.

under this section for any discharge, release, or disposal of any hazardous substance shall be liable for all medical expenses under subsection (a)(2)(F) of this section if a reasonable person could conclude that such medical expenses and the injury or disease which caused them are reasonable related to such discharge, release, or disposal, including, but not limited to, the consideration of statistical correlation and the increase of incidence of such injury or disease in the exposed population above that which is otherwise statistically probable. The inability of a claimant to demonstrate (1) the particular identity of the substance which caused the injury or disease, (2) the particular source of such substance, (3) the pathway of such substance enroute to the injured party, or (4) an explanation of the etiology of the substance in the injured party shall not bar recovery.

As the hearings on S.1480 progressed, it became apparent that the original medical causation language required clarification and refinement. Therefore, a second version of the provisions was developed and included in "Staff Working Paper Number 1". The second version of the language provided for the following:

"*(c)(1)(A) In any proceeding involving a claim for medical expenses alleged to have resulted from a discharge, release, or disposal of hazardous substance, the trier of fact shall consider as relevant and material (i) information as to an increase of incidence of such injury or disease in the exposed population above that which is otherwise probable, (ii) epidemiological studies (without regard to the size of the sample), (iii) animal studies, (iv) tissue culture studies, (v) microorganism culture studies, and (vi) other laboratory or toxicologic studies tending to establish the likelihood that a release of such substance caused or contributed to any injury or disease of the type of class complained of.*

(B) Uncertainty of medical or scientific evidence with regard to establishing—

(i) the specific substance which caused the injury or disease;

(ii) the particular source of such substance,

(iii) the pathway of such substance en route to the injured party, or

(iv) the etiology of the substance in the injured party, shall bear only on the weight of said evidence, as determined by the trier of fact.

(2)(A) Notwithstanding the ordinary requirements for proof of cause in fact or proximate cause of damage, injury, or loss, a discharge, release, or disposal shall be presumed to have caused the injury or disease complained of and the associated medical expenses if a plaintiff seeking damages under this subsection offers evidence tending to establish a reasonable likelihood that (i) the injured or diseased party was exposed to a hazardous substance found in a discharge, release, or disposal for which the defendant may be held liable under this section, and (ii) such a hazardous substance or such a discharge, release or disposal could have caused the injury or disease of the class or type for which medical expenses are sought.

(B) The person or persons liable for such discharge, release or disposal shall be responsible for all medical expenses under (a)(2)(F) of

this section unless such person establishes that there is no reasonable likelihood that the injury or disease for which medical expenses are sought resulted from said discharge, release, or disposal."

During formal markups by the Subcommittees on Environmental Pollution and Resource Protection, it became apparent that even this perfected language required yet another revision. With the help of practicing lawyers, health officials, and professors of law, a third version was drafted and accepted. It became a part of the bill taken before the full Committee. This language, and the legislative history which was proposed to accompany it, read as follows:

"(*c*) (*1*) *Liability for Medical Expenses.—A person liable for the discharge, release, or disposal of any hazardous substance under this section shall be liable for medical expenses as defined in subsection* (*a*) (*2*) (*F*) *of this section where such expenses were incurred in the treatment of injury or disease which such discharge, release, or disposal caused or to which it significantly contributed.*

"(*2*) (*A*) *Relevancy Exclusion.—In connection with any claim for medical expense under paragraph* (*1*) *of this subsection, the court may admit as relevant to the issue of causation evidence tending to establish a likelihood that the hazardous substance in question causes or contributes to injury or disease of the sort claimed to have been suffered by the claimant, including, but without limitation, evidence indicating* (*i*) *an increase of incidence of such injury or disease in the exposed population above that which is otherwise probable,* (*ii*) *results of pertinent epidemiological studies (without regard to the size of the sample),* (*iii*) *results of animal studies,* (*iv*) *results of pertinent tissue culture studies,* (*v*) *results of pertinent microorganism culture studies, and* (*vi*) *results of pertinent laboratory or toxicologic studies.*

"(*B*) *Prejudice, Confusion, and Waste of Time Exclusions.—Inconclusiveness of the medical or scientific evidence described in subparagraph* (*A*) *as to—*

"(*i*) *the specific substance which caused the injury or disease,*

"(*ii*) *the particular source of the substance,*

"(*iii*) *the pathway by which the substance reached the claimant,*

or

"(*iv*) *the etiology of the substance in the claimant shall affect the weight of such evidence as determined by the trier of fact, and not the admissability of such evidence in the case of an objection on the grounds that it creates prejudice, confusion, or waste of court time.*

"(*3*) (*A*) *Presumption of Cause.—In connection with any claim for medical expenses brought pursuant to subparagraph* (*1*) *of this subsection, where the claimant introduces evidence sufficient to enable the trier of fact to find* (*i*) *that the claimant was exposed to a hazardous substance found in a discharge, release, or disposal which the defendant caused or to which he contributed, and* (*ii*) *that there exists a reasonable likelihood that exposure to such substance causes or significantly contributes to injury or disease of the class or type which the claimant claims to have suffered, then it shall be presumed that the defendant caused or significantly contributed to that injury or disease.*

"(*B*) *The presumption defined in subparagraph* (*A*) *of this subsection affects the burden of persuasion, and shifts to the defendant*

the burden of persuading the trier of fact by a preponderance of the evidence that claimant's exposure to the substance in question did not cause or significantly contribute to the injury or disease which the claimant claims to have suffered."

The legislative history which was proposed to accompany the above draft read as follows:

Medical Causation

PROPOSED LEGISLATIVE HISTORY

For the limited purpose of recovering out-of-pocket medical expenses and rehabilitation costs, an injured party may utilize the methods of proof and evidence contained in subsection (c). To recover for other injuries (or for costs other than out-of-pocket medical and rehabilitation), an injured party must utilize the methods of proof and evidence ordinarily applied by the courts in his or her jurisdiction.

Paragraph (1) states what the claimant must prove in order to recover: that there was a release of a hazardous substance; that the defendant was liable for the release; that the release caused or contributed to the claimant's injury; and that his or her medical expenses were incurred in the treatment of the injury or disease. The claimant may meet part of this burden of proof by utilizing the presumption created in (c)(3)(A). To invoke this presumption, the claimant must introduce enough evidence to permit a trier of fact to conclude, first, that the claimant had been exposed for a sufficient period of time to a hazardous substance in the release for which the defendant is liable under this Act; and, secondly, that there is a "reasonable likelihood" that the sort causes or contributes to a disease or injury of the sort complained of. A plaintiff who meets this burden will benefit from a presumption that the defendant caused or significantly contributed to his or her disease or injury.

If the plaintiff fails to introduce enough evidence to permit a trier of fact to arrive at these conclusions, then the presumption will not be created. If the claimant does meet this burden, however, it then falls to the defendant to introduce counter-proof. Such counter-proof could be so persuasive that a defendant were entitled to a directed verdict in his favor. Failing that, however, the question of cause is submitted to the jury (or other trier of fact) for determination.

Subparagraph (c)(2)(A) permits the use of certain types of medical or scientific evidence in proof of the causal relationship. This is included because some courts have held that, as a matter of law, animal studies, tissue studies and the other types of evidence described in the subparagraph are not probative on the issue of disease causation in humans. Of course, a court must always make the initial determination of whether a specific item of evidence is sufficiently probative to be admitted. Subparagraph (a) does not lessen the obligation of the court to do this. It is difficult in any event for the Congress

to control how court will consider evidence. The subparagraph does, however, represent the Congressional conclusion that animal studies, tissue studies, microorganism culture studies and the like may, as a class, be relevant.

Subparagraph (c) (2) (B) addresses a different but related problem. In some cases, evidence of the sort described in subparagraph (A) may be sufficiently probative to be admissible, but nevertheless be excluded on other grounds. These groups of exclusion are usually described as prejudice, confusion and waste of time. These grounds of exclusion are created by uncertainties in the evidence as to specific points of proof. Paragraph (B) enjoins a court to admit the evidence despite these uncertainties and permit the jury to take them into account in determining the evidence's credibility. Again, as in subparagraph (A), it is not intended that evidence be admitted which is not probative. An item of evidence which is so uncertain as to be of no probative worth would not be relevant and, hence, be excluded. This question of whether an item of evidence is sufficiently probative to be admitted is to be determined by the court, just as it is under current law. Once determined to be probative, however, an item should not be excluded merely because some uncertainty in some particulars demands extra effort on the part of the trier of fact to overcome prejudice, sort through confusion, or just spend more time. The expenditure of such additional time and effort is warranted because in many cases this evidence may be all that is available.

FINAL COMMITTEE ACTION

At the full Committee level, considerable attention was focused on this provision. After extended discussions between individual members, perfecting amendments were offered by Senators Burdick, Mitchell, and Domenici. These were adopted on June 5, 1980. These amendments are shown in the following form: Language to be omitted is enclosed in brackets; new language is shown in roman.

(c) (1) LIABILITY FOR MEDICAL EXPENSES.—A person liable for the discharge, release, or disposal of any hazardous substance under this section shall be liable for medical expenses as defined in subsection (a) (2) (F) of this section where such expenses were incurred in the treatment of injury or disease which such discharge, release or disposal caused or to which it significantly contributed.

(2)[(A)] RELEVANCY EXCLUSIONS.—In connection with any claim for medical expense under paragraph (1) of this subsection, the court may admit as relevant to the issue of causation evidence tending to establish a likelihood that the hazardous substance in question causes or contributes to injury or disease of the sort claimed to have been suffered by the claimant, including, but without limitation, evidence indicating (i) an increase of incidence of such injury or disease in the exposed population above that which is otherwise

probable, (ii) results of pertinent epidemiological studies (without regard to the size of the sample), (iii) results of pertinent animal studies, (iv) results of pertinent tissue culture studies, (v) results of pertinent micro-organism culture studies, and (vi) results of laboratory or toxicologic studies.

[*(B) Prejudice, Confusion and Waste of Time Exclusions.—Inconclusiveness of the medical or scientific evidence described in subparagraph (A) as to—*

[*(i) the specific substance which caused the injury or disease,*

[*(ii) the particular source of the substance,*

[*(iii) the pathway by which the substance reached the claimant, or*

[*(iv) the etiology of the substance in the claimant shall affect the weight of such evidence as determined by the trier of fact, and not the admissability of such evidence in the case of an objection on the grounds that it creates prejudice, confusion, or waste of court time.*]

(3)(A) *Presumption of Cause.—In connection with any claim for medical expenses brought pursuant to subparagraph (1) of this subsection, where the claimant introduces evidence sufficient to enable the trier of fact to find (i) that the claimant was exposed to a hazardous substance found in a discharge, release, or disposal which the defendant caused or to which he contributed, and (ii)* such exposure was in a quantity or for a duration with respect to which there is a reasonable likelihood that it is sufficient to cause or significantly contribute to injury or disease or the class or type of which the claimant complains, and (iii) *that there exists a reasonable likelihood that exposure to such substance causes or significantly contributes to injury or disease of the class or type which claimant claims to have suffered, then it shall be presumed that defendant caused or significantly contributed to that injury or disease.*

[*The presumption defined in subparagraph (A) of this subsection affects the burden of persuasion, and shifts to the defendant the burden of persuading the trier of fact by a preponderance of the evidence that claimant's exposure to the substance in question did not cause or significantly contribute to the injury or disease which the claimant claims to have suffered.*]

(B) The presumption defined in subparagraph (A) of this paragraph affects only the burden of going forward with the presentation of the case. Nothing in this paragraph shall affect the burden of proof which shall remain with the claimant in accordance with rule 301 of the Federal Rules of Evidence.

Adopting these amendments was intended to achieve the following:

First, by striking the words "a likelihood" in subparagraph 2(A) the language in the reported bill eliminates any inference that irrelevant evidence was admissable.

Second, by striking subparagraph 2(B), the action eliminates any unintended damage to rule 403 of the Federal Rules of Evidence. In cases involving toxic or hazardous substances, courts should admit evidence which might be excluded in other types of cases on the grounds of prejudice, confusion or waste of time. Often the practical consequence of excluding such relevant evidence on these grounds is to deny the plaintiff any opportunity to prove his case. The policy in favor of admitting these types of evidence is expresssed in legislative history rather than statutory language because of concerns that the latter course might create difficulties in parts of the judicial system unrelated to the purposes of this legislation.

Third, by elaborating on "exposure", the language now more clearly defines what burden the plaintiff must meet before the presumption is created.

Fourth, by amending the nature of the presumption, the amendment eliminated the burden of disproof which earlier versions would have placed on the defendant. The plaintiff is still to enjoy the benefit of a presumption running in his favor, but the presumption is not related to the burden of persuasion.

ROBERT T. STAFFORD.

MINORITY VIEWS OF SENATOR ALAN K. SIMPSON

All of the Members of this Committee have devoted a great deal of time and sincere effort in reviewing this measure now before us—a measure which has undergone a curious metamorphosis from a "staff working draft" to a committee bill within a few short days.

The interactions and negotiations between the Committee Members are always most stimulating. I particularly commend the cooperative efforts of Senator Culver and the courtesy and cooperation that he has extended to me. As always, our most fair and able Chairman, Jennings Randolph, has been the one to spread the "oil on troubled waters" whenever the discussions became more spirited than necessary! Also the able Ranking Minority Member, Senator Stafford, deserves praise in exercising that fine ability of his to reconcile and then to readdress the issues.

I also note the participation of the newest Member of our Committee, Senator George Mitchell. He is a fine addition and brings to this Committee a remarkable grasp of the law and a judicial temperament that will serve as well. I am greatly looking forward to my future deliberations with him in this arena.

The exceedingly active participation by Members of the Full Committee during the last few days of our markup process has done much to correct some of the serious shortcomings of the staff draft as well as to limit several other areas where matters were proposed which were proposed which could certainly be best described as "overreaching."

I have tried to be constructive in the proposing of amendments and appreciative of the Committee's attention in listening to my explanation of those amendments. It does alarm me to see the tendency, with but a sweep of the drafters' pen, to simply brush off on the floor many of the rules of evidence which have been so closely crafted and observed in our procedural life as lawyers. I will share with you that those rules of evidence are indeed frustrating, I know. I would be in the midst of a jury trial and suddenly with a ruling from the judge, would be unable to present a significant part of my case. That is a learning experience. I think it is critically important for the capable lawyer and non-lawyer members on the staff to remember well in your future years in Washington, that you must always consider the full impact of your efforts upon the trial bar, the judiciary and the citizens. The rules are there for a purpose. They have come "through the fires" and been tempered by litigation. They do work. Basic reason and common sense should be the impetus behind their revision—not simply frustration.

I have stated publicly on many occasions that I was fully prepared to work for the passage of an abandoned dump site act to deal with the issue of "orphan dumps." I would support any measure that would provide the direction and mechanism for the cleaning up those

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hazardous waste sites in this country. These are the potential killers in every sense of the word. I would hope that we might still consider adoption of a system to inventory the inactive hazardous waste sites and then allow the states to select the priorities for those areas that require immediate clean up and correction. The Senate should also examine partial state financing of that effort.

My fundamental objections to this legislation—apart from the fact that it really does very little to focus on abandoned waste sites or even provide for a national inventory of the most hazardous sites in this country—is that it fails to meet the test of reasonable legislation in four principal areas.

I am disturbed about the creation of what I refer to as the "Federal Toxic Tort." The system of liability which is proposed by the bill is unique—and bizarre—for it establishes a limited federal cause of action for those who are injured by releases of hazardous substances.

Under this bill, the ability of injured third parties to find redress through the federal courts is incomplete and unsatisfactory. The forum for filing an action by injured parties is split between the state courts and the federal courts. Under this legislation, it is possible to bring an action in federal court for claims of general damages or medical costs. However, that portion of the cause of action that would allow compensation for an individual's special damages, mental distress, and similar damages must be tried in state courts or in federal courts applying state law. This is a serious failing and I believe it will prove to be a substantial impediment for those who wish to seek effective private legal representation.

I have little doubt but that this "split cause of action" will prove to be a most attractive system of procedure for those who feel that the weight of the Justice Department should be brought heavily to bear against potentially liable parties due to the federal subrogation aspects of private claims for which compensation has already been awarded from the "superfund." I am not ready to take that step and I believe that we have done serious injury to traditional notions of relying upon individuals to seek their own private legal representation as the means for seeking recovery under state common law.

The problems which the splitting of the injured party's cause of action would present in such areas of civil procedure as res judicata, collateral estoppel, conflict of laws, and bar and merger have been wholly overlooked in the committee's efforts to fashion this new federal remedy.

I also feel that making this federal alternative available as a partial remedy will seriously retard the development of the common law in the area of injury from hazardous wastes.

Secondly, there has been very little demonstration made in the record as to the financial ability of the victim compensation fund to address the claims which will be honored. The direction of Committee amendments recently offered in this area has been to expand the scope of compensation that may be awarded and to include such items as medical injuries, loss of income, damage to personal and real property, the rehabilitation of natural resources—and the shopping list is certain to grow with succeeding sessions of Congress.

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As a recent Member of the Senate, I contend that one must only look at the history of our nation's social security system to realize that whenever Congress creates any form of compensation fund, the urge to add additional items of coverage for payment seems to be irresistible. The financial integrity of the fund has not been demonstrated under any evidence I have heard and the move to add additional grounds for awarding compensation will surely destroy its substance and drain it away.

Thirdly, the fee system is seriously deficient and inequitable. I feel that the proponents of the legislation are wholly unconcerned about the financial integrity of the fund when they propose to lay on a fee—or actually a tax—upon the chemical feedstock and oil industries of this country as a mean of generating revenue for the fund. Certainly, the tax is really a liability system in itself. "Adjustments" are intended to be made in the fee levy on feed stocks based upon the history of payment from the fund, with no restraint on the ability to transfer the financial burden for victim compensation to the private sector. That procedure does not provide the proper incentive for sound administration that such a program must have if it is to work efficiently and fairly.

I remain most concerned that the fee system will be imposed upon feed stocks without regard to whether those materials are ultimatly used in the process or manufacture of hazardous substances.

This is a grave mistake and an inequity. A fee on waste generation or disposal would certainly be a sounder stroke of public policy.

Also, I do not read the fee structure as creating or providing any positive incentive for high temperature incineration of wastes or other proven recycling efforts. These types of disposal efforts would help assure that hazardous substances do not become toxic wastes in the first instance.

And finally—and most significantly—I find that this bill is a damning admission that the last decade of sweeping environmental legislation which has been processed by this Committee and the Congress has failed to provide the level and degree of environmental quality and safety to public health that was intended to be secured—or that the American people believed had been adopted. Those early legislative efforts were adopted measure by masure and piece by piece—and came to form a solid wall of burdensome federal regulation that preempted state and local prerogatives and controls on nearly every issue.

The proponents of this legislation now seem intent to preempt the common law of the states, as well as the statutory enactments, and have come down to the "final solution" which is apparently to simply rely on what jurists of the 18th Century referred to as "the brooding omnipresence of the law" as being the strongest environmental control measure. This is not a good way to legislate. American businessmen and citizens deserve better.

ALAN K. SIMPSON.

ADDITIONAL VIEWS OF SENATORS DOMENICI, BENTSEN, AND BAKER

We did not oppose reporting out S. 1480 because we need a mechanism to clean up the old hazardous waste sites that are causing harm to the environment and to individuals. However, we do take issue with the approach that S. 1480 takes in substantially changing existing common law (in some cases retroactively) and establishing a liability scheme predicated on such a broad definition of what constitutes a hazardous substance.

The Committee on Environment and Public Works was faced with the option of either developing a narrow response-oriented bill or establishing a broadly-structured liability scheme to address this very complicated issue. S. 1480, as reported, chose the latter approach and makes manufacturers, transporters, and disposers of hazardous substances strictly, jointly, and severally liable for releases and spills. While the Committee accepted over twenty-five modifying amendments during the mark-up, many concerns about S. 1480 remain unresolved.

The bill creates new judicial standards for presentation of evidence and pursuing a cause of action, the combined effects of which are unknown and untested. S. 1480 changes State tort law by developing a new Federal tort law which allows individual claimants to enter court more easily and to proceed with a suit despite a paucity of evidence. This is a creation of a Federal cause of action which constitutes an intrusion into judicial processes that have been formulated over hundreds of years of common law evolution and procedural development upon which industries and businesses have relied in assessing their exposure to liability and the availability of insurance when they engage in certain industrial activities. Specifically, the bill significantly reduces the need for a plaintiff to establish a casual link between a hazardous substances and an alleged injury.

The difficulty in pinpointing the cause of a disease on exposure to a single chemical is well-documented. For example, in the case of cancer, a multitude of factors could play a role in the contraction of the disease. Those factors include genetics, personal habits (such as smoking and diet), occupational exposures and environmental exposures. On Monday, June 30, 1980, the Washington Post ran an editorial entitled "The Chemical Questions" which raises the difficult questions of chemical exposure and the inexact science of tracing actual exposure to an actual disease. The editorial discusses the case of Love Canal and the fact that despite numerous studies, we are no further along in linking the exposure to the chemicals in the canal with the actual illnesses being experienced by the residents of Love Canal.

On June 13, 1980, Science magazine ran an article on a widely-publicized study that was done on chromosome damage among the

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residents of Love Canal. The Science article points out the serious deficiencies of that study and dismisses the findings contained in the study as unsubstantiated.

This discussion is not intended to pass judgment on the illnesses at Love Canal, but rather to bring into perspective the difficulties we face in attempting to sort through the synergistic effects of a number of factors in everyday life in isolating the source of many illnesses which are occurring more and more frequently.

The bill also creates a new cause of action with strict liability. Strict liability, in conjunction with a Federal cause of action, is a dramatic step in a field greatly deficient in scientific and medical knowledge.

If the Congress thinks that the standards of medical proof are too difficult to allow many legitimate cases to be brought before the courts under present law, then perhaps we should consider setting up a Commission representing among others, the American Bar Association, to assist the Congress in drafting a model code that could be presented to the States for adoption. This is more in line with other legal issues that traditionally fall within the jurisdiction of the States, but where the Federal government has stepped in to provide guidance.

The new liability scheme established in S. 1480 requires further refinement. The definition of "hazardous substance" is exceedingly broad and brings too wide an array of businesses under the umbrella of engaging in an "ultrahazardous activity", thus creating strict liability for their operations. The only available defenses under the bill are an Act of God or an Act of war. As a consequence, what S. 1480 does is to simply throw out negligence and nuisance as legal concepts relating to the ongoing activities of America's entire industrial base.

The effects of such a doctrine are clear. For example, in the case of a mining operation where certain chemicals are used in the extraction process, the owner or operator of that mine would have no defenses available to him if an unidentified third party, unconnected to his operation, came onto the mine site and mishandled those chemicals. He would find himself facing a barrage of suits in which he was being hed strictly liable for all of the damages regardless of whether or not he had any control over the situation.

Furthermore, S. 1480 goes one step further by imposing joint and several liability. While that concept was modified by mandating apportionment in the case of an insignificant contributor, many concerns remain. For one, an insignificant contributor is not defined. Equally troubling is the fact that the bill does not provide for apportionment in the case where a significant contributor who, for example, was responsible for 60% of damages must bear the full 100% of the costs because the other contributors cannot be found or identified or are found to be insolvent.

The issue of applying the new standards retroactively remains a troubling one. While the Committee accepted a Domenici amendment to limit the scope of the retroactivity, the issue remains unresolved. To expect individual businesses to absorb the costs imposed by a doctrine not consistent with American standards or jurisprudence is not only unreasonable, but may be unconstitutional.

When the bill was discussed in Committee, it was described as a law that would assist the innocent, individual claimant in seeking damages

against giant corporations. Yet, this bill also creates the option for these same claimants to go to the Fund, seek damages, receive them and subrogate their claims to the Federal government. The Federal government would then litigate to recover the money the Fund had paid. Given the difficulties and costs of mounting private claims on these complex technical issues, it seems to us that most claimants would subrogate their rights to the Federal government.

Such a shift in the balance of litigation is significant. The bill no longer would represent the drawing of an equitable balance between private litigants. Rather, it would create a new avenue for the U.S. Department of Justice to use its massive resources to sue the private sector. Large and small businesses would be treated alike; both would face the power of the Justice Department.

This scenario is particularly perplexing in view of the statement reported in the press of a Justice Department employee who has been directly involved in the development of this legislation. He stated, "government is perfectly prepared to punish the innocent for the sins of the guilty." This position does not square with our sense of justice or with our view of the role of government. When we sought solutions to the problems of hazardous substance exposure, it was not our purpose to unleash a legion of Federal attorneys on the private sector. Rather, we sought to protect unsuspecting victims from unanticipated releases of hazardous substances from abandoned and inactive waste sites and from spills. We sought to assure these citizens that they would not have to sit idly watching government and business argue over who has the responsibility for cleaning up and containing a release that threatened them. We recognized that liability for such response actions can create incentives for responsible parties to act. Now we must question whether S. 1480 is creating liability that will adversely affect the decisionmaking process of American business.

The liability provisions of this bill alter two factors that affect business decisions: (1) the potential exposure of the company's assets to loss and (2) the availability of insurance to protect against these losses. The availability of insurance is particularly crucial to small and medium-sized businesses. However, insurance availability is largely dependent on developing the probabilities of the conditions under which payments would be made. Once these probabilities are defined, the availability, the coverage and the cost of insurance can be established. Thus, the analysis of both asset exposure and insurance availability largely hinges on the predictability of liability for a specific decision. Both of these factors appear to be adversely affected by the provisions of S. 1480.

In general, the development and application of such concepts as strict liability, ultrahazardous activities, and joint and several liability to extensive third party damages take place over an extended time frame. During this period, asset risk assessment and insurance probabilities can be developed. Decisions can be made in an orderly manner. One result of S. 1480 is that it accelerates the development and application of these complex concepts. In doing so, it prevents the private sector decision-making process from being able to assess it liability risks.

Consequently, it would appear that private sector decisions will have to be made on the worst case that might result from passage of

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the bill. That case would be: (1) the defendant faces litigation brought by the Federal government; (2) he is one of a few or the single defendant in a case where the release was largely caused by another operator; (3) the more significant contributor is insolvent; (4) actions beyond his reasonable control caused the release, precluding his use of the defenses available under S. 1480 (Act of God and Act of war); (5) large third party damages are at issue; and (6) joint and several liability in S. 1480 expose the defendant to the possibility of paying for all of the damages.

Under this scenario, the elements of this bill will push the decision-maker in directions that will likely lead to adverse consequences for the national economy. Small companies may be forced to close because insurance will be unavailable or too costly. Middle-sized companies will not likely risk their assets for new ventures when faced with these liabilities at existing facilities. This is exactly the case that generated the post-closure liability provision of S. 1480 for closed waste disposal sites. Large corporations, faced with the alternatives of building or expanding facilities in this country or elsewhere, may choose to spend their capital funds in countries with less possibilities of risk. These are economic consequences that this country cannot afford to incur.

We believe that a more reasoned balance can be drawn in this bill. The bill can be focused on response actions that would clean up and contain hazardous substance releases from sites or spills, that would relocate people if necessary or provide them with new water supplies. It could be modified to use Fund monies to pay for selected third party damages. If the legislation were successful in stopping harm from occurring by rapid and effective response, the demand for funds for third party damages would be minimized.

While we continue to support the need for legislation to deal with these problems, we intend to further evaluate the bill in light of our concerns. If there are delays in enacting this legislation, then we would expect Congress and EPA to continue to act on an ad hoc basis on specific situations such as at Love Canal and Memphis, Tennessee.

PETE DOMENICI.
LLOYD BENTSEN.
HOWARD BAKER.

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Changes in Existing Law

In compliance with section 12 of rule XXVI of the Standing Rules of the Senate, changes in existing law made by the bill as reported are shown as follows: Existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman:

Federal Water Pollution Control Act, As Amended

(33 U.S.C. 466 et seq.)

AN ACT To provide for water pollution control activities in the Public Health Service of the Federal Security Agency and in the Federal Works Agency, and for other purposes.

* * * * * * *

OIL AND HAZARDOUS SUBSTANCE LIABILITY

Sec. 311. (a) For the purpose of this section, the term—

(1) "oil" means oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil;

(2) "discharge" includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying or dumping, but excludes (A) discharges in compliance with a permit under section 402 of this Act, (B) discharges resulting from circumstances identified and reviewed and made a part of the public record with respect to a permit issued or modified under section 402 of this Act, and subject to a condition in such permit, and (C) continuous or anticipated intermittent discharges from a point source, identified in a permit or permit application under section 402 of this Act, which are caused by events occurring within the scope of revelant operating or treatment systems;

(3) "vessel" means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water other than a public vessel;

(4) "public vessel" means a vessel owned or bareboat-chartered and operated by the United States, or by a State or political subdivision thereof, or by a foreign nation, except when such vessel is engaged in commerce;

(5) "United States" means the States, the District of Columbia, the Commonwealth of Puerto Rico, the Canal Zone, Guam, American Samoa, the Virgin Islands, and the Trust Territory of the Pacific Islands;

(6) "owner or operator" means (A) in the case of a vessel, any person owning, operating, or chartering by demise, such vessel, and (B) in the case of an onshore facility, and an offshore facil-

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ity, any person owning or operating such onshore facility or offshore facility, and (C) in the case of any abandoned offshore facility, the person who owned or operated such facility immediately prior to such abandonment;

(7) "person" includes an individual, firm, corporation, association, and a partnership;

(8) "remove" or "removal" refers to removal of the oil or hazardous substances from the water and shorelines or the taking of such other actions as may be necessary to minimize or mitigate damage to the public health or welfare, including, but not limited to, fish, shellfish, wildlife, and public and private property, shorelines, and beaches;

(9) "contiguous zone" means the entire zone established or to be established by the United States under article 24 of the Convention on the Territorial Sea and the Contiguous Zone;

(10) "onshore facility" means any facility (including, but not limited to, motor vehicles and rolling stock) of any kind located in, on, or under, any land within the United States other than submerged land;

(11) "offshore facility" means any facility of any kind located in, on, or under, any of the navigable waters of the United States, and any facility of any kind which is subject to the jurisdiction of the United States and is located in, on, or under any other waters, other than a vessel or a public vessel;

(12) "act of God" means an act occasioned by an unanticipated grave natural disaster;

(13) "barrel" means 42 United States gallons at 60 degrees Fahrenheit;

(14) "hazardous substance" means any substance designated pursuant to subsection (b)(2) of this section;

(15) "inland oil barge" means a non-self-propelled vessel carrying oil in bulk as cargo and certificated to operate only in the inland waters of the United States, while operating in such waters;

(16) "inland waters of the United States" means those waters of the United States lying inside the baseline from which the tertorial sea is measured and those waters outside such baseline which are a part of the Gulf Intracoastal Waterway;

(17) "Otherwise subject to the jurisdiction of the United States" means subject to the jurisdiction of the United States by virtue of United States citizenship, United States vessel documentation or numbering, or as provided for by international agreement to which the United States is a party.

(b)(1) The Congress hereby declares that it is the policy of the United States that there should be no discharges of oil or hazardous substances into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone, or in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States (including resources under the Fishery Conservation and Management Act of 1976).

(2)(A) The Administrator shall develop, promulgate, and revise as may be appropriate, regulations designating as hazardous substances, other than oil as defined in this section, such elements and compounds which, when discharged in any quantity into or upon the navigable waters of the United States or adjoining shorelines or the waters of the contiguous zone or in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States (including resources under the Fishery Conservation and Management Act of 1976), present an imminent and substantial danger to the public health or welfare, including, but not limited to, fish, shellfish, wildlife, shorelines, and beaches.

(B) The Administrator shall within 18 months after the date of enactment of this paragraph, conduct a study and report to the Congress on methods, mechanisms, and procedures to create incentives to achieve a higher standard of care in all aspects of the management and movement of hazardous substances on the part of owners, operators, or persons in charge of onshore facilities, offshore facilities, or vessels. The Administrator shall include in such study (1) limits of liability, (2) liability for third party damages, (3) penalties and fees, (4) spill prevention plans, (5) current practices in the insurance and banking industries, and (6) whether the penalty enacted in subclause (bb) of clause (iii) of subparagraph (B) of subsection (b)(2) of section 311 of Public Law 92-500 should be enacted.

(3) The discharge of oil or hazardous substances (i) into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone, or (ii) in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States (including resources under the Fishery Conservation and Management Act of 1976), in such quantities as may be harmful as determined by the President under paragraph (4) of this subsection, is prohibited, except (A) in the case of such discharges of oil into the waters of the contiguous zone or which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States (including resources under the Fishery Conservation and Management Act of 1976), where permitted under the International Convention for the Prevention of Pollution or the Sea by Oil, 1954, as amended, and (B) where permitted in quantities and at times and locations or under such circumstances or conditions as the President may, by regulation, determine not to be harmful. Any regulations issued under this subsection shall be consistent with maritime safety and with marine and navigation laws and regulations and applicable water quality standards.

(4) The President shall by regulation determine for the purposes of this section those quantities of oil and any hazardous substances the discharge of which may be harmful to the public health or welfare of the United States, including but not limited to fish, shellfish, wildlife, and public and private property, shorelines, and beaches.

(5) Any person in charge of a vessel or of an onshore facility or an offshore facility shall, as soon as he has knowledge of any discharge of oil or a hazardous substance from such vessel or facility in violation of paragraph (3) of this subsection, immediately notify the appropriate agency of the United States Government of such discharge. Any such person (A) in charge of a vessel from which oil or a hazardous substance is discharged in violation of paragraph (3)(i) of this subsection, or (B) in charge of a vessel from which oil or a hazardous substance is discharged in violation of paragraph (3)(ii) of this subsection and who is otherwise subject to the jurisdiction of the United States at the time of the discharge, or (C) in charge of an onshore facility or an offshore facility, who fails to notify immediately such agency of such discharge shall, upon conviction, be fined not more than $10,000, or imprisoned for not more than one year, or both. Notification received pursuant to this paragraph or information obtained by the exploitation of such notification shall not be used against any such person in any criminal case, except a prosecution for perjury or for giving a false statement.

(6)(A) Any owner, operator, or person in charge of any onshore facility or offshore facility from which oil or a hazardous substance is discharged in violation of paragraph (3) of this subsection shall be assessed a civil penalty by the Secretary of the department in which the Coast Guard is operating of not more than $5,000 for each offense. Any owner, operator, or person in charge of any vessel from which oil or a hazardous substance is discharged in violation of paragraph (3)(i) of this subsection, and any owner, operator, or person in charge of a vessel from which oil or a hazardous substance is discharged in violation of paragraph (3)(ii) who is otherwise subject to the jurisdiction of the United States at the time of discharge, shall be assessed a civil penalty by the Secretary of the department in which the Coast Guard is operating of not more than $5,000 for each offense. No penalty shall be assessed unless the owner or operator charged shall have been given notice and opportunity for a hearing on such charge. Each violation is a separate offense. Any such civil penalty may be compromised by such Secretary. In determining the amount of the penalty, or the amount agreed upon in compromise, the appropriateness of such penalty to the size of the business of the owner or operator charged, the effect on the owner or operator's ability to continue in business, and the gravity of the violation, shall be considered by such Secretary. The Secretary of the Treasury shall withhold at the request of such Secretary the clearance required by section 4197 of the Revised Statutes of the United States, as amended (46 U.S.C. 91), of any vessel the owner or operator of which is subject to the foregoing penalty. Clearance may be granted in such cases upon the filing of a bond or other surety satisfactory to such Secretary.

(B) The Administrator, taking into account the gravity of the offense, and the standard of care manifested by the owner, operator, or person in charge, may commence a civil action against any such person subject to the penalty under subparagraph (A) of this paragraph to impose a penalty based on consideration of the size of the business of the owner or operator, the effect on the ability of the owner or operator to continue in business, the gravity of the violation, and the nature,

extent, and degree of success of any efforts made by the owner, operator, or person in charge to minimize or mitigate the effects of such discharge. The amount of such penalty shall not exceed $50,000, except that where the United States can show that such discharge was the result of willful negligence or willful misconduct within the privity and knowledge of the owner, operator, or person in charge, such penalty shall not exceed $250,000. Each violation is a separate offense. Any action under this subparagraph may be brought in the district court of the United States for the district in which the defendant is located or resides or is doing business, and such court shall have jurisdiction to assess such penalty. No action may be commenced under this clause where a penalty has been assessed under clause (A) of this paragraph.

(C) In addition to establishing a penalty for the discharge of a hazardous substance, the Administrator may act to mitigate the damage to the public health or welfare caused by such discharge. The cost of such mitigation shall be deemed a cost incurred under subsection (c) of this section for the removal of such substance by the United States Government.

(D) Any costs of removal incurred in connection with a discharge excluded by subsection (a)(2)(C) of this section shall be recoverable from the owner or operator of the source of the discharge in an action brought under section 309(b) of this Act.

(E) Civil penalties shall not be assessed under both this section and section 309 for the same discharge.

(c)(1) Whenever any oil or a hazardous substance is discharged, or there is a substantial threat of such discharge, into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone, or in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States (including resources under the Fishery Conservation and Management Act of 1976) the President is authorized to act to remove or arrange for the removal of such oil or substance at any time, unless he determines such removal will be done properly by the owner or operator of the vessel, onshore facility, or offshore facility from which the discharge occurs.

(2) Within sixty days after the effective date of this section, the President shall prepare and publish a National Contingency Plan for removal of oil and hazardous substances pursuant to this subsection. Such National Contingency Plan shall provide for efficient, coordinated, and effective action to minimize damage from oil and hazardous substance discharges, including containment, dispersal, and removal of oil and hazardous substances, and shall include, but not be limited to—

(A) assignment of duties and responsibilities among Federal departments and agencies in coordination with State and local agencies, including, but not limited to, water pollution control, conservation, and port authorities;

(B) identification, procurement, maintenance, and storage of equipment and supplies;

(C) establishment or designation of a strike force consisting of personnel who shall be trained, prepared, and available to pro-

vide necessary services to carry out the Plan, including the establishment at major ports, to be determined by the President, of emergency task forces of trained personnel, adequate oil and hazardous substance pollution control equipment and material, and a detailed oil and hazardous substance pollution prevention and removal plan;

(D) a system of surveillance and notice designed to insure earliest possible notice of discharges of oil and habardous substances and imminent threats of such discharges to the appropriate State and Federal agencies;

(E) establishment of a national center to provide coordination and direction for operations in carrying out the Plan;

(F) procedures and techniques to be employed in identifying, containing, dispersing, and removing oil and hazardous substances;

(G) a schedule, prepared in cooperation with the States, identifying (i) dispersants and other chemicals, if any, that may be used in carrying out the Plan, (ii) the waters in which such dispersants and chemicals may be used, and (iii) the quantities of such dispersant or chemical which can be used safely in such waters, which schedule shall provide in the case of any dispersant, chemical, or waters not specifically identified in such schedule that the President, or his delegate, may, on a case-by-case basis, identify the dispersants and other chemicals which may be used, the waters in which they may be used, and the quantities which can be used safely in such waters; and

(H) a system whereby the State or States affected by a discharge of oil or hazardous substance may act where necessary to remove such discharge and such State or States may be reimbursed from the fund established under subsection (k) of this section *or the fund established under section 5 of the Environmental Emergency Response Act, as appropriate*, for the reasonable costs incurred in such removal.

The President may, from time to time, as he deems advisable revise or otherwise amend the National Contingency Plan. After publication of the National Contingency Plan, the removal of oil and hazardous substances and actions to minimize damage from oil and hazardous substances discharges shall, to the greatest extent possible, be in accordance with the National Contingency Plan.

(d) Whenever a marine disaster in or upon the navigable waters of the United States has created a substantial threat of a pollution hazard to the public health or welfare of the United States, including, but not limited to, fish, shellfish, and wildlife and the public and private shorelines and beaches of the United States, because of a discharge, or an imminent discharge, of large quantities of oil, or of a hazardous substance from a vessel the United States may (A) coordinate and direct all public and private efforts directed at the removal or elimination of such threat; and (B) summarily remove, and, if necessary, destroy such vessel by whatever means are available without regard to any provisions of law governing the employment of personnel or the expenditure of appropriated funds. Any expense incurred under this subsection or under the intervention on the High Seas Act (or the convention defined in section 2(3) thereof) shall be

a cost incurred by the United States Government for the purposes of subsection (f) in the removal of oil or hazardous substance.

(e) In addition to any other action taken by a State or local government, when the President determines there is an imminent and substantial threat to the public health or welfare of the United States, including, but not limited to, fish, shellfish, and wildlife and public and private property, shorelines, and beaches within the United States, because of an actual or threatened discharge of oil or hazardous substance into or upon the navigable waters of the United States from an onshore or offshore facility, the President may require the United States attorney of the district in which the threat occurs to secure such relief as may be necessary to abate such threat, and the district courts of the United States shall have jurisdiction to grant such relief as the public interest and the equities of the case may require.

(f)(1) Except where an owner or operator can prove that a discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether any such act or omission was or was not negligent, or any combination of the foregoing clauses, such owner or operator of any vessel from which oil or a hazardous substance is discharged in violation of subsection (b)(3) of this section shall, notwithstanding any other provision of law, be liable to the United States Government for the actual costs incurred under subsection (c) for the removal of such oil or substance by the United States Government in an amount not to exceed, in the case of an inland oil barge $125 per gross ton of such barge, or $125,000, whichever is greater, and in the case of any other vessel, $150 per gross ton of such vessel (or, for a vessel carrying oil or hazardous substances as cargo, $250,000), whichever is greater, except that where the United States can show that such discharge was the result of willful negligence or willful misconduct within the privity and knowledge of the owner, such owner or operator shall be liable to the United States Government for the full amount of such costs. Such costs shall constitute a maritime lien on such vessel which may be recovered in an action in rem in the district court of the United States for any district within which any vessel may be found. The United States may also bring an action against the owner or operator of such vessel, *or against any guarantor of an owner's or operator's liability under the Environmental Emergency Response Act*, in any court of competent jurisdiction to recover such costs.

(2) Except where an owner or operator of an onshore facility can prove that a discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether any such act or omission was or was not negligent, or any combination of the foregoing clauses, such owner or operator of any such facility from which oil or a hazardous substance is discharged in violation of subsection (b)(3) of this section shall be liable to the United States Government for the actual costs incurred under subsection (c) for the removal of such oil or substance by the United States Government in an amount not to exceed $50,000,000, except that where the United States can show that such discharge was the result of

willful negligence or willful misconduct within the privity and knowledge of the owner, such owner or operator shall be liable to the United States Government for the full amount of such costs. The United States may bring an action against the owner or operator of such facility in any court of competent jurisdiction to recover such costs. The Administrator is authorized, by regulation, after consultation with the Secretary of Commerce and the Small Business Administration, to establish reasonable and equitable classifications of those onshore facilities having a total fixed storage capacity of 1,000 barrels or less which he determines because of size, type, and location do not present a substantial risk of the discharge of oil or a hazardous substance in violation of subsection (b)(3) of this section, and apply with respect to such classifications differing limits of liability which may be less than the amount contained in this paragraph.

(3) Except where an owner or operator of an offshore facility can prove that a discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether any such act or omission was or was not negligent, or any combination of the foregoing clauses, such owner or operator of any such facility from which oil or a hazardous substance is discharged in violation of subsection (b)(3) of this section shall, notwithstanding any other provision of law, be liable to the United States Government for the actual costs incurred under subsection (c) for the removal of such oil or substance by the United States Government in an amount not to exceed $50,000,000, except that where the United States can show that such discharge was the result of willful negligence or willful misconduct within the privity and knowledge of the owner, such owner or operator shall be liable to the United States Government for the full amount of such costs. The United States may bring an action against the owner or operator of such a facility in any court of competent jurisdiction to recover such costs.

(4) The costs of removal of oil or a hazardous substance for which the owner or operator of a vessel or onshore or offshore facility is liable under subsection (f) of this section shall include any costs or expenses incurred by the Federal Government or any State government in the restoration or replacement of natural resources damaged or destroyed as a result of a discharge of oil or a hazardous substance in violation of subsection (b) of this section.

(5) The President, or the authorized representative of any State, shall act on behalf of the public as trustee of the natural resources to recover for the costs of replacing or restoring such resources. Sums recovered shall be used to restore, rehabilitate, or acquire the equivalent of such natural resources by the appropriate agencies of the Federal Government, or the State government.

(g) Where the owner or operator of a vessel (other than an inland oil barge) carrying oil or hazardous substances as cargo or an onshore or offshore facility which handles or stores oil or hazardous substances in bulk, from which oil or a hazardous substance is discharged in violation of subsection (b) of this section, alleges that such discharge was caused solely by an act or omission of a third party, such owner or operator shall pay to the United States Government the actual costs incurred under subsection (c) for removal of such oil or

substance and shall be entitled by subrogation to all rights of the United States Government to recover such costs from such third party under this subsection. In any case where an owner or operator of a vessel, of an onshore facility, or of an offshore facility, from which oil or a hazardous substance is discharged in violation of subsection (b)(3) of this section, proves that such discharge of oil or hazardous substance was caused solely by an act or omission of a third party, or was caused solely by such an act or omission in combination with an act of God, an act of war, or negligence on the part of the United States Government, such third party shall, notwithstanding any other provision of law, be liable to the United States Government for the actual costs incurred under subsection (c) for removal of such oil or substance by the United States Government, except where such third party can prove that such discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of another party without regard to whether such act or omission was or was not negligent, or any combination of the foregoing clauses. If such third party was the owner or operator of a vessel which caused the discharge of oil or a hazardous substance in violation of subsection (b)(3) of this section, the liability of such third party under this subsection shall not exceed in case of an inland oil barge $125 per gross ton of such barge, $125,000, whichever is greater, and in the case of any other vessel, $150 per gross ton of such vessel (or, for a vessel carrying oil or hazardous substances as cargo, $250,000), whichever is greater. In any other case the liability of such third party shall not exceed the limitation which would have been applicable to the owner or operator of the vessel or the onshore or offshore facility from which the discharge actually occurred if such owner or operator were liable. If the United States can show that the discharge of oil or a hazardous substance in violation of subsection (b)(3) of this section was the result of willful negligence or willful misconduct within the privity and knowledge of such third party, such third party shall be liable to the United States Government for the full amount of such removal costs. The United States may bring an action against the third party *or against any guarantor of an owner's or operator's liability under the Environmental Emergency Response Act* in any court of competent jurisdiction to recover such removal costs.

(h) The liabilities established by this section shall in no way affect any rights which (1) the owner or operator of a vessel or of an onshore facility or an offshore facility may have against any third party whose acts may in any way have caused or contributed to such discharge, or (2) The United States Government may have against any third party whose actions may in any way have caused or contributed to the discharge of oil or hazardous substance.

(i)(1) In any case where an owner or operator of a vessel or an onshore facility or an offshore facility from which oil or a hazardous substance is discharged in violation of subsection (b)(3) of this section acts to remove such oil or substance in accordance with regulations promulgated pursuant to this section, such owner or operator shall be entitled to recover the reasonable costs incurred in such removal upon establishing, in a suit which may be brought against the United States Government in the United States Court of Claims, that such dis-

charge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether such act or omission was or was not negligent, or of any combination of the foregoing clauses.

(2) The provisions of this subsection shall not apply in any case where liability is established pursuant to the Outer Continental Shelf Lands Act, or the Deepwater Port Act of 1974.

(3) Any amount paid in accordance with a judgment of the United States Court of Claims pursuant to this section shall be paid from the funds established pursuant to subsection (k).

(j)(1) Consistent with the National Contingency Plan required by subsection (c)(2) of this section, as soon as practicable after the effective date of this section, and from time to time thereafter, the President shall issue regulations consistent with maritime safety and with marine and navigation laws (A) establishing methods and procedures for removal of discharged oil and hazardous substances, (B) establishing criteria for the development and implementation of local and regional oil and hazardous substance removal contingency plans, (C) establishing procedures, methods, and equipment and other requirements for equipment to prevent discharges of oil and hazardous substances from vessels and from onshore facilities and offshore facilities, and to contain such discharges, and (D) governing the inspection of vessels carrying cargoes of oil and hazardous substances and the inspection of such cargoes in order to reduce the likelihood of discharges of oil from vessels in violation of this section.

(2) Any owner or operator of a vessel or an onshore facility or an offshore facility and any other person subject to any regulation issued under paragraph (1) of this subsection who fails or refuses to comply with the provisions of any such regulations, shall be liable to a civil penalty of not more than $5,000 for each such violation. This paragraph shall not apply to any owner or operator of any vessel from which oil or a hazardous substance is discharged in violation of paragraph (3)(ii) of subsection (b) unless such owner, operator, or person in charge is otherwise subject to the jurisdiction of the United States. Each violation shall be a separate offense. The President may assess and compromise such penalty. No penalty shall be assessed until the owner, operator, or other person charged shall have been given notice and an opportunity for a hearing on such charge. In determining the amount of the penalty, or the amount agreed upon in compromise, the gravity of the violation, and the demonstrated good faith of the owner, operator, or other person charged in attempting to achieve rapid compliance after notification of a violation, shall be considered by the President.

(k) There is hereby authorized to be appropriated to a revolving fund to be established in the Treasury such sums as may be necessary to maintain such fund at a level of $35,000,000 to carry out the provisions of subsections (c), (d), (i), and (l) of this section. Any other funds received by the United States under this section shall also be deposited in said fund for such purposes. All sums appropriated to or deposited in, said fund shall remain available until expended.

(l) The President is authorized to delegate the administration of this section to the heads of those Federal departments, agencies, and

instrumentalities which he determines to be appropriate. Any moneys in the fund established by subsection (k) of this section shall be available to such Federal departments, agencies, and instrumentalities to carry out the provisions of subsections (c) and (i) of this section. Each such department, agency, and instrumentality, in order to avoid duplication of effort, shall, whenever appropriate, utilize the personnel, services, and facilities of other Federal departments, agencies, and instrumentalities.

(m) Anyone authorized by the President to enforce the provisions of this section may, except as to public vessels, (A) board and inspect any vessel upon the navigable waters of the United States or the waters of the continguous zone, (B) with or without a warrant arrest any person who violates the provisions of this section or any regulation issued thereunder in his presence or view, and (C) execute any warrant or other process issued by an officer or court of competent jurisdiction.

(n) The several district courts of the United States are invested with jurisdiction for any actions, other than actions pursuant to subsection (i)(1), arising under this section. In the case of Guam and the Trust Territory of the Pacific Islands, such actions may be brought in the district court of Guam, and in the case of the Virgin Islands such actions may be brought in the district court of the Virgin Islands. In the case of American Samoa and the Trust Territory of the Pacific Islands, such actions may be brought in the District Court of the United States for the District of Hawaii and such court shall have jurisdiction of such actions. In the case of the Canal Zone, such actions may be brought in the United States District Court for the District of the Canal Zone.

(o)(1) Nothing in this section shall affect or modify in any way the obligations of any owner or operator of any vessel, or of any owner or operator of any onshore facility or offshore facility to any person or agency under any provision of law for damages to any publicly owned or privately owned property resulting from a discharge of any oil or hazardous substance or from the removal of any such oil or hazardous substance.

(2) Nothing in this section shall be construed as preempting any State or political subdivision thereof from imposing any requirement or liability with respect to the discharge of oil or hazardous substance into any waters within such State.

(3) Nothing in this section shall be construed as affecting or modifying any other existing authority of any Federal department, agency, or instrumentality, relative to onshore or offshore facilities under this Act or any other provision of law, or to affect any State or local law not in conflict with this section.

(p)(1) Any vessel over three hundred gross tons, including any barge of equivalent size, but not including any barge that is not self-propelled and that does not carry oil or hazardous substances as cargo or fuel, using any port, or place in the United States or the navigable waters of the United States for any purpose shall establish and maintain under regulations to be prescribed from time to time by the President, evidence of financial responsibility of, in the case of an inland oil barge $125 per gross ton of such barge, or $125,000, whichever is greater, and in the case of any other vessel, $150 per gross ton of such vessel (or, for a vessel carrying oil or hazardous substances as cargo, $250,-

000), whichever is greater, to meet the liability to the United States which such vessel could be subjected under this section. In cases where an owner or operator owns, operates, or charters more than one such vessel, financial responsibility need only be established to meet the maximum liability to which the largest of such vessels could be subjected. Financial responsibility may be established by any one of, or a combination of, the following methods acceptable to the President: (A) evidence of insurance, (B) surety bonds, (C) qualification as a self-insurer, or (D) other evidence of financial responsibility. Any bond filed shall be issued by a bonding company authorized to do business in the United States.

(2) The provisions of paragraph (1) of this subsection shall be effective April 3, 1971, with respect to oil and one year after the date of enactment of this section with respect to hazardous subtasnces. The President shall delegate the responsibility to carry out the provisions of this subsection to the appropriate agency within sixty days after the date of enactment of this section. Regulations necessary to implement this subsection shall be issued within six months after the date of enactment of this section.

(3) Any claim for costs incurred by such vessel may be brought directly against the insurer or any other person providing evidence of financial responsibility as required under this subsection. In the case of any action pursuant to this subsection such insurer or other person shall be entitled to invoke all rights and defenses which would have been available to the owner or operator if an action had been brought against him by the claimant, and which would have been available to him if an action had been bought against him by the owner or operator.

(4) Any owner or operator of a vessel subject to this subsection, who fails to comply with the provisions of this subsection or any regulation issued thereunder, shall be subject to a fine of not more than $10,000.

(5) The Secretary of the Treasury may refuse the clearance required by section 4197 of the Revised Statutes of the United States, as amended (4 U.S.C. 91), to any vessel subject to this subsection, which does not have evidence furnished by the President that the financial responsibility provisions of paragraph (1) of this subsection have been complied with.

(6) The Secretary of the Department in which the Coast Guard is operated may (A) deny entry to any port or place in the United States or the navigable waters of the United States, to, and (B) detain at the port or place in the United States from which it is about to depart for any other port or place in the United States, any vessel subject to this subsection, which upon request, does not produce evidence furnished by the President that the financial responsibility provisions of paragraph (1) of this subsection have been complied with.

(q) The President is authorized to establish, with respect to any class or category of onshore or offshore facilities, a maximum limit of liability under subsections (f)(2) and (3) of this section of less than $50,000,000, but not less than $8,000,000.

(r) Nothing in this section shall be construed to impose, or authorize the imposition of any limitation on liability under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974.

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Message

From: Richards, Tina [Tina.Richards@mail.house.gov]
Sent: 2/16/2018 1:56:06 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: RE: WH infrastructure

Let me know if you have time to chat today. My direct is Personal Matters / Ex. 6 Thanks!

-----Original Message-----
From: Brown, Byron [mailto:brown.byron@epa.gov]
Sent: Thursday, February 15, 2018 3:15 PM
To: Richards, Tina <Tina.Richards@mail.house.gov>
Subject: RE: WH infrastructure

I just tried calling your desk. My direct line is Personal Matters / Ex. 6

-----Original Message-----
From: Richards, Tina [mailto:Tina.Richards@mail.house.gov]
Sent: Thursday, February 15, 2018 2:47 PM
To: Brown, Byron <brown.byron@epa.gov>
Subject: RE: WH infrastructure

If you are calling now - I am still at my desk (Personal Matters / Ex. 6 if it will be more than half hour from now - I will give you my cell #

-----Original Message-----
From: Brown, Byron [mailto:brown.byron@epa.gov]
Sent: Thursday, February 15, 2018 2:26 PM
To: Richards, Tina <Tina.Richards@mail.house.gov>
Subject: RE: WH infrastructure

Hi Tina -- what would be a good number to call you at?

-----Original Message-----
From: Richards, Tina [mailto:Tina.Richards@mail.house.gov]
Sent: Tuesday, February 13, 2018 10:27 PM
To: Brown, Byron <brown.byron@epa.gov>
Subject: Re: WH infrastructure

I think Walden is talking to WH tomorrow but I'm sure it's just the start of the conversation and I gave him my preliminary thoughts so Thursday should work. My calendar for Thursday is pretty open as of now so whatever works for you.

> On Feb 13, 2018, at 10:23 PM, Brown, Byron <brown.byron@epa.gov> wrote:
>
> Yes happy to chat. What's your timing? Would Thursday afternoon work or do you need to talk earlier?
>
> Sent from my iPhone
>
>> On Feb 13, 2018, at 10:09 PM, Richards, Tina <Tina.Richards@mail.house.gov> wrote:
>>
>> Do you guys at EPA have insight on the superfund/Brownfields provisions in the WH infrastructure plan? GW is meeting with the WH and our front office asked for our thoughts and I wanted to better understand a couple of the suggestions/provisions. Just let me know if you can chat about the superfund stuff.

Message

From: Holland, Luke (Inhofe) [Luke_Holland@inhofe.senate.gov]
Sent: 6/14/2018 10:57:10 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
CC: Wheeler, Andrew [wheeler.andrew@epa.gov]; Brown, Byron [brown.byron@epa.gov]
Subject: RE: CCR and another of JMI's work coming to fruition

But it is good to spread it out.

From: Jackson, Ryan <jackson.ryan@epa.gov>
Sent: Thursday, June 14, 2018 6:56 PM
To: Holland, Luke (Inhofe) <Luke_Holland@inhofe.senate.gov>
Cc: Wheeler, Andrew <wheeler.andrew@epa.gov>; Brown, Byron <brown.byron@epa.gov>
Subject: RE: CCR and another of JMI's work coming to fruition

Only goes to OMB. Proposal is later.

NDAA and CCR is enough winning for now.

From: Holland, Luke (Inhofe) [mailto:Luke_Holland@inhofe.senate.gov]
Sent: Thursday, June 14, 2018 6:54 PM
To: Jackson, Ryan <jackson.ryan@epa.gov>
Cc: Wheeler, Andrew <wheeler.andrew@epa.gov>; Brown, Byron <brown.byron@epa.gov>
Subject: RE: CCR and another of JMI's work coming to fruition

Yes, thank you. And maybe WOTUS, too? Or is that tomorrow?

From: Jackson, Ryan <jackson.ryan@epa.gov>
Sent: Thursday, June 14, 2018 6:53 PM
To: Holland, Luke (Inhofe) <Luke_Holland@inhofe.senate.gov>
Cc: Wheeler, Andrew <wheeler.andrew@epa.gov>; Brown, Byron <brown.byron@epa.gov>
Subject: RE: CCR and another of JMI's work coming to fruition

Oh yeah. Well, good you have Byron and me writing your press releases for you to keep it easy.

From: Holland, Luke (Inhofe) [mailto:Luke_Holland@inhofe.senate.gov]
Sent: Thursday, June 14, 2018 6:49 PM
To: Jackson, Ryan <jackson.ryan@epa.gov>
Cc: Wheeler, Andrew <wheeler.andrew@epa.gov>; Brown, Byron <brown.byron@epa.gov>
Subject: RE: CCR and another of JMI's work coming to fruition

This is awesome. Thanks for this. Monday will be a great day. NDAA. CCR.

Luke

From: Jackson, Ryan <jackson.ryan@epa.gov>
Sent: Thursday, June 14, 2018 1:22 PM
To: Holland, Luke (Inhofe) <Luke_Holland@inhofe.senate.gov>
Cc: Wheeler, Andrew <wheeler.andrew@epa.gov>; Brown, Byron <brown.byron@epa.gov>
Subject: CCR and another of JMI's work coming to fruition

Use as much or any of it as you'd like.

This is pretty cool. Byron and I are proud.

Ryan Jackson
Chief of Staff
U.S. Environmental Protection Agency
Ex. 6

Message

From: Bennett, Elizabeth [bennett.elizabeth@epa.gov]
Sent: 3/21/2017 4:31:01 PM
To: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]; Brown, Byron [brown.byron@epa.gov]; Richardson, RobinH [Richardson.RobinH@epa.gov]
CC: Jackson, Ryan [jackson.ryan@epa.gov]; Dravis, Samantha [dravis.samantha@epa.gov]
Subject: RE: Fischer/Cardin Integrated Planning/Affordability bill

Hey Susan! I owe you a call on another topic that I'm just now getting caught up on as well. I'll be free around 4/ 4:30 and can give you a buzz to catch up then if that works? Thanks for your patience— diving on in over here! -Tate

From: Bodine, Susan (EPW) [mailto:Susan_Bodine@epw.senate.gov]
Sent: Tuesday, March 21, 2017 10:55 AM
To: Brown, Byron <brown.byron@epa.gov>; Richardson, RobinH <Richardson.RobinH@epa.gov>; Bennett, Elizabeth <bennett.elizabeth@epa.gov>
Cc: Jackson, Ryan <jackson.ryan@epa.gov>; Dravis, Samantha <dravis.samantha@epa.gov>; bennett.tate@epw.gov
Subject: RE: Fischer/Cardin Integrated Planning/Affordability bill

Thanks.

From: Brown, Byron [mailto:brown.byron@epa.gov]
Sent: Tuesday, March 21, 2017 10:54 AM
To: Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov>; Richardson, RobinH <Richardson.RobinH@epa.gov>; Bennett, Elizabeth <bennett.elizabeth@epa.gov>
Cc: Jackson, Ryan <jackson.ryan@epa.gov>; Dravis, Samantha <dravis.samantha@epa.gov>; bennett.tate@epw.gov
Subject: RE: Fischer/Cardin Integrated Planning/Affordability bill

Tate's email is not correct, so adding her to this.

From: Bodine, Susan (EPW) [mailto:Susan_Bodine@epw.senate.gov]
Sent: Tuesday, March 21, 2017 10:45 AM
To: Richardson, RobinH <Richardson.RobinH@epa.gov>
Cc: Jackson, Ryan <jackson.ryan@epa.gov>; Brown, Byron <brown.byron@epa.gov>; Dravis, Samantha <dravis.samantha@epa.gov>; bennett.tate@epw.gov
Subject: Fischer/Cardin Integrated Planning/Affordability bill

This is being introduced today by Senators Fischer and Cardin. It is language from the Senate passed WRDA (section 7203, 7204 and 7205) that was negotiated with EPA last Congress.

Our legislative hearing in next Tuesday March 28.

We are not seeking a witness, but would like a statement for the record.

Administrator Pruitt supported integrated planning and green infrastructure during his confirmation. Excerpts from his QFRs:

56.The American Society of Civil Engineers states that decrepit, decades-old municipal wastewater systems are at fault for the discharge of 900 billion gallons of untreated sewage and wastewater into U.S. waterways each year, enough to cover New York City under a layer 127 feet deep. According to a New

York Times report, municipal sewer systems are the nation's biggest violators of the U.S. Clean Water Act, and more than one-third of them have violated pollution laws at least once since 2006. This worn-out, faulty infrastructure requires new investments in order to protect public health and the environment. As the leader of the Agency in charge of protecting human health and US waterways, how will you help states and municipalities modernize their wastewater infrastructure?
If confirmed, I will continue support for the Clean Water State Revolving Loan Funds and the new Water Infrastructure Financing Innovation Act loan program. In addition, I would continue to implement EPA's Integrated Planning Framework to provide municipalities with flexibility to prioritize actions they take to come into compliance.

151. The EPA is responsible for administering two of the nation's most important infrastructure investment programs- the Clean Water and Safe Drinking Water State Revolving Loan Funds (SRFs). Unfortunately, water and sewer infrastructure in this country continues to deteriorate and investment is sorely needed. The American Society of Civil Engineers rates our wastewater and drinking water infrastructure a "D." If confirmed, what will you do to ensure that the federal government is adequately investing in our nation's wastewater and drinking water infrastructure?
If confirmed, I will continue support for the Clean Water State Revolving Loan Funds and the new Water Infrastructure Financing Innovation Act loan program. In addition, I would continue to implement EPA's Integrated Planning Framework to provide municipalities with flexibility to prioritize actions they take to come into compliance.

73.What clean water initiatives undertaken by the EPA in the last five years do you support?
I support the Mach 2011 nutrient framework issued by the Assistant Administrator for the Office of Water entitled "Working in Partnership with States to Address Phosphorus and Nitrogen Pollution through Use of a Framework for State Nutrient Reductions," which prioritizes state action to encourage on the ground activities over establishment of numeric nutrient limits. I support EPA's May 2012 Integrated Municipal Stormwater and Wastewater Planning Framework, which directs EPA enforcement and permitting officials to allow municipalities to integrate multiple CWA responsibilities in a single plan and prioritize the actions with the greatest health and environmental benefits, and to allow extended compliance schedules to carry out that prioritization. I support EPA's efforts to promote green infrastructure to meet Clean Water Act requirements. Green infrastructure can be a neighborhood solution to meet national standards. I support the new Water Infrastructure Finance and Innovation Act loan program authorized by Congress in 2014 that recently received its first appropriations. The WIFIA program creates tremendous opportunities to increase water and wastewater infrastructure investment because every federal dollar appropriated can leverage as much as $60 in infrastructure investments.

Susan Parker Bodine
Chief Counsel
U .S. Senate Environment & Public Works Committee
410 Dirksen Senate Office Building
Washington, DC 20510
202-224-6176

Message

From: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Sent: 3/21/2017 2:54:43 PM
To: Brown, Byron [brown.byron@epa.gov]; Richardson, RobinH [Richardson.RobinH@epa.gov]; Bennett, Elizabeth [bennett.elizabeth@epa.gov]
CC: Jackson, Ryan [jackson.ryan@epa.gov]; Dravis, Samantha [dravis.samantha@epa.gov]; bennett.tate@epw.gov
Subject: RE: Fischer/Cardin Integrated Planning/Affordability bill

Thanks.

From: Brown, Byron [mailto:brown.byron@epa.gov]
Sent: Tuesday, March 21, 2017 10:54 AM
To: Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov>; Richardson, RobinH <Richardson.RobinH@epa.gov>; Bennett, Elizabeth <bennett.elizabeth@epa.gov>
Cc: Jackson, Ryan <jackson.ryan@epa.gov>; Dravis, Samantha <dravis.samantha@epa.gov>; bennett.tate@epw.gov
Subject: RE: Fischer/Cardin Integrated Planning/Affordability bill

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To: Richardson, RobinH <Richardson.RobinH@epa.gov>
Cc: Jackson, Ryan <jackson.ryan@epa.gov>; Brown, Byron <brown.byron@epa.gov>; Dravis, Samantha <dravis.samantha@epa.gov>; bennett.tate@epw.gov
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Susan Parker Bodine
Chief Counsel
U .S. Senate Environment & Public Works Committee
410 Dirksen Senate Office Building
Washington, DC 20510
202-224-6176

Message

From: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Sent: 3/21/2017 2:44:58 PM
To: Richardson, RobinH [Richardson.RobinH@epa.gov]
CC: Jackson, Ryan [jackson.ryan@epa.gov]; Brown, Byron [brown.byron@epa.gov]; Dravis, Samantha [dravis.samantha@epa.gov]; bennett.tate@epw.gov
Subject: Fischer/Cardin Integrated Planning/Affordability bill
Attachments: Water Infrastructure Flexibility Act.pdf

This is being introduced today by Senators Fischer and Cardin. It is language from the Senate passed WRDA (section 7203, 7204 and 7205) that was negotiated with EPA last Congress.

Our legislative hearing in next Tuesday March 28.

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Susan Parker Bodine
Chief Counsel
U .S. Senate Environment & Public Works Committee
410 Dirksen Senate Office Building
Washington, DC 20510
202-224-6176

115TH CONGRESS
1ST SESSION

S. _____

To provide for integrated plan permits, to establish an Office of the Municipal Ombudsman, to promote green infrastructure, and to require the revision of financial capability guidance.

IN THE SENATE OF THE UNITED STATES

Mrs. FISCHER introduced the following bill; which was read twice and referred to the Committee on _____

A BILL

To provide for integrated plan permits, to establish an Office of the Municipal Ombudsman, to promote green infrastructure, and to require the revision of financial capability guidance.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the [“_____ Act of 2017”].

SEC. 2. DEFINITION OF ADMINISTRATOR.

In this Act, the term “Administrator” means the Administrator of the Environmental Protection Agency.

SEC. 3. INTEGRATED PLANS.

(a) INTEGRATED PLANS.—Section 402 of the Federal Water Pollution Control Act (33 U.S.C. 1342) is amended by adding at the end the following:

"(s) INTEGRATED PLAN PERMITS.—

"(1) DEFINITIONS.—In this subsection:

"(A) GREEN INFRASTRUCTURE.—The term 'green infrastructure' means the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspirate stormwater and reduce flows to sewer systems or to surface waters.

"(B) INTEGRATED PLAN.—The term 'integrated plan' has the meaning given in Part III of the Integrated Municipal Stormwater and Wastewater Planning Approach Framework, issued by the Environmental Protection Agency and dated June 5, 2012.

"(C) MUNICIPAL DISCHARGE.—

"(i) IN GENERAL.—The term 'municipal discharge' means a discharge from a treatment works (as defined in section 212) or a discharge from a municipal storm sewer under subsection (p).

"(ii) INCLUSION.—The term 'municipal discharge' includes a discharge of wastewater or storm water collected from multiple municipalities if the discharge is covered by the same permit issued under this section.

"(2) INTEGRATED PLAN.—

"(A) IN GENERAL.—The Administrator (or a State, in the case of a permit program approved under subsection (b)) shall inform a municipal permittee or multiple municipal permittees of the opportunity to develop an integrated plan.

"(B) SCOPE OF PERMIT INCORPORATING INTEGRATED PLAN.—A permit issued under this subsection that incorporates an integrated plan may integrate all requirements under this Act addressed in the integrated plan, including requirements relating to—

"(i) a combined sewer overflow;

"(ii) a capacity, management, operation, and maintenance program for sanitary sewer collection systems;

"(iii) a municipal stormwater discharge;

"(iv) a municipal wastewater discharge; and

"(v) a water quality-based effluent limitation to implement an applicable wasteload allocation in a total maximum daily load.

"(3) COMPLIANCE SCHEDULES.—

"(A) IN GENERAL.—A permit for a municipal discharge by a municipality that incorporates an integrated plan may include a schedule of compliance, under which actions taken to meet any applicable water quality-based effluent limitation may be implemented over more than 1 permit term if the compliance schedules are authorized by State water quality standards.

"(B) INCLUSION.—Actions subject to a compliance schedule under subparagraph (A) may include green infrastructure if implemented as part of a water quality-based effluent limitation.

"(C) REVIEW.—A schedule of compliance may be reviewed each time the permit is renewed.

"(4) EXISTING AUTHORITIES RETAINED.—

"(A) APPLICABLE STANDARDS.—Nothing in this subsection modifies any obligation to comply with applicable technology and water quality-based effluent limitations under this Act.

"(B) FLEXIBILITY.—Nothing in this subsection reduces or eliminates any flexibility available under this Act, including the authority of—

"(i) a State to revise a water quality standard after a use attainability analysis under section 131.10(g) of title 40, Code of Federal Regulations (as in effect on the date of enactment of this subsection), subject to the approval of the Administrator under section 303(c); and

"(ii) the Administrator or a State to authorize a schedule of compliance that extends beyond the date of expiration of a permit term if the schedule of compliance meets the requirements of section 122.47 of title 40, Code of Federal Regulations (as in effect on the date of enactment of this subsection).

"(5) CLARIFICATION OF STATE AUTHORITY.—

"(A) IN GENERAL.—Nothing in section 301(b)(1)(C) precludes a State from authorizing in the water quality standards of the State the issuance of a schedule of compliance to meet water quality-based effluent limitations in permits that incorporate provisions of an integrated plan.

"(B) TRANSITION RULE.—In any case in which a discharge is subject to a judicial order or consent decree as of the date of enactment of the [_____ Act of 2017] resolving an enforcement action under this Act, any schedule of compliance issued pursuant to an authorization in a State water quality standard shall not revise or otherwise affect a schedule of compliance in that order or decree unless the order or decree is modified by agreement of the parties and the court.".

(b) MUNICIPAL OMBUDSMAN.—

(1) ESTABLISHMENT.—There is established within the Office of the Administrator an Office of the Municipal Ombudsman.

(2) GENERAL DUTIES.—The duties of the municipal ombudsman shall include the provision of—

(A) technical assistance to municipalities seeking to comply with the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) and the Safe Drinking Water Act (42 U.S.C. 300f et seq.); and

(B) information to the Administrator to help the Administrator ensure that agency policies are implemented by all offices of the Environmental Protection Agency, including regional offices.

(3) ACTIONS REQUIRED.—The municipal ombudsman shall work with appropriate offices at the headquarters and regional offices of the Environmental Protection Agency to ensure that the municipality seeking assistance is provided information—

(A) about available Federal financial assistance for which the municipality is eligible;

(B) about flexibility available under the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) and, if applicable, the Safe Drinking Water Act (42 U.S.C. 300f et seq.); and

(C) regarding the opportunity to develop an integrated plan, as defined in section 402(s)(1)(B) of the Federal Water Pollution Control Act (as added by subsection (a)).

(4) PRIORITY.—In carrying out paragraph (3), the municipal ombudsman shall give priority to any municipality that demonstrates affordability concerns relating to compliance with the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) or the Safe Drinking Water Act (42 U.S.C. 300f et seq.).

(5) INFORMATION SHARING.—The municipal ombudsman shall publish on the website of the Environmental Protection Agency—

(A) general information relating to—

(i) the technical assistance referred to in paragraph (2)(A);

(ii) the financial assistance referred to in paragraph (3)(A);

(iii) the flexibility referred to in paragraph 3(B); and

(iv) any resources related to integrated plans developed by the Administrator; and

(B) a copy of each permit, order, or judicial consent decree that implements or incorporates an integrated plan.

(c) MUNICIPAL ENFORCEMENT.—Section 309 of the Federal Water Pollution Control Act (33 U.S.C. 1319) is amended by adding at the end the following:

"(h) IMPLEMENTATION OF INTEGRATED PLANS THROUGH ENFORCEMENT TOOLS.—

"(1) IN GENERAL.—In conjunction with an enforcement action under subsection (a) or (b) relating to municipal discharges, the Administrator shall inform a municipality of the opportunity to develop an integrated plan, as defined in section 402(s).

"(2) MODIFICATION.—Any municipality under an administrative order under subsection (a) or settlement agreement (including a judicial consent decree) under subsection (b) that has developed an integrated plan consistent with section 402(s) may request a modification of the administrative order or settlement agreement based on that integrated plan.".

(d) REPORT TO CONGRESS.—Not later than 2 years after the date of enactment of this Act, the Administrator shall submit to the Committee on Environment and Public Works of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives and make publicly available a report on each integrated plan developed and implemented through a permit, order,

or judicial consent decree since the date of publication of the "Integrated Municipal Stormwater and Wastewater Planning Approach Framework" issued by the Environmental Protection Agency and dated June 5, 2012, including a description of the control measures, levels of control, estimated costs, and compliance schedules for the requirements implemented through an integrated plan.

SEC. 4. GREEN INFRASTRUCTURE PROMOTION.

Title V of the Federal Water Pollution Control Act (33 U.S.C. 1361 et seq.) is amended—

(1) by redesignating section 519 (33 U.S.C. 1251 note) as section 520; and

(2) by inserting after section 518 (33 U.S.C. 1377) the following:

"SEC. 519. ENVIRONMENTAL PROTECTION AGENCY GREEN INFRASTRUCTURE PROMOTION.

"(a) IN GENERAL.—The Administrator shall ensure that the Office of Water, the Office of Enforcement and Compliance Assurance, the Office of Research and Development, and the Office of Policy of the Environmental Protection Agency promote the use of green infrastructure in and coordinate the integration of green infrastructure into, permitting programs, planning efforts, research, technical assistance, and funding guidance.

"(b) DUTIES.—The Administrator shall ensure that the Office of Water—

"(1) promotes the use of green infrastructure in the programs of the Environmental Protection Agency; and

"(2) coordinates efforts to increase the use of green infrastructure with—

"(A) other Federal departments and agencies;

"(B) State, tribal, and local governments; and

"(C) the private sector.

"(c) REGIONAL GREEN INFRASTRUCTURE PROMOTION.—The Administrator shall direct each regional office of the Environmental Protection Agency, as appropriate based on local factors, and consistent with the requirements of this Act, to promote and integrate the use of green infrastructure within the region that includes—

"(1) outreach and training regarding green infrastructure implementation for State, tribal, and local governments, tribal communities, and the private sector; and

"(2) the incorporation of green infrastructure into permitting and other regulatory programs, codes, and ordinance development, including the re-

quirements under consent decrees and settlement agreements in enforcement actions.

"(d) GREEN INFRASTRUCTURE INFORMATION-SHARING.—The Administrator shall promote green infrastructure information-sharing, including through an Internet website, to share information with, and provide technical assistance to, State, tribal, and local governments, tribal communities, the private sector, and the public regarding green infrastructure approaches for—

"(1) reducing water pollution;

"(2) protecting water resources;

"(3) complying with regulatory requirements; and

"(4) achieving other environmental, public health, and community goals.".

SEC. 5. FINANCIAL CAPABILITY GUIDANCE.

(a) DEFINITIONS.—In this section:

(1) AFFORDABILITY.—The term "affordability" means, with respect to payment of a utility bill, a measure of whether an individual customer or household can pay the bill without undue hardship or unreasonable sacrifice in the essential lifestyle or spending patterns of the individual or household, as determined by the Administrator.

(2) FINANCIAL CAPABILITY.—The term "financial capability" means the financial capability of a community to make investments necessary to make water quality or drinking water improvements.

(3) GUIDANCE.—The term "guidance" means the guidance published by the Administrator entitled "Combined Sewer Overflows—Guidance for Financial Capability Assessment and Schedule Development" and dated February 1997, as applicable to the combined sewer overflows and sanitary sewer overflows guidance published by the Administrator entitled "Financial Capability Assessment Framework" and dated November 24, 2014.

(b) USE OF MEDIAN HOUSEHOLD INCOME.—The Administrator shall not use median household income as the sole indicator of affordability for a residential household.

(c) REVISED GUIDANCE.—

(1) IN GENERAL.—Not later than 1 year after the date of completion of the National Academy of Public Administration study to establish a definition and framework for community affordability required by Senate Report 114–70, accompanying S. 1645 (114th Congress), the Administrator shall revise the guidance described in subsection (a)(3).

(2) USE OF GUIDANCE.—Beginning on the date on which the revised guidance referred to in paragraph (1) is finalized, the Administrator shall use the revised guidance in lieu of the guidance described in subsection (a)(3).

(d) CONSIDERATION AND CONSULTATION.—

(1) CONSIDERATION.—In revising the guidance, the Administrator shall consider—

(A) the recommendations of the study referred to in subsection (c) and any other relevant study, as determined by the Administrator;

(B) local economic conditions, including site-specific local conditions that should be taken into consideration in analyzing financial capability;

(C) other essential community investments;

(D) potential adverse impacts on distressed populations, including the percentage of low-income ratepayers within the service area of a utility and impacts in communities with disparate economic conditions throughout the entire service area of a utility;

(E) the degree to which rates of low-income consumers would be affected by water in-

frastructure investments and the use of rate structures to address the rates of low-income consumers;

(F) an evaluation of an array of factors, the relative importance of which may vary across regions and localities; and

(G) the appropriate weight for economic, public health, and environmental benefits associated with improved water quality.

(2) CONSULTATION.—Any revised guidance issued to replace the guidance shall be developed in consultation with stakeholders.

(e) PUBLICATION AND SUBMISSION.—

(1) IN GENERAL.—On completion of the revision of the guidance, the Administrator shall publish in the Federal Register and submit to the Committee on Environment and Public Works of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives the revised guidance.

(2) EXPLANATION.—If the Administrator makes a determination not to follow 1 or more recommendations of the study referred to in subsection (c)(1), the Administrator shall include in the publi-

1 cation and submission under paragraph (1) an ex-
2 planation of that decision.
3 (f) EFFECT.—Nothing in this section preempts or
4 interferes with any obligation to comply with any Federal
5 law, including the Federal Water Pollution Control Act
6 (33 U.S.C. 1251 et seq.).

Message

From: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Sent: 3/29/2017 7:38:00 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: Re: I will be at EPA East later today

I just headed over to see Samantha

Sent from my iPhone

On Mar 29, 2017, at 2:47 PM, Brown, Byron <brown.byron@epa.gov> wrote:

> I'm hoping to stop by at 3:30
>
> Sent from my iPhone
>
> On Mar 29, 2017, at 1:50 PM, Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov> wrote:
>
> > For Randy Deitz's retirement party.
> >
> > Barry Breen did a good job at today's EPW hearing.
> >
> > If you are around I can stop and say hello after.
> >
> > Susan
> >
> > Susan Parker Bodine
> > Chief Counsel
> > U .S. Senate Environment & Public Works Committee
> > 410 Dirksen Senate Office Building
> > Washington, DC 20510
> > 202-224-6176

Message

From: Moody, Mary [Mary.Moody@mail.house.gov]
Sent: 3/21/2017 2:29:14 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: Letter to EPA on Suspension of IRIS Drafts
Attachments: Letter to EPA on Suspension of IRIS Drafts FINAL.pdf

Hello Byron,

Hope you're well. Wanted to pass along a letter my boss and Rep. Randy Weber are sending to Administrator Pruitt asking him to suspend any pending draft hazard assessments under the IRIS program until the recommended process improvements from the NAS have been made.

Thank you,

Mary Moody
Legislative Assistant
Rep. Brian Babin (TX-36)
316 CHOB | 202-225-1555

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BRIAN BABIN
36TH DISTRICT, TEXAS

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March 20, 2017

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Av, NW
Washington, D.C. 20460

Dear Administrator Pruitt:

I am writing to urge you to direct that further action on pending draft hazard assessments under the Integrated Risk Information System (IRIS) program be suspended until you and your staff have the opportunity to review the status of those drafts to ascertain whether they have fully implemented the recommendations from the National Academy of Sciences (NAS) for much needed process improvements.

As you know, the IRIS program is currently on the GAO list of significantly at risk programs. While the NAS has leveled numerous criticisms of individual IRIS assessments over the years, their criticism rose to a new level in its 2011 report of its peer review of the 2010 draft assessment of formaldehyde. That document dedicated a chapter to a number of process recommendations the IRIS program should make in future developments. The 2011 report received substantial interest and resulted in a congressional directive for a thorough NAS review of the program that was published in 2014.

The House Committee on Science Space and Technology has held oversight hearings of the IRIS program and has requested documentation from the Obama Administration to verify those process improvements have indeed occurred. Regrettably, our Committee's information request has never been adequately satisfied. The recommendations made by the NAS, if they were fully implemented, should result in a more objective and complete scientific products and a more open and transparent process. However, there is no indication the IRIS staff is fully and faithfully implementing these critical reforms.

For instance, the IRIS program acknowledges they do not utilize a weight of the evidence approach in analyzing relevant studies in the scientific literature, a cornerstone of the NAS recommendations. Another concern is the program's application of their recently developed "stopping rule" policy whereby they establish a cut-off date for review of the published scientific literature. This process is completely devoid of any transparency and leads stakeholders to believe the IRIS staff is cherry picking the studies on which they will rely to justify their preferred outcome.

Suspending further work on any pending IRIS assessments until you and your staff have assurance the program is fully utilizing the process improvement tools recommended by the NAS is very similar to the

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actions you have taken with regard to pending regulations and seems very prudent based on the tragically poor record of past performance of the IRIS program.

Sincerely,

Brian Babin
Member of Congress

Randy Weber
Member of Congress

Message

From: Jelnicky, Michelle [Michelle.Jelnicky@mail.house.gov]
Sent: 10/16/2017 9:15:44 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: CERCLA 108b follow up
Attachments: 7.31.17 EPA - Reps. Nolan & Bergman - CERCLA108(b) Iron Ore Letter.pdf

Byron-

Attached is a letter my boss and Rep. Nolan sent to the EPA earlier this year regarding the inclusion of the iron ore industry in the final CERCLA 108(b) rule. I'm following up to check on the status of the rulemaking, and to note Rep. Bergman's continued interest if and when there are any updates.

Please let me know if I can provide you with any additional information!

Michelle Jelnicky
Deputy Chief of Staff/ Legislative Director
Representative Jack Bergman (MI-01)
414 Cannon House Office Building
Washington, D.C. 20515
(w) 202-225-4735

Congress of the United States
Washington, DC 20515

July 31, 2017

The Honorable Scott Pruitt, Administrator
U.S. Environmental Protection Agency (EPA)
William Jefferson Clinton Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

RE: Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 108(b) Hardrock Mining Financial Assurance Regulations (EPA-HQ-SFUND-2015-0781)

Dear Administrator Pruitt:

Representing all eight of the United States' active iron ore mining and processing facilities and the thousands of good-paying jobs they provide, we write to raise concerns regarding the EPA's inclusion of this industry in its proposed Section 108(b) rule[1].

Specifically, we believe the agency erred by including the domestic iron ore industry as a covered class in its definition of hardrock mining rather than excluding it with other similar hardrock mining classes that present low Superfund risk.

In doing so, EPA exposed approximately 4,500 family-sustaining jobs in Minnesota and Michigan to burdensome and financially devastating regulations that are not commensurate with the level of CERCLA risk posed by this well-established, low risk-industry that has a history of responsible environmental reclamation practices.

As you may know, in its proposed CERCLA 108(b) rule, EPA solicited comments on whether the iron ore industry presents a lower risk of injury as compared to other classes of hardrock mining and whether such a low-risk designation merits excluding the iron ore industry from the rule. As the EPA reviews these comments, we hope you'll see the merits of an exclusion for a number of reasons, including those outlined below.

Unlike other classes of hardrock mining that rely on heavy chemicals to process mineral commodities, the iron ore sector employs physical separation techniques to separate iron units from the host rock. These techniques have been employed in Michigan's Upper Peninsula and Northeast Minnesota for approximately 170 years and produce value-added iron ore pellets, which are the critical raw material used in the production of iron and steel. The resulting mined areas have been subsequently used for recreation and public drinking water reservoirs. As a

[1] This proposed rule is a product of lawsuits brought by environmental groups in 2008 and 2014, leading to a court order requiring EPA to issue a proposed Superfund/CERCLA 108(b) rule covering the hardrock mining sector by December 2016 and further requiring a final financial assurance rule or determination to be fully promulgated by December 2017.

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result, the iron ore industry has minimal CERCLA liabilities as compared to certain other classes of hardrock mining.

Compliance with the rule would come on top of current State regulatory authority and financial assurances already in place. Despite the fact that the iron ore industry has only negligible potential CERCLA liabilities and no history of leaving the federal government on the hook for cleanup costs, we are with the understanding that the proposed CERCLA 108(b) rule would require that the industry post financial assurance for an exorbitant amount that is orders of magnitude larger than any reasonable estimate of the industry's total potential CERCLA liability.

Any requirement to securitize these inflated liability estimates would deprive capital investment needed to remain cost competitive and cause devastating impacts for the strategically important iron ore and steel industries. Both of these industries remain in the fledgling stages of recovery following the commodity recession brought on by the steel import crisis of 2015 and 2016.

We thank you for weighing these concerns and understand EPA's desire to protect against future CERCLA expenditures arising from industries that pose significant CERCLA risks to the Superfund. However, we believe the iron ore industry poses no such imminent risk, and look forward to working with you and your staff on this important issue.

Sincerely,

Richard M. Nolan
Member of Congress

Jack Bergman
Member of Congress

CC: Mr. Byron R. Brown, Deputy Chief of Staff for Policy, Office of the Administrator

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Message

From: Richards, Tina [Tina.Richards@mail.house.gov]
Sent: 2/14/2018 3:26:30 AM
To: Brown, Byron [brown.byron@epa.gov]
Subject: Re: WH infrastructure

I think Walden is talking to WH tomorrow but I'm sure it's just the start of the conversation and I gave him my preliminary thoughts so Thursday should work. My calendar for Thursday is pretty open as of now so whatever works for you.

> On Feb 13, 2018, at 10:23 PM, Brown, Byron <brown.byron@epa.gov> wrote:
>
> Yes happy to chat. What's your timing? Would Thursday afternoon work or do you need to talk earlier?
>
> Sent from my iPhone
>
>> On Feb 13, 2018, at 10:09 PM, Richards, Tina <Tina.Richards@mail.house.gov> wrote:
>>
>> Do you guys at EPA have insight on the superfund/Brownfields provisions in the WH infrastructure plan? GW is meeting with the WH and our front office asked for our thoughts and I wanted to better understand a couple of the suggestions/provisions. Just let me know if you can chat about the superfund stuff.

Message

From: Holland, Luke (Inhofe) [Luke_Holland@inhofe.senate.gov]
Sent: 3/7/2018 12:16:46 AM
To: Brown, Byron [brown.byron@epa.gov]; Lyons, Troy [lyons.troy@epa.gov]
Subject: RE:

This is very helpful. Thanks, guys. I appreciate you getting back to me.

-----Original Message-----
From: Brown, Byron [mailto:brown.byron@epa.gov]
Sent: Tuesday, March 6, 2018 6:43 PM
To: Lyons, Troy <lyons.troy@epa.gov>
Cc: Holland, Luke (Inhofe) <Luke_Holland@inhofe.senate.gov>
Subject: Re:

We're sensitive to the concern and do not want to interfere with any momentum to get a legislative fix. That would be more durable and would provide greater certainty than a rulemaking could. That said we sent a draft proposed rule to OMB today to begin the interagency process but do not plan to move a proposed rule until we know whether legislation will not pass. Given the time it takes to get a proposed rule through OMB and into the federal register we could not wait until the end of month until after funding deadline passes to send proposal to OMB for it to get finalized in time to provide relief if needed. I heard from pork producers today and this was the message I shared with them. Our Ag advisor and his staff have been in contact with the other groups but again we are trying to support legislative process with the time and process limits we're facing.

Sent from my iPhone

> On Mar 6, 2018, at 5:47 PM, Lyons, Troy <lyons.troy@epa.gov> wrote:
>
> I have not heard from industry—Byron have you heard anything similar to what Luke is hearing?
>
> Sent from my iPhone
>
>> On Mar 6, 2018, at 5:40 PM, Holland, Luke (Inhofe) <Luke_Holland@inhofe.senate.gov> wrote:
>>
>> Industry is worried if you move the cercla reg before Omni it could hurt the chances of it getting in. Are you hearing the same thing?
>>
>> Sent from my iPhone

Message

From: Caputo, Annie (EPW) [Annie_Caputo@epw.senate.gov]
Sent: 7/19/2017 5:51:13 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: Hey there!
Attachments: NRC Staff Comments on 40 CFR Part 192 Re-Proposed Rule.pdf

Long time, no see! Hope you are doing well.

I've attached the NRC staff's comments on the proposed Part 192 rule. I'm not sure if you are familiar with the issue, but I figured I should put this on your radar. The NRC comments are very interesting.

U.S. Nuclear Regulatory Commission Staff's Comments on the U.S. Environmental Protection Agency's Proposed Rulemaking for 40 CFR Part 192, 82 FR 7400

General Comments

The U.S. Nuclear Regulatory Commission (NRC) staff appreciates the opportunity to provide input to the U.S. Environmental Protection Agency (EPA) on the issues and questions posed by the Notice of Proposed Rulemaking for Title 40 of the *Code of Federal Regulations* (40 CFR) Part 192, published in the *Federal Register* (FR) on Thursday, January 19, 2017, under Docket ID No. EPA-HQ-OAR-2012-0788.[1]

As discussed in more detail in the specific comments below, the NRC staff is concerned that the proposed rule relies on arguments that are not fully supported, encroaches upon NRC's jurisdiction, and includes requirements that are not technically feasible or are unreasonably burdensome on both NRC and Agreement State licensees without providing any equivalent benefit. The NRC's current regulations, at 10 CFR Part 40, Appendix A, and those of the various Agreement States, as supplemented by site-specific license conditions, guidance documents (e.g., NRC's "Standard Review Plan for In Situ Leach Uranium Extraction License Applications," NUREG-1569), and the operational experience and technical expertise of the regulatory agency staff, constitute a comprehensive and effective regulatory program for uranium in situ recovery operations (ISR) facilities. The NRC and the various Agreement States (operating under authority discontinued by the NRC pursuant to section 274 of the Atomic Energy Act of 1954, as amended (AEA)) have been safely, securely, and successfully regulating ISR facilities since the 1970's.

The NRC regulations at 10 CFR Part 40, Appendix A were promulgated for conventional uranium milling and are not specific to ISR facilities. Nevertheless, the NRC staff has concluded that its application of the 10 CFR Part 40, Appendix A regulations to ISR facilities meets the AEA standard of "adequate protection" of public health and safety and the environment. The basis for this conclusion is the established safety record of the NRC licensed ISR facilities. The NRC staff began a rulemaking specific to ISR facilities in 2006 for the purpose of standardizing existing NRC regulatory practices to ensure consistency in the NRC staff's evaluation and approval of ISR license applications. This rulemaking would have amended 10 CFR Part 40, Appendix A by codifying proven license conditions and staff practices, as reflected in guidance documents, into the 10 CFR Part 40, Appendix A regulations. By revising NRC's regulations to specifically address ISRs, the NRC staff concluded that the ISR licensing process would be more effective, consistent, and transparent. This rulemaking has been in abeyance since 2010 as a result of EPA's stated intention to promulgate generally applicable standards.

The NRC staff did not believe in 2006, when it initiated its rulemaking, and does not believe now, that ISR uranium activities that are operated under the existing regulatory framework have

[1] 82 FR 7400.

Enclosure

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caused, or are likely to cause, any contamination by listed hazardous constituents[2] of adjacent or nearby aquifers or the non-exempt portion of the aquifer that is the subject of the licensed uranium ISR extraction activity. The NRC, through its requirements for extensive testing of licensee monitoring and private wells in and around its licensed ISR sites, has not found evidence to challenge that finding.

In addition, the NRC staff believes that EPA's proposed rule exceeds its authority to promulgate generally applicable standards in many areas and that EPA's existing generally applicable standards in 40 CFR Part 192, Subpart D, can continue to be readily applied to ISRs without need for this rulemaking. Moreover, the NRC staff has concluded that some of the specific technical requirements would be impracticable or unnecessarily cost prohibitive to implement without providing any significant benefit.

Issue Specific Comments

A. No Health or Safety Justification for Rulemaking

1. Groundwater Monitoring

Issue: The preamble justifies the rule, in part, by asserting that there has only been "limited post-restoration monitoring" of potential contaminants and as such, there is not enough data to determine that ISR wellfields are not a source of contamination for non-exempt aquifers.[3] The NRC staff disagrees as there is sufficient post-restoration monitoring data that demonstrates that ISR wellfields are not a source of contamination for non-exempt aquifers.

Comment: In almost 40 years of operational experience, the NRC staff is aware of no documented instance of an ISR wellfield being the source of contamination of an adjacent or nearby aquifer, or of the non-exempt portion of the same aquifer in which ISR activities are being conducted.

The NRC requires that its licensees, through license conditions, monitor a series of wells that surround and lie above and below the wellfield every two weeks during operations and throughout restoration to ensure that no undetected excursions occur. In addition, the NRC requires that its licensees monitor private wells located within one to two kilometers of each ISR wellfield (both those that are in an operating status as well as those undergoing restoration). These private wells can be located in aquifers above, under and around, but not within the ore zone aquifer of an ISR wellfield within the monitoring well ring. The private wells monitored include drinking water wells and livestock watering wells. Each licensee is required to sample the private wells on a quarterly basis for various radionuclides, including natural uranium and radium-226, both prior to and during wellfield operation. This data is provided to the NRC staff as part of a semi-annual report and is publicly available.

In December 2008, the Commission tasked the NRC staff with preparing a report that assessed the environmental impacts to groundwater from ISR wellfields. The NRC staff submitted its report to the Commission in July 2009 (NRC, 2009).[4] The report examined licensee monitoring

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[2] Criterion 13 of 10 CFR Part 40, Appendix A lists the hazardous constituents that are subject to NRC's regulation. Other than Nitrate (as N), all of the constituents listed in proposed Table 1 to Subpart F are also listed in Criterion 13.
[3] 82 FR at 7404.
[4] NRC SECY-2009-016, "Staff Assessment of Groundwater Impacts from Previously Licensed In-Situ Uranium Recovery Facilities," July 10, 2009, available in NRC's Agencywide Documents Access and

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data from private wells within and near the licensed boundaries of an ISR facility. Private wells are typically interspersed throughout and outside the licensed area of the ISR facility. The NRC staff notes that the external licensed boundaries of a typical ISR facility encompass an area of several square miles and usually includes several discrete wellfields, some of which are operating, while others may be undergoing restoration or are already in an approved, restored status. It is not uncommon for an operating wellfield to lie within a relatively close proximity to one or more restored wellfields or wellfields undergoing restoration.

The 2009 report analyzed the private well data (comprised of 44 wells across three ISR facilities) available and found that,

> Based on a review of historical licensing documentation, data from the [private well] monitoring at all existing ISR facilities indicate that no impacts attributable to an ISR facility were observed at the regional monitoring locations. In addition, the staff is unaware of any situation indicating that: (1) the quality of groundwater at a nearby water supply well has been degraded; (2) the use of a water supply well has been discontinued; or, (3) a well has been relocated because of environmental impacts attributed to an ISR facility.[5]

This report, together with continued private well monitoring data that has been provided semi-annually to the NRC staff since 2009, have shown no evidence of contamination at nearby private wells.

In addition, with respect to NRC-approved aquifer restorations at ISR wellfields, the NRC staff found that,

> The impacts to groundwater in the exempted aquifer met all regulatory standards for the state or EPA's underground injection control (UIC) program, met the quality designated for its class of use prior to ISR operations, have been shown to decrease in the future due to natural attenuation processes, and have been shown to meet drinking water standards at the perimeter of the exempted aquifer. Therefore, the impacts to the exempted aquifer for each of the approved restorations do not pose a threat to human health or the environment.[6]

More recently, the Crow Butte ISR facility in Crawford, Nebraska, was the subject of litigation before the NRC's Atomic Safety and Licensing Board (ASLB) when the licensee applied to renew its operating license. In a December 2016 decision, the ASLB found that,

> Despite the fact that excursions have occurred at the Crow Butte facility, we find that there is no evidence that those excursions resulted in the transport of contaminants outside of the License Area. This finding is supported by operational monitoring data

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Management System (ADAMS), #ML091770402. The report, entitled "Data on Groundwater Impacts at the Existing ISR Facilities," is an enclosure to SECY-2009-0016.

[5] *Id.*, Enclosure at 5. The report used the term "regional monitoring" to refer to the "private well monitoring."

[6] *Id.*, Enclosure at 3.

> collected during Crow Butte's mining operations that span more than 20 years. The total effect of: (1) the close proximity of the monitoring wells, (2) the low flow rate from the well field, and (3) the use of bleed water that removes more liquid from the aquifer than is reinjected, make it unlikely that there will be an undetected excursion.[7]
>
> [* * * * * * *]
>
> In regards to overall impacts on private wells from excursions, we find that the water quality monitoring data from private wells shows the groundwater contamination has not exceeded radiological background levels. This data, in conjunction with the fact that all but one of the private wells are placed in the Upper Brule Aquifer, also demonstrates that vertical excursions, spills, leaks and Crow Butte operations in general, have not adversely impacted the Upper Brule Aquifer.[8]

The Crowe Butte decision is illustrative. Based upon its operational experience, the NRC staff is aware of no contamination from an ISR wellfield, including restored wellfields, to a non-exempt aquifer.

Private well monitoring continues to be conducted at the three ISR facilities in which 11 wellfields were approved for restoration by NRC in the 2003-2006 timeframe, as there are operating wellfields or wellfields undergoing restoration in close proximity to these restored wellfields. To date, this private well monitoring data has shown no evidence of radiological contamination and as such, provides no technical basis to establish significant risk from operating or restored wellfields to groundwater.

In addition, long-term monitoring (2005-2015) of a restored wellfield has been conducted by Power Resources, Inc. in two perimeter ring monitoring wells at its ISR wellfield, Highlands Mine Unit (MU)-A in Wyoming. This monitoring was required for the approval of the MU-A restoration by the Wyoming Department of Environmental Quality (NRC, 2004).[9] The NRC staff's review of this perimeter ring well monitoring data has shown no increase in hazardous constituents (radium-226, uranium, selenium) or non-hazardous constituents (chloride, total dissolved solids, total alkalinity, potential of hydrogen (pH), iron, manganese), which were monitored over the 10 year period. Based upon the 2009 report and the available 10 year monitoring data at a restored ISR wellfield, the NRC staff disagrees with the preamble statement and finds that there is significant and consistent data, including post-wellfield restoration monitoring data, which demonstrates that no contamination of a non-exempt aquifer has occurred.

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[7] *Crow Butte Resources, Inc.* (License Renewal for the In Situ Leach Facility, Crawford, Nebraska), LBP-16-13, __ NRC __, __ (December 6, 2016), (slip op. at 113).
[8] *Id.*
[9] NRC Technical Evaluation Report, "Review of Power Resources Inc.'s A-Wellfield Ground Water Restoration Report for the Smith Ranch-Highland Uranium Project," June 29, 2004, available in ADAMS, #ML0418404701.

2. Excursion vs. Contamination

Issue: The proposed rule defines the term "excursion" as

> The movement of fluids containing lixiviant or uranium byproduct materials from the production zone into surrounding groundwater. An excursion is considered to have occurred when two indicator parameters (e.g., chloride, conductivity, total alkalinity) exceed their respective upper control limits in any excursion monitoring well, or, as determined by the regulatory agency, when one indicator parameter significantly exceeds its upper control limit in any excursion monitoring well.[10]

Comment: The definition of the term "excursion" should be revised by deleting the sentence that states "[t]he movement of fluids containing lixiviant or uranium byproduct materials from the production zone into surrounding groundwater." The term "excursion," as characterized by the NRC staff is the early detection of unplanned lixiviant migration from the wellfield production zone. Specifically, an excursion is the detection within an ISR wellfield monitoring well of the presence of certain lixiviant constituents which are identified as early indicator parameters (e.g., chloride, alkalinity, conductivity) because they are present in large concentrations in the lixiviant and move at or near the same speed as the groundwater. Excursions are not hazardous by themselves nor are they evidence of actual or likely contamination of the non-exempt portion of the aquifer subject to ISR extraction or of an adjacent or nearby aquifer by hazardous constituents. If an excursion is detected, then under the current regulatory regime and the conditions of the ISR license, the licensee must take the appropriate actions to regain control over the groundwater flow (e.g., by adjusting the extraction and injection rates). By promptly taking corrective action to maintain the groundwater flow within the wellfield, the licensee will prevent much slower moving, and hazardous lixiviant constituents, such as uranium, radium, arsenic, and selenium, from contaminating the non-exempt portion of the subject aquifer or an adjacent or nearby aquifer.

Moreover, the phrase "into the surrounding groundwater," as used in the definition of "excursion" and in other preamble passages,[11] is vague and suggests that contamination has crossed into the non-exempt portion of the subject aquifer or into an adjacent or nearby aquifers. The NRC staff considers the boundary of an ISR wellfield to be the outer ring of monitoring wells surrounding the production zone. This outer monitoring well ring encompasses the production zone as well as portions of the wellfield that are not part of the production zone (typically, the edge of the production zone is 300 to 500 feet from the outer monitoring well ring). The boundaries of the exempt aquifer, as approved by EPA under the Safe Drinking Water Act, fully encompass the wellfield (i.e., the outer monitoring well ring) and extend beyond it, currently by a distance of 100 to 180 feet. Thus, the "surrounding groundwater" referred to in the proposed rule's definition is within both the wellfield and the exempt aquifer. As such, the NRC staff recommends that the phrase "surrounding groundwater" be deleted in the definition of excursion and in other preamble passages.

The NRC staff acknowledges that its operational experience with licensing and regulating uranium ISR facilities shows that excursions have occurred at ISR wellfields. This operational experience, however, has shown no evidence that contamination has crossed into the non-exempt portion of the subject aquifer or into adjacent or nearby aquifers. Thus an ISR wellfield

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[10] 82 FR at 7427.
[11] *E.g.*, 82 FR at 7420.

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monitoring well that detects an "excursion," is therefore not synonymous with actual or likely "contamination" of a non-exempt aquifer and the definition of "excursion" should be revised accordingly.

3. No Evidence of Contamination Detection beyond the Exempt Aquifer Boundary

Issue: The preamble states that EPA's UIC Program has received and evaluated data for "at least one ISR facility" that is "consistent with an excursion beyond the boundary of the exempt aquifer, leading to elevated uranium levels outside the ISR facility."[12] The statement incorrectly suggests that operations at an ISR wellfield resulted in uranium contamination in an adjacent or nearby aquifer.

Comment: The NRC staff is aware of no documented instance of an ISR wellfield being the source of uranium or other contamination of an adjacent or nearby aquifer, or of the non-exempt portion of the same aquifer in which ISR activities are being conducted (NRC, 2009).[13] According to one of the technical documents supporting the proposed rule, the Background Information Document (BID),[14] the ISR facility referred to in the preamble is the Uranium Resources, Inc. (URI) Kingsville Dome ISR facility located approximately eight miles southeast of Kingsville, Texas. The Kingsville Dome ISR facility is licensed by the State of Texas, as Texas is an Agreement State under section 274 of the AEA. The Texas Commission on Environmental Quality (TCEQ) is the applicable Texas Agreement State regulatory agency.

In August 2014, TCEQ received a complaint alleging that ISR activities at Kingsville Dome contaminated a nearby, privately-owned water well and TCEQ's Critical Infrastructure Division, Office of Compliance and Enforcement subsequently investigated the complaint. Although the well, identified by TCEQ as water well (WW)-24, had samples showing high levels of uranium, TCEQ stated that no excursions were detected in the Kingsville Dome monitoring wells nearest the facility's mining unit closest to WW-24.[15] TCEQ also stated it was not able to conclude "that high levels of uranium concentration in water collected from these sources are caused by URI's mining activities."[16] TCEQ states that naturally occurring uranium located in a sand approximately 700 to 745 feet below ground level, identified as the "AA" layer, was the likely cause for fluctuation of uranium values in WW-24 and the other nearby private wells that were sampled.[17] In this regard, the TCEQ report stated that WW-24 likely drew water from the "highly mineralized 'AA' sand."[18] The TCEQ report further noted that the AA layer is so deep that URI has not mined it "due to economic constraints."[19] In a letter to URI, dated October 13, 2015, TCEQ stated that "[t]he investigation included groundwater sampling and records review. No violations were found as a result of the investigation."[20]

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[12] *Id.*, at 7404.
[13] *See also Crow Butte Resources, Inc.* (License Renewal for the In Situ Leach Facility, Crawford, Nebraska), LBP-16-13, __ NRC at __, (December 6, 2016), (slip op. at 113).
[14] 82 FR at 7404.
[15] TCEQ, Investigation Report (September 14, 2015), at 12. The thirteen page report itself is untitled but in two October 13, 2015 transmittal letters to both the complainant and URI, TCEQ identifies the report as an "Investigation Report."
[16] *Id.*
[17] *Id.*, at 3 and 12.
[18] *Id.*, at 4 and 12.
[19] *Id.*, at 3. Above the "AA" layer are, from the deepest, the "A," "B," and "C" layers of sand, all of which have been the subject of URI's ISR activities. *Id.*
[20] TCEQ letter, "Complaint Investigation, Kingsville Dome Facility, Kleberg County, Texas, TCEQ Permit No. UR02827, Regulated Entity Number: RN102380763," October 13, 2015.

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4. Cost and Benefit Analysis

Issue: Under the described "summary of costs and benefits" in section I.D of the proposed rule, EPA describes the purported benefits of the rule as being the avoidance of potential costs through earlier detection of contamination plumes. As part of the discussion in the preamble, EPA assumes the likelihood that the proposed rule would prevent contamination, but that current requirements would not, range from 20 to 80 percent. The NRC staff believes these costs to be overstated and that EPA does not provide sufficient credit for the existing NRC regulatory framework.

Comment: The NRC staff agrees with the general theme that the costs of an undetected contamination event could be considerable and should be avoided. EPA estimates the benefit of avoided costs from their rule would range from $23.7 million to $608 million based upon the size of the plume. Calculation of these benefits are discussed in greater detail in EPA's supporting draft document "Economic Analysis: Proposed Revisions to the Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings Rule (40 CFR Part192)," dated December 2016. However, EPA states that it is unable to quantify the number or characteristics of contamination episodes that could occur in the absence of the proposed rule, therefore the EPA is unable to estimate the nationwide cost savings.

The NRC staff disagrees that EPA's proposed rule would result in significantly greater detection of contamination nor would the avoided costs be as high as identified by EPA. As stated earlier, in almost 40 years of operational experience, the NRC staff is aware of no documented instance of an ISR wellfield being the source of contamination of an adjacent or nearby aquifer, or of the non-exempt portion of the same aquifer in which ISR activities are being conducted. Although many wellfields have been restored, these restored wellfields are in close proximity to operating wellfields under the control of the same ISR licensee. As such, the NRC has continued to collect excursion monitoring data and radiological data in and around the licensed site (e.g. from private wells). To date, the NRC has not identified any instances of contamination moving past the exempt aquifer area. As a result the NRC staff has no reason to conclude that contamination of a non-exempt aquifer, whether detected or undetected, is likely to occur. Similarly, the NRC staff concludes that the EPA's economic analysis lacks sufficient data to demonstrate that the proposed rule's requirements would prevent the likelihood of contamination by a range of 20 to 80 percent when compared to the likelihood of contamination under existing regulatory programs. In short, the economic analysis fails to give proper credit to the existing NRC regulatory regime, which to date, has been successful in preventing contamination of a non-exempt aquifer.

Issue: The modeling of contaminant plumes provided by EPA are worst case scenarios based upon unrealistic assumptions.

Comment: EPA's supporting draft document "Economic Analysis: Proposed Revisions to the Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings Rule (40 CFR Part 192)," dated December 2016 bases its cost analysis on numerical groundwater flow and fate and transport models of contaminant plumes described in a second supporting document, "Ground Water Modeling Studies at In-Situ Leaching Facilities and Evaluation of Doses and Risks to Off-Site Receptors from Contaminated Ground Water." This modeling effort provided the bases for estimating economic costs to clean up a contamination plume discovered after license termination by simulating the remobilization of uranium (Appendix C of the report) after restoration. As described in the "Economic Analysis: Proposed Revisions to the Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings Rule (40 CFR Part 192)" report, the economic analysis is based on a plume entirely within the exempted

aquifer, whereas the preamble to the proposed rule suggests plume migration to the surrounding underground sources of drinking water (USDWs).[21] Furthermore, EPA used the uranium maximum contaminant level (MCL) as the remediation standard for the plume. The proposed groundwater constituent concentration standards, however, are the *highest* level of the pre-operational background or health based levels; or an alternate concentration level.[22] Using the MCL unrealistically forced a higher remediation cost. Finally, in the economic analysis, EPA bases their costs in part on the benefit of using a 30 year monitoring period which is no longer part of the re-proposed rule.

B. Jurisdictional Issues

1. Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) Does Not Provide Express Authority to Preserve Future Uses of Groundwater

Issue: As set forth in its preamble, the proposed rule's purpose is to preserve groundwater resources, particularly for future uses. The preamble identifies a range of multiple, future groundwater uses, including human drinking water, water for livestock, irrigation, and wildlife support. The preamble states that section 275 of the AEA (42 U.S.C. § 2022) is the applicable authority under which EPA would promulgate this rule. The preamble indicates that EPA is relying upon UMTRCA as the statutory basis to preserve these future potential uses of groundwater.[23]

Comment: The NRC staff believes that the appropriate statutory vehicle to preserve future potential uses of groundwater is the Safe Drinking Water Act (SDWA), not UMTRCA. In accordance with its SDWA UIC regulations, EPA has sole authority to exempt an aquifer from the protections of the SDWA—under current law, no other agency of the United States government nor any State or local government can exempt an aquifer from SDWA protection.[24] EPA's exemption of the aquifer from the SDWA must be granted before the injection of lixiviant under the EPA UIC Class III injection well permit[25] can occur.[26] UMTRCA (or more specifically, the AEA, as amended by UMTRCA) provides no authority to protect groundwater for any use before this injection of lixiviant occurs. UMTRCA only becomes relevant after the EPA has made an affirmative determination to exempt an aquifer from SDWA protection followed by the EPA or State approval of a Class III injection permit for the uranium ISR extraction.

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[21] 82 FR at 7424.
[22] *Id.* at 7428 (proposed 40 CFR 192.52(c)(1)).
[23] The preamble states "UMTRCA provides authority that can be used to protect aquifers during and after uranium recovery operations, regardless of whether the aquifer meets the definition of an underground source of drinking water [USDW] as defined in the EPA's UIC regulations or is exempted from the protections of SDWA because it meets the existing regulatory criteria for exemption." *Id.*, at 7403.
[24] 40 CFR 144.7(b)(2) ("No designation of an exempted aquifer submitted as part of a UIC program shall be final until approved by the Administrator as part of a UIC program"); *see also* Office of Water, EPA Memorandum, "Enhancing Coordination and Communication with States on Review and Approval of Aquifer Exemptions Requests Under SDWA," July 24, 2014, p. 1 ("EPA is responsible for the final review and approval of all aquifer exemption requests, based on the regulatory criteria in 40 CFR 146.4").
[25] Wells used for uranium ISR extraction are categorized as Class III wells per 40 CFR 144.6(c)(2).
[26] 40 CFR 144.31 ("Unless an underground injection well is authorized by rule under subpart C of this part, *all injection activities including construction of an injection well are prohibited until the owner or operator is authorized by permit*. An owner or operator of a well currently authorized by rule must apply for a permit under this section unless well authorization by rule was for the life of the well or project") (emphasis added).

Under EPA regulations, one of the requirements for exempting an aquifer is that the aquifer "cannot now and *will not in the future serve* as a source of drinking water."[27] If EPA determines that a given aquifer has the potential to be used as a future source of drinking water, it cannot, by its own regulation, exempt that aquifer. Thus, unless EPA changes its SDWA regulations, or provides an exemption to the current SDWA regulations for a specific application, an aquifer, once exempt, can never be used as a drinking water source. Any suggestion in the preamble to the contrary should be clarified. For example, the preamble states

> By altering the chemical composition of groundwater, ISR creates reasons to be concerned about impacts to groundwater, *which may be used for human drinking water,* as well as for other purposes, such as livestock watering, crop irrigation and wildlife support.[28]

This and similar statements contravene EPA's 40 CFR 146.4 and other SDWA regulations and as such, should be deleted or otherwise clarified.

Issue: The other groundwater uses listed in the preamble, namely, water for livestock, irrigation, and wildlife support, are typically regulated by State and local authorities under State law. The proposed rule's preamble, however, states

> [s]ince UMTRCA provides authority that can be used to protect aquifers during and after uranium recovery operations, regardless of whether the aquifer meets the definition of an USDW as defined in EPA's UIC regulations or is exempted from the protections of the SDWA, the scope of UMTRCA's protection should be reflected in the regulatory text of these standards rather than relying on the SDWA UIC exemption regulations.[29]

Comment: Contrary to this and similar statements in the preamble, it is the NRC staff's view that UMTRCA provides no express authority to preserve the groundwater targeted for ISR Class III injection as a USDW or for the other potential purposes described in the preamble. Other than the statement that UMTRCA provides such authority and references to the general statutory language of AEA section 275,[30] there is no explanation in the preamble, either by reference to the statutory language, legislative history, or case law that shows how UMTRCA provides any such authority. The NRC staff suggests that if EPA's intent is to preserve groundwater as a resource for the uses listed in the preamble, then EPA's easiest course and one which does not involve rulemaking, is to simply not grant any aquifer exemptions under its SDWA UIC authority.

If the purpose of this rulemaking is to preserve groundwater for such future uses, then UMTRCA is not the appropriate vehicle. Although UMTRCA provides authority to protect the general environment and public health and safety from the radiological and non-radiological hazards arising from processing 11(e)(2) byproduct material, it was never intended or designed to preserve potential future uses of an aquifer properly exempted from the protections of the SDWA by EPA. The preamble also does not explain why UMTRCA should be construed as a

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[27] 40 CFR 146.4 (emphasis added).
[28] 82 FR at 7403 (emphasis added).
[29] *Id.*, at 7413.
[30] *E.g., id.*, at 7403.

"complement"[31] for, or an extension of, the SDWA, or as a land use or a resource preservation or protection statute. As EPA states in the preamble,

> The SDWA *does not prevent recovery and use of the water within exempted aquifers (including where ISR operations were previously conducted)* for private drinking water supply, public water supply, or other uses.[32]

Certainly, if the SDWA does not prevent "recovery and use of the water within exempted aquifers," then UMTRCA surely does not. With respect to active, UMTRCA Title II sites, the stated purpose of UMTRCA is to provide "a program to regulate mill tailings during uranium or thorium ore processing at active mill operations and after termination of such operations in order to stabilize and control such tailings in a safe and environmentally sound manner and to minimize or eliminate radiation health hazards to the public."[33] If UMTRCA were intended to preserve future uses of groundwater, the NRC staff believes that the statutory language and the legislative history would have so indicated and, perhaps, have provided a mechanism for preservation. In this regard, UMTRCA does not have language that is typically found in Federal land use or resource protection statutes, such as the Clean Water Act, which has the statutory charge to "*to restore and maintain* the chemical, physical, and biological integrity of the Nation's waters,"[34] or the Federal Land Policy and Management Act of 1976, which states, "the national interest will be best realized if the public lands and their resources are periodically and systematically inventoried and their *present and future use is projected through a land use planning process* coordinated with other Federal and State planning efforts."[35] Finally, UMTRCA must be consistent with Resource Conservation and Recovery Act (RCRA) in regard to non-radiological hazards, and RCRA has no requirement for protection or preservation of a future use.

2. Meaning of phrase "Generally Applicable Standards"

EPA identifies the statutory authority for its 40 CFR Part 192 rulemaking as section 275 of the AEA (42 U.S.C. § 2022), as added by section 206 of UMTRCA.[36] UMTRCA established a dual regulatory scheme over the uranium milling industry between EPA and the NRC. Under this scheme, EPA sets "standards of general application" or "generally applicable standards"[37] for the,

> protection of the public health, safety, and the environment from radiological and non-radiological hazards associated with processing and with the possession, transfer, and disposal of [AEA Section 11e.(2)] byproduct material, ... at sites at which ores

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[31] *Id.*, at 7413.
[32] *Id.*, at 7413 (emphasis added).
[33] 42 USC § 7901(b)(2).
[34] 33 USC § 1251(a) (emphasis added). Whether the groundwater resources of concern are waters of the United States, and thus subject to Federal jurisdiction, is beyond the scope of these comments.
[35] 43 USC § 1701(a)(2) (emphasis added).
[36] UMTRCA, Pub. L. 95-604, 92 Stat. 3021.
[37] AEA, Section 275b.(1) uses the term "standards of general application," whereas Section 275b.(2) uses the term "generally applicable standards." For brevity, the term "generally applicable standards" will be used from this point forward in this paper.

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> are processed primarily for their source material content or which are used for the disposal of such byproduct material.[38]

The standards set by EPA for non-radiological hazards must be consistent with the standards required under RCRA.[39] The NRC or an NRC Agreement State (the "regulatory agency") is responsible for implementing EPA's standards of general application and is the sole regulatory authority for granting an operating license to uranium recovery facilities.[40]

According to the preamble, the proposed rule would promulgate three different types of groundwater protection standards for ISR facilities, namely, constituent concentration standards, initial stability standards, and long-term stability standards.[41] The preamble describes constituent concentration standards as "numerical concentration limits for a set of groundwater constituents that are present in or affected by ISR operations."[42] The proposed rule groundwater constituent standards are: (1) pre-operational background, (2) the numerical health based standards in referenced tables, or (3) an alternate concentration level.[43] An ISR licensee would need to meet these constituent concentration standards at various compliance points during the different phases of ISR wellfield operation, including the restoration phase. The proposed rule identifies 12 constituents that are the subject of the constituent concentration standards. Other than the express identification of the 12 constituents, these proposed standards are essentially equivalent to, if not the same as, those already in effect under current EPA regulations and are already implemented by NRC and Agreement States for ISR wellfields under NRC's regulations at 10 CFR Part 40, Appendix A (see NRC RIS-2009-005)[44] or the Agreement State equivalent to the NRC's 10 CFR Part 40, Appendix A regulations.

The NRC staff has no objection to such constituent concentration standards as their promulgation falls clearly within the EPA's generally applicable standards setting authority and are already used by NRC and the Agreement States. As explained below, however, the NRC staff continues to have both technical and jurisdictional objections to the initial stability standards and long-term stability standards. In particular, the NRC staff believes that the initial stability standards and long-term stability standards are not generally applicable standards but are implementation criteria, and as such, encroach upon NRC's authority and impair the NRC's ability to effectively regulate its ISR licensees. The initial stability standards and long-term stability standards that are of particular concern are the 95 percent confidence level requirement for a statistical trend analysis and the requirements for geochemical modeling (including the statements in the preamble showing EPA's expectations of such modeling). In addition, the NRC staff has concerns about the definition and use of the term "point of exposure."

The NRC staff acknowledges that the term "generally applicable standards" is not defined in the statutory language of the AEA or by its UMTRCA amendment. The term is, however, defined by

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[38] AEA, Section 275b.(1); 42 U.S.C. § 2022(b)(1) (alteration added).
[39] AEA, Section 275b.(2); 42 U.S.C. § 2022(b)(2).
[40] AEA, Section 275d.; 42 U.S.C. § 2022(d).
[41] 82 FR at 7405 and 7407.
[42] *Id.*, at 7407
[43] *Id.*
[44] "RIS" is the NRC acronym for "Regulatory Issue Summary," a form of generic communication that the NRC issues to its regulated community. RIS-2009-05 clarified that the NRC's 10 CFR Part 40, Appendix A regulations were applicable to uranium ISR wellfields. RIS-2009-05, April 29, 2009, p. 3 ("Accordingly, the requirements in Criterion 5B(5) of Appendix A apply to restoration of groundwater at uranium ISR facilities").

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the Reorganization Plan No. 3 of 1970, which established EPA, and is further described in the legislative history of UMTRCA.

Reorganization Plan No. 3 of 1970

EPA's authority to promulgate generally applicable standards, at least for radiological material, is prescribed by what is essentially EPA's organic authority, namely, the Reorganization Plan No. 3 of 1970 (Reorganization Plan).[45] Section 1 of the Reorganization Plan established the EPA. Section 2 transferred various authorities from other federal agencies to the EPA. Section 2(a)(6) transferred to the EPA Administrator certain "functions" of the former Atomic Energy Commission (AEC). Section 2(a)(6) states:

> (a) There are hereby transferred to the Administrator:
>
> [* * *]
>
> (6) The functions of the Atomic Energy Commission under the Atomic Energy Act of 1954, as amended, administered through its Division of Radiation Protection Standards, *to the extent that such functions of the Commission consist of establishing generally applicable environmental standards for the protection of the general environment from radioactive material. As used herein, standards mean limits on radiation exposures or levels, or concentrations or quantities of radioactive material, in the general environment* outside the boundaries of locations under the control of persons possessing or using radioactive material.[46]

Thus, the Reorganization Plan provided EPA with an express transfer of AEA authority to set generally applicable standards "for the protection of the general environment from radioactive material." The Reorganization Plan, however, expressly prescribed this standard setting authority by defining the term "standards" to mean "limits on radiation exposures or levels, or concentrations or quantities of radioactive material"—essentially, numerical limits.

The use of the phrase "generally applicable environmental standards" in the Section 2(a)(6) provision is virtually identical to UMTRCA's language, namely, "standards of general application for the protection of the public health, safety, and the environment from radiological and non-radiological hazards."[47] Further, case law suggests that Congress intended that UMTRCA's "generally applicable standards" have the same meaning as the Reorganization Plan's "generally applicable environmental standards."[48]

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[45] Reorg. Plan No. 3 of 1970, 35 FR 15623 (October 6, 1970), 84 Stat. 2086 (December 2, 1970). The Reorganization Plan No. 3 of 1970 is codified in 5 U.S.C. Appendix 1.
[46] Reorg. Plan No. 3 of 1970, § 2(a)(6) (emphasis added).
[47] AEA § 275(b)(1)), 42 U.S.C. § 2022(b)(1).
[48] *See NRDC v. EPA*, 824 F.2d 1258, 1278 (1st Cir. 1987) (in interpreting EPA regulations promulgated under the Nuclear Waste Policy Act, 42 U.S.C. § 10141 (NWPA), the court construed the NWPA's statutory language in accordance with Section 2(a)(6) of the Reorganization Plan No. 3 of 1970, and stated "[m]oreover, if Congress disagreed with this definition of the general environment from the reorganization plan (which defined the duties of the EPA), Congress would not have used the same terminology (i.e., the term 'general environment') that was used in the reorganization plan") (alterations added).

UMTRCA's Legislative History Shows that EPA Generally Applicable Standard-Setting Authority is Bound by Reorganization Plan No. 3 of 1970, Section 2(a)(6)

UMTRCA's legislative history shows that Congress was aware of and considered section 2(a)(6) of the Reorganization Plan No. 3 of 1970 when it enacted UMTRCA in 1978. In fact, the legislative history shows that Congress structured UMTRCA's grant of authority to the EPA Administrator upon this very provision. During the consideration of the various bills that led to UMTRCA's enactment, Section 2(a)(6) was referred to several times in the statements of both the NRC Chairman and the EPA Deputy Assistant Administrator for Radiation Programs. In an August 2, 1978 statement made before the House Subcommittee on Energy and Power, Committee on Interstate and Foreign Commerce, then NRC chairman, Dr. Joseph M. Hendrie, stated that "[t]he EPA would establish ambient environmental radiation standards for this new class of byproduct material under Atomic Energy Act authority transferred to EPA under Reorganization Plan No. 3 of 1970."[49]

Similarly, William D. Rowe, Deputy Assistant Administrator for Radiation Programs, EPA, stated on the same date before the same subcommittee,

> However, any such legislative proposal should also provide the EPA to promulgate general environmental standards for such [byproduct] material so that there will be *consistency with the present authority of the Atomic Energy Act and Reorganization Plan No. 3 of 1970 which gives EPA such authority over present licensable material*.[50]

In response to a question from the Committee counsel, Mr. David B. Finnegan, asking what the phrase "generally applicable standards" encompasses, Dr. Rowe stated,

> General [sic] applicable standard is defined in the Atomic Energy Act. This is where the language comes from, *and it is the section that we use to set the standards outside the boundaries.*[51] *It covers standards which can be quantities, concentrations, and it is particularly defined here as concentrations or quantities of material into the general environment. That is how it has been defined.*[52]

Although Dr. Rowe stated that the term "general applicable standard" was defined in the AEA, he was, as shown by his earlier statement, likely referring to Section 2(a)(6) of the 1970 Reorganization Plan, which transferred AEA authority to EPA. Regardless, Dr. Rowe's statement shows that the EPA considered that the term "generally applicable standards" referred to a specified, numerical limit, namely, a concentration or a quantity of radioactive material.

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[49] *Uranium Mill Tailings Control Act of 1978: Hearing on H.R. 11698, H.R. 12229, H.R. 12938, H.R. 12535, H.R. 13049, H.R. 13650, and H.R. 13382 Before the Subcomm. On Energy and Power, H. Comm. On Interstate and Foreign Commerce*, 95th Cong. 343 (1978). The Committee on Interstate and Foreign Commerce bill version would become UMTRCA.

[50] *Id.*, at 366 (emphasis added).

[51] As explained below, the phrase "outside the boundaries" was a point of contention between the EPA and the NRC during the development of UMTRCA.

[52] *Uranium Mill Tailings Control Act of 1978: Hearing on H.R. 11698, et al,* 95th Cong. 393 (emphasis added) (alteration added).

In response to Dr. Rowe's statement, Mr. Finnegan then asked about using the UMTRCA legislation to apply the Reorganization Plan definition of a generally applicable standard when setting such standards to control non-radiological hazards,

> Can I suggest to you that the statute be drafted in such a way that EPA would have authority to establish by rule the standards to protect the public and the environment, and I am asking if this is what you are looking for, from radiological hazards associated with the processing and transfer of byproduct material in the possession or control of any licensee ... *including the establishment of limits on the exposure or levels or concentrations or quantities of hazards and for standards for the nonradiological hazards* in accordance with the requirements of [RCRA]. Is that essentially what you are looking for as far as legislation in this area?[53]

Dr. Rowe responded affirmatively.[54] Thus, this dialogue shows a legislative intent to apply the Reorganization Plan's Section 2(a)(6) generally applicable standards criteria of numerical limits to the non-radiological hazards covered by the UMTRCA legislation.

In addition to the above statements, there are two House reports, one from each of the committees that considered the UMTRCA legislation, that show Congress intended to apply the Section 2(a)(6) criteria to the EPA's promulgation of generally applicable standards under AEA section 275, for both radiological and non-radiological hazards.[55] The Committee on Interior and Insular Affairs' report states,

> It is the responsibility of the Environmental Production Agency to establish generally applicable standards and criteria for the protection of the general environment, considering radiological and nonradiological aspects of tailings. The EPA standards and criteria should be developed to limit the exposure (or potential exposure) of the public and to protect the general environment from either *radiological or nonradiological substances* to acceptable levels through such means as *allowable concentrations in air or water, quantities of the substances released over a period of time, or by specifying maximum allowable doses or levels to individuals in the general population.*[56]

This report language, together with the dialogue between Mr. Finnegan and Dr. Rowe, demonstrate Congress' intent that EPA's generally applicable standards under UMTRCA, for both radiological and non-radiological materials, be in the form of numerical limits, namely, limits on concentrations of radiological and non-radiological material, quantities of such material, or allowable doses or levels to individuals from such material.

The Committee on Interstate and Foreign Commerce report stated that both committees held "considerable discussions with the EPA and NRC and developed these provisions" and was

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[53] *Id.* (emphasis added) (alteration added).
[54] *Id.*
[55] The two respective House committees were the Committee on Interstate and Foreign Commerce and the Committee on Interior and Insular Affairs.
[56] H.R. Rep. No. 95-1480, Part 1, at 16-17 (1978) (emphasis added).

"satisfied with this resolution of a very difficult problem."[57] Based upon the testimonies of Chairman Hendrie, Dr. Rowe and Floyd Galpin, another EPA witness, the primary dispute between the EPA and the NRC concerned whether EPA's generally applicable standards would be prescribed by the "outside the boundaries" of the licensed site language, as set forth in Section 2(a)(6) of the Reorganization Plan, or would apply inside the boundaries as well.[58] Congress resolved the dispute in favor of EPA, allowing application of the EPA generally applicable standards within the boundaries of the licensed facility, with the proviso, as set forth in an August 9, 1978 letter from then EPA Administrator Douglas M. Costle, that the NRC would establish management requirements for the licensed facility.

The Interstate and Foreign Commerce committee report quotes the pertinent part of Mr. Costle's letter, which states,

> We agreed that *NRC would establish management requirements for the uranium mill tailings*; that such requirements would be comparable, to the maximum extent practicable, to requirements applicable to the possession, transfer, and disposal of similar hazardous material under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976; and that in establishing general management requirements, the NRC would obtain the concurrence of EPA.
>
> Under both titles, *EPA would retain its generally applicable standards-setting authority under the Atomic Energy Act of 1954, as amended.*[59]

Administrator Costle's letter states that EPA shall "retain" its AEA "generally applicable standards-setting authority." Given the statements of Chairman Hendrie, Dr. Rowe, and Mr. Finnegan, the retention by EPA of its AEA generally applicable standards setting authority is best construed to mean section 2(a)(6) of the Reorganization Plan with its definition of the term "standards" being only in the form of numerical limits.

According to the legislative history, the only portion of section 2(a)(6) of the Reorganization Plan provision that is rendered inapplicable by UMTRCA is the very last part of the last sentence of the provision, which states "outside the boundaries of locations under the control of persons possessing or using radioactive material."[60] It is noteworthy that EPA challenged the "outside the boundaries" language of section 2(a)(6) and persuaded Congress to legislatively overturn it.[61] The legislative history shows no such similar effort by EPA with respect to expanding the

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[57] *Id.*, Part 2, at 46.

[58] *Uranium Mill Tailings Control Act of 1978: Hearing on H.R. 11698, et al,* 95th Cong. 396-98.

[59] H.R. Rep. No. 95-1480, Part 2, at 46 (emphasis added). The report further stated that the committee "stresses that the EPA standards are not to be site-specific."

[60] UMTRCA, of course, only applies to those facilities involved in the processing of 11(e)(2) byproduct material. As such, the Section 2(a)(6) "outside the boundaries" language is still applicable to all other nuclear fuel cycle facilities. *See e.g.,* 40 CFR 190.10.

[61] The dispute between the EPA and NRC's predecessor agency, the Atomic Energy Commission (AEC), over setting standards for fuel cycle facilities, essentially within the boundaries of a licensed site, predate the UMTRCA legislation. In a December 7, 1973 memorandum to the EPA Administrator and to the AEC Chairman, the Director, Office of Management Budget resolved the dispute in favor of the AEC, stating that "EPA has construed too broadly its responsibilities, as set forth in Reorganization Plan No. 3 of 1970, to set 'generally applicable environmental standards for the protection of the general environment from radioactive material.'" OMB Memorandum Regarding Responsibility for Setting Radiation Protection

meaning of the term "standards" to be more than the setting of numerical limits. Indeed, the above legislative history, including the cited portions of Mr. Costle's August 9, 1978 letter, shows that Congress and the EPA considered the numerical limit definition of the term "standards" to be appropriate.

In this regard, Supreme Court precedent shows that courts attach "great weight" to the testimonies of agency officials, especially when such officials work closely in developing the legislative language with Congressional committees.[62] Thus, upon the basis of this legislative history, the intent of UMTRCA was that the EPA would set generally applicable standards in accordance with its standing AEA authority as prescribed in the Reorganization Plan (that is standards consisting of numerical limits), that such standards would apply both inside the boundaries of the licensed site as well as in the general environment, and the NRC (or the Agreement State) would implement such standards. In short, numerical limits on exposures or levels, or concentrations or quantities of material are the only types of standards that EPA can impose under UMTRCA (AEA section 275).

EPA Cites No Basis to Support Its Interpretation of the Reorganization Plan Provision

The proposed rule's preamble does not expressly reference the Reorganization Plan. In response to comments "critical of EPA's authority to require corrective action programs," however, the preamble states,

> While the term "standard" includes numerical limitations, such as the concentration based limits for the listed constituents in groundwater, the EPA has long interpreted this term to also encompass the actions a source must take to reduce, remediate or otherwise avoid release of pollutants. The EPA notes that the existing rule, in subpart D, includes similar non-numerical standards to those included in this proposed rule. For example, 40 CFR 192.32(a)(2)(iii) requires affected sources to implement detection monitoring programs, while 40 CFR 192.32(a)(3)(i) requires uranium mill tailings piles or impoundments to have a permanent barrier.[63]

Although EPA may have interpreted these provisions to go beyond the setting of numerical limits, it cites no legal basis to support this interpretation.

The preamble cites two 1985 Tenth Circuit decisions, involving an industry challenge to EPA's first AEA section 275 rulemaking, in 1983, to support the EPA's position that its proposed rule provisions are a proper issuance of generally applicable standards, *American Mining Congress et al. v. Thomas*, 772 F.2d 617 (10th Cir. 1985) ("*AMC I*") and *American Mining Congress et al.*

Standards (December 7, 1973) *reprinted in* NRC NUREG-0980, vol. 1, No. 11 (2015). The memorandum stated that "[o]n behalf of the President ... the decision is that AEC should proceed with its plans for issuing uranium fuel cycle standards, ... that EPA should discontinue its preparations for issuing, now or in the future, any standards for types of facilities; and that EPA should continue, under its current authority [i.e., the Reorganization Plan], to have responsibility for setting standards for the total amount of radiation in the general environment from all facilities combined in the uranium fuel cycle." *Id.*

[62] The Supreme Court stated that "we attach 'great weight' to agency representations to Congress when the administrators 'participated in drafting and directly made known their views to Congress in committee hearings.'" *United States v. Vogel Fertilizer Co.,* 455 U.S. 16, 31, 102 S.Ct. 821, 830, 70 L.Ed.2d 792 (1982), *quoting Zuber v. Allen,* 396 U.S. 168, 192, 90 S.Ct. 314, 327, 24 L.Ed.2d 345 (1969).

[63] 82 FR at 7419.

v. Thomas, 772 F.2d 640 (10th Cir. 1985) ("*AMC II*").[64] These two Tenth Circuit decisions, however, did not consider the numerical limits prescription of section 2(a)(6) of Reorganization Plan No. 3 of 1970. Only one of the Tenth Circuit decisions, *AMC I*, referenced the Reorganization Plan provision and only for the proposition that UMTRCA had removed the "outside the boundaries" limitation from the AEA authority transferred to EPA by the Reorganization Plan, as applied to activities concerning the possession and use of AEA section 11e.(2) byproduct material.[65]

Indeed, all of the challenged standards in the *AMC I* case were standards that set numerical limits.[66] The preamble to EPA's 1983 rule shows a relatively contemporaneous understanding of the limits of EPA's UMTRCA authority. The 1983 rule's preamble made a distinction from an earlier 1980 NRC UMTRCA rulemaking by stating "[w]e note that the NRC regulations specified design objectives; that is, the values specified were to be achieved based on average performance; whereas these EPA rules specify standards, *which designers must plan not to exceed*, with a reasonable degree of assurance."[67] The use of the phrase "must plan not to exceed" is informative as it is typically used in concert with a numerical limit. Similarly, the 1983 rule's preamble stated that "UMTRCA gives the NRC and the Agreement States the responsibility to decide what methods will assure these standards are satisfied at specific sites."[68]

The NRC staff acknowledges that EPA promulgated at least one standard that was not a numerical limit in its 1983 rulemaking, namely, the requirement for the use of liners at new waste depositories and to new portions of existing waste depositories. That requirement was one of the requirements challenged in *AMC II*, and is discussed further below. The NRC staff notes, however, that the *AMC II* petitioners did not appear to challenge the liner standard as violating the numerical limits prescription of the "standards" definition in Section 2(a)(6) of the Reorganization Plan—at least the published decision makes no reference to such a challenge. Here, the NRC staff finds relevant another Tenth Circuit decision, *Quivira Mining Co. v. EPA*, issued 1 year prior to *AMC I* and *AMC II*, which stated that "the Reorganization Act plainly provides that a reorganization plan may not create new agency functions,"[69] and the previously cited 1987 First Circuit decision, *NRDC v. EPA*, which stated that the Reorganization Plan No. 3 of 1970 "defined the duties of the EPA."[70] Moreover, the past promulgation of regulations by EPA does not provide an adequate basis to promulgate regulations, now or in the future, that exceed or are inconsistent with the Reorganization Plan's "numerical limit" definition of "standards."

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[64] *Id.*, at 7418-19 and 7422.
[65] *AMC I*, 772 F.2d at 630 ("The American Mining Congress argues that this strict distinction between the EPA operating outside site boundaries and the NRC operating on-site has been maintained in the UMTRCA").
[66] *E.g.*, *AMC I*, 772 F.2d at 623, n. 3 and 638 (various numerical concentration limits by milligrams/liter for a list of various constituents toxic substances that could be present in surface and ground water); *id.*, 772 F.2d at 624 ("radon-222 emission limits from tailings piles of 20 pCi/m^{2}s); and *id.* (radium-226 maximum concentration levels set at 5pCi/gram averaged over the first 15 centimeters of soil and at 15pCi/gram for soil layers more than 15 centimeters below the surface).
[67] 48 FR 45926, 45932 (October 7, 1983) (emphasis added).
[68] *Id.*, at 45933.
[69] *Quivira Mining Co. v. EPA*, 728 F.2d 477, 481 (10th Cir. 1984); *see also NRDC v. EPA*, 824 F.2d at 1278 (stating that the Reorganization Plan No. 3 of 1970 "defined the duties of the EPA").
[70] *NRDC v. EPA*, 824 F.2d at 1278.

UMTRCA's Legislative History Further Prescribes EPA's Generally Applicable Standard-Setting Authority

In addition to prescribing that generally applicable standards promulgated by EPA must be in the form of numerical limits, the legislative history indicates a further restriction upon EPA's AEA section 275 authority. In its report, the Committee on Interior and Insular Affairs stated that

> The EPA standards and criteria *should not interject any detailed or site-specific requirements for management, technology, or engineering methods on licensees* or the Department of Energy. Nor should EPA incorporate any requirements for permits or licenses for activities concerning uranium mill tailings which would duplicate NRC regulatory authority over the tailings sites.[71]

Thus, if the legislative history is given its proper effect, UMTRCA allows EPA to only promulgate generally applicable standards consisting solely of numerical limits, and further, such standards cannot interject any detailed or site-specific requirements for management, technology or engineering methods. The NRC staff comments below describe how the initial and long-term stability standards, particularly, the 95 percent confidence level requirement and the geochemical modeling requirement, are not generally applicable standards under UMTRCA (AEA, section 275).

C. 95 Percent Confidence Level

Proposed rule provisions 40 CFR 192.52(c)(2) (initial stability standards) and (c)(3)(i) (long-term stability standards) require that the regulatory agency ensure that licensees must provide it with a minimum of "three consecutive years of quarterly monitoring results with no statistically significant increasing trends that would exceed the constituent concentration standards at the 95 percent confidence level."[72] EPA asserts that this requirement is necessary to demonstrate both the initial and long-term stability of the groundwater quality. The NRC staff has significant jurisdictional and technical concerns with EPA's attempt to impose any sort of groundwater stability standard, including but not limited to the 95 percent confidence level requirement.

In the preamble, EPA states that the 95 percent confidence level requirement is a "generally applicable stability standard" as it is used to "define stability" and further, that the "confidence level [is] a measure of stringency of the standard."[73] According to the preamble, the purpose of this stability standard is to ensure "full restoration" across all wellfields and "to confirm that the restoration was successful and likely to persist."[74] The preamble asks for comments on "alternative approaches that would present a rigorous benchmark against which to measure and ensure stability."[75]

From a jurisdictional perspective, this requirement goes well beyond a generally applicable standard and encroaches upon the NRC's authority as the regulatory agency. The NRC staff objects to the imposition of any confidence level requirement, regardless of the percentage target, as EPA has no authority to set such a standard and further, such a standard will require

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[71] H. Rep. No. 95-1480, Part I, 95th Cong., 2nd Sess. at 17 (1978) (emphasis added).
[72] 82 FR at 7428. The quoted language is from proposed 40 CFR192.52(c)(2). The language for proposed 40 CFR 192.52(c)(3)(i) is essentially the same.
[73] *Id.*, at 7422.
[74] *Id.*
[75] *Id.*

the NRC to implement a specific methodology (in this case, mandating a strict statistical confidence level for a hypothesis test of a stability trend).

Under its AEA section 275 authority, as transferred to EPA by section 2(a)(6) of the Reorganization Plan, EPA can only set numerical limit standards—limits on exposures or levels, or concentrations or quantities of material. As noted above, the EPA's proposed constituent concentration standards fall within the scope of Reorganization Plan's definition of a generally applicable standard, and as such, the NRC staff has no objection to them. In contrast, a groundwater stability standard that attempts to regulate the "stringency of the standard," whether by imposing a 95 percent confidence level requirement or otherwise, are not limits on exposures or levels, or on concentrations or quantities of material. Rather, a statistical confidence level for a hypothesis test of a stability trend is a measure of the false positive rate (Type I error) of a trend being found to be significant when it is not (e.g., a 95 percent confidence level means that there is a five percent chance of detecting what appears to be a significant trend when, in fact, none exists). Neither the use of the phrase "confidence level" nor placing a specific percentage before that phrase, here 95 percent, brings this proposed rule provision within the scope of the Reorganization Plan's definition of the term "standards."

In addition to not being a numerical limit, the proposed rule's stability standards are not consistent with the direction in the UMTRCA legislative history that EPA "should not interject any detailed or site-specific requirements for management, technology, or engineering methods on licensees or the Department of Energy." A groundwater stability standard, and efforts to ensure stringency, concern how the presence of a trend is detected, established, and statistically evaluated. Sampling, measurement and related calculations, factoring in uncertainty given site-specific conditions, and how to perform such sampling, measurements, and calculations, and finally, determining what standards and methodologies are appropriate, are all implementation matters. In accordance with AEA section 275d., implementation matters are solely within the province of the regulatory agency, not EPA. Determining stability, including defining stability, and ensuring proper sampling and analysis to demonstrate such stability, are professional judgments made by the technical staff of the regulatory agency.

The preamble, in an attempt to distinguish the provision from this prescription in the legislative history, states that the "proposed stability standards do not prescribe what specific statistical methods, sampling methods, or monitoring equipment should be used to show 95 percent confidence."[76] The preamble then states, however, that "EPA expects that the regulatory agency would provide additional guidance regarding the statistical analysis required and the reasons for using a statistical test that facility operators and other stakeholders understand the reasons for using the statistical test, the concepts of Type 1 and Type 2 errors, the calculations required to perform the test, and how test results are interpreted" and then ties this statement to one of the technical documents supporting the proposed rule, the Background Information Document (BID).[77] According to the preamble, the BID includes "[i]nformation about what parameter is tested, the null and alternative hypotheses, *requirements for implementing the statistical tests and tables for interpreting test results*."[78] Moreover, in Table 7.1 of the BID, EPA states that there are only two potential statistical methods available to adequately conduct a hypothesis test of a stability trend that supports a 95 percent confidence level: a regression trend test and the Mann-Kendall test.[79] The BID advocates exclusively for the Mann-Kendall

[76] *Id.* at 7419.
[77] *Id.* at 7422.
[78] *Id.* (emphasis added).
[79] The regression trend test is a parametric test which relies on a normal distribution of residuals (a "bell-shaped" curve), whereas the Mann-Kendall test is a non-parametric test.

test. Together, these preamble statements and the BID's clear preference for the Mann-Kendall test as the hypothesis test to be used to achieve the 95 percent confidence level, make this proposed rule provision a detailed standard.

In addition, imposing the 95 percent confidence level for a hypothesis test of a stability trend removes the regulatory agency's ability to apply its technical judgment and discretion and precludes or restricts the ability of the licensee to present alternatives such as the use of other appropriate methodologies for stability trend analysis such as linear regression or non-linear curve fitting, and groundwater fate and transport models. The NRC staff is aware of no analogous Federal regulation that mandates any statistical trend analysis as a groundwater protection standard, let alone a 95 percent confidence level.

The NRC staff disagrees with the preamble statement that the 95 percent statistical confidence level is "widely accepted and used in other environmental standards."[80] As explained above, there is a difference between using a confidence level for a test demonstrating compliance with or detecting exceedance of a constituent baseline standard, which is common (e.g. analysis of variance),[81] and using a confidence level for a hypothesis test of a constituent stability trend (e.g. Mann-Kendall). In the former case, current sample values are compared to baseline sample values (noted in BID Table 7.1, Phase 4) whereas in the latter case, an analysis of a trend with time is required (noted in BID Table 7.1, Phase 5). With respect to non-radiological hazards, UMTRCA requires consistency with the standards required under RCRA (AEA, section 275(b)(2)). In this regard, RCRA has no provisions requiring either a stability trend standard with a confidence level or modeling to demonstrate compliance with a constituent standard.

In addition, the NRC staff notes that the preamble states "that NRC staff has attempted to use the 95 percent confidence level for at least one facility."[82] Based upon NRC records, the NRC staff only applied a 95 percent confidence level for a hypothesis test of a stability trend to one licensee's request for approval of groundwater quality restoration (the restoration was not approved for several reasons, including the inability to meet the 95 percent confidence level). The staff did not apply the Mann-Kendall method nor use at least 3 years of data as recommended by EPA in the BID. The staff used a regression trend test with just 1 year of data, an approach the BID finds unsatisfactory. The staff applied the 95 percent confidence level only in this one instance on its own volition; it was not required by NRC license condition.

Moreover, the 95 percent confidence level requirement will compromise the NRC's ability to promulgate a conforming regulation as it may not be technically implementable. EPA states in its own supporting technical document (BID, p. 130), "[a]nalyses of quarterly sampling and assumptions about natural variability (Table 7-19 to 7-21, Section 7.7.2.2) suggest quarterly sampling to reach the required level of confidence about the presence or absence of trend may

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[80] *Id.*, at 7417.

[81] The NRC staff is aware that an EPA RCRA regulation, 40 CFR 264.97(h)-(i), prescribes a 95 percent confidence level. This RCRA regulation, however, is not analogous to the proposed rule's 95 percent confidence level requirement for three reasons: 1) the RCRA regulation concerns the use of statistical tests of measured groundwater constituent concentrations (e.g., analysis of variance) to establish significant evidence of exceedance of groundwater standards (e.g., detection), which are not equivalent to a hypothesis test of a trend to show groundwater constituent concentration stability over a period of time; 2) the RCRA regulation provides for five options for statistical methods to be used to verify detection of an exceedance, including one proposed by the operator, and further, only two of the five require the 95 percent confidence level; and 3) under RCRA, unlike with UMTRCA, EPA has both standards-making and implementation authority.

[82] 82 FR at 7417.

require very long periods for post-restoration monitoring." The NRC staff has determined that Table 7-20 of the BID shows the 95 percent confidence level requirement for a hypothesis test of stability trend is impossible to meet within 3 years[83] for the majority of combinations of trend slope and variability of the constituent concentrations using the Mann-Kendall or regression trend test. Specifically, Table 7-20 shows that the 95 percent confidence level cannot be met for 66 percent of combinations of slope and variability of a given constituent. The inability to meet the 95 percent confidence level in these cases will cause substantial uncertainty in monitoring time frames. In order to meet the 95 percent confidence level requirement, licensees may have to conduct monitoring for time frames substantially longer than 3 years, thus significantly increasing the cost of the rule. Similarly, the regulatory agency will need to evaluate additional data and oversee the licensee for a longer timeframe. Moreover, it may be possible that stability is never demonstrated leading to regulatory stalemate and the inability to terminate the license.

Finally, the proposed rule's preamble states that the two 1985 Tenth Circuit decisions, *AMC I* and *AMC II*,[84] support EPA's position that the proposed standards are not "detailed" standards. The preamble cites the *AMC I* statement that the standards promulgated by EPA under AEA section 275 are "general in nature—they apply to all sites—we do not view them as site-specific 'management, technology or engineering methods."[85] The NRC staff, however, does not view the proposed standards in the January 2017 proposed rule as site-specific; rather, the NRC staff views the proposed standards as "detailed." The *AMC I* decision did not address whether the challenged standards were detailed, only that they were not site-specific.

The *AMC II* decision likewise does not support the EPA's argument that the proposed standards are not detailed. In *AMC II*, one of the requirements challenged by the petitioners concerned the use of a liner for new waste depositories and to new portions of existing waste depositories.[86] The *AMC II* court, in ruling that the liner requirement was not the imposition of a detailed requirement, stated that "[a]lthough the regulations require a 'liner' for new piles and extensions thereof, *we understand that term to refer to any impermeable barrier* the NRC may approve that will prevent seepage."[87] Unlike the requirements for the 95 percent confidence level and the geochemical modeling, which the NRC staff believes to be detailed requirements, the requirement for a liner is not the imposition of a detailed methodology given the wide variety of impermeable barrier types that may installed by a licensee.[88]

D. Geochemical Modeling Requirements

The proposed rule has several provisions that require geochemical modeling, namely, 40 CFR 192.52(c)(3)(ii), 40 CFR 192.53(d)(2)(ii)(A) and (d)(5). In connection to this geochemical

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[83] Three years of quarterly sampling is the minimum term required under the proposed rule to demonstrate initial and long-term stability.
[84] *Id.*, at 7418-19 and 7422.
[85] *Id.*, at 7419 *quoting AMC I*, 772 F.2d at 630.
[86] *AMC II*, 772 F.2d at 647 *citing* 40 CFR 192.32(a)(1)-(2).
[87] *Id.*, 772 F.2d at 648 (emphasis added).
[88] *See* EPA, Risk Reduction Engineering Laboratory, Office of Research and Development, "Lining of Waste Containment and Other Impoundment Facilities," EPA/600/2-88/052 (September 1988). Chapter 4 of the document provides a detailed description of the wide variety of materials that can be used to manufacture liners.

modelling requirement, the preamble states that the licensee should include the following seven elements in its long-term stability assessment.[89] The seven elements are:

- Conceptual hydrogeochemical modeling for the mine unit/production zone;
- Ground water and solid (core) data used for geochemical model(s), including field parameters;
- Incorporation of ground water data in an initial geochemical model (*i.e.*, saturation indices calculations and assessment);
- Demonstration that stability (mainly reduction-oxidation or redox) conditions can be maintained in the production zone;
- Demonstration that ground water migrating into the production zone will not significantly change the geochemical stability within the production zone;
- Demonstration of alternative geochemical conditions that demonstrate stability (uranium and other elements); and
- Inter-relationships and contradictory claims (unintended consequences) for these various elements need to be identified and assessed in the context of the conceptual hydrogeochemical model.

Similar to the specific 95 percent confidence level requirement, the geochemical modeling requirements go well beyond an UMTRCA generally applicable standard and encroach upon the regulatory agency's authority. Moreover, the geochemical modeling, as characterized by the seven elements listed in the preamble are not technically implementable as standards and compromises the ability of the NRC to promulgate a conforming regulation.

As described above, EPA can only promulgate generally applicable standards that are numerical limits. A requirement to use geochemical modeling is not a standard that consists of a numerical limit. Moreover, the proposed geochemical modeling requirement encroaches upon NRC's authority as it is essentially an implementation requirement. Under the UMTRCA scheme, implementation of the generally applicable standards is a regulatory agency obligation. Whether to use geochemical modeling or another method as a means to demonstrate restoration is solely within the province of the regulatory agency. Likewise, if the regulatory agency decides to require that its licensees use geochemical modeling, the nature of that modeling is determined by the regulatory agency, not the seven elements listed in the preamble.

The complexity of these geochemical modeling and geochemical evaluation requirements are presented in Section 4.73 of the BID. These requirements will demand very detailed and non-standardized methods, which will be specific to each ISR site. Nor is the proposed rule consistent with RCRA, as RCRA does not require geochemical modeling or a geochemical evaluation of any type and only requires that there be no exceedance of a groundwater protection standard for 3 years (as shown by compliance monitoring, not a statistical trend analysis).

[89] 82 FR at 7410.

The seven elements listed in the preamble are beyond the scope of UMTRCA as they concern the stability of the subsurface conditions of depleted underground ore bodies, which is much broader than groundwater protection from ISR wellfields. For example, the second element states that the long-term stability assessment should include "ground water and solid (core) data used for geochemical model(s), including field parameters." In this regard, the NRC staff's definition of byproduct material excludes "underground ore bodies depleted by [uranium and thorium] extraction operations."[90] The AEA, as amended by UMTRCA, does not provide the NRC with any authority to regulate subsurface conditions or depleted underground ore bodies in the ISR wellfield. All but one of the seven of the preamble elements concern subsurface conditions of depleted underground ore bodies.

Seven Elements Not Technically Implementable

The proposed rule's geochemical modeling requirements, particularly, if the regulatory agency were to address the seven elements listed in the preamble, will require specific detailed methods all of which are subject to tremendous uncertainty and none of which have been standardized for implementation or to demonstrate compliance. In fact, all of the elements listed in the preamble are currently the subject of research for potential application to ISR wellfields (e.g., Dangelmayr et al., 2017).[91] Therefore, no standard methods are even known or established for addressing these model elements for any listed constituent in Table 1 of the proposed rule at ISR wellfields. In addition, it is widely understood that all geochemical modeling is highly uncertain and non-unique because of the inherent uncertainty in the choice of conceptual models; limited availability and quality of input data; variability in modeling codes/solvers and their performance; limited availability of observation data for calibration and lack of standard methods for calibration. The EPA's BID document states that "[m]odeling of any type does not lead to a unique solution."[92] The EPA BID document lists the same limitations of geochemical modeling including insufficient input data, uncertainty and variability in results, misinterpretation of results and differences between modeled and actual field conditions.[93] The NRC staff concludes that the tremendous uncertainty and lack of standard methods for the proposed rule's geochemical modeling regulatory standard will make it impossible to establish conforming regulations to which a licensee can demonstrate compliance.

E. Other Concerns

1. Point of Exposure

Issue: The "points of exposure" reference in the proposed 40 CFR 192.54(a)(3), which states that "points of exposure" are located in the wellfield, encroaches upon the NRC's authority to review and approve the location of a point of exposure—an action that must be based upon a site specific determination.

Comment: In its prior January 2015 proposed rule, the EPA defined the point of exposure as "Intersection of a vertical plane with the boundary of the exempted aquifer."[94] This definition

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[90] 10 CFR § 40.4 (alteration added).

[91] Dangelmayr, M.A. et al., "Laboratory column experiments and transport modeling to evaluate retardation of uranium in an aquifer downgradient of a uranium in-situ recovery site," Applied Geochemistry, 80 (2017), pp.1-13.

[92] BID at 82.

[93] *Id.*

[94] 80 FR 4156, 4184 (January 26, 2015).

was not objectionable. Because EPA has now removed all references to exempt aquifers from its current proposed rule, however, defining a "point of exposure" in the wellfield encroaches upon the regulatory agency's ability to implement its regulatory program.

The regulatory agency has sole authority to review and approve an alternate concentration level (ACL), which under the UMTRCA scheme is an implementation and a site-specific compliance mechanism. To approve an ACL, the regulatory agency must review and meet the requirements of the factors listed in proposed 40 CFR 192.54. These are the same factors that the regulatory agency currently uses in its regulations for granting an ACL for any constituent in an ISR wellfield restoration (RIS 09-005). The approval of an ACL requires a site-specific determination of the "point of exposure," which can only be made after the wellfield is restored and the regulatory agency is able to evaluate all of the pertinent factors based on that restoration outcome. An *a priori* determination of the "point of exposure" in the wellfield effectively prohibits the regulatory agency from approving an ACL as it is precluded from considering technical factors of natural attenuation (e.g. adsorption, decay, low flow aquifer) of the ACL to background concentrations at a downgradient "point of exposure" (i.e., outside of the wellfield at the exempt aquifer boundary) when establishing an ACL.

Any statement about the location of a point of exposure in the proposed rule is also contrary to the 10th Circuit ruling in *Environmental Defense Fund vs U.S. Nuclear Regulatory Commission* (866 F.2d 1263 (1989). In that case, the court held that AEA Section 84(c) (42 U.S.C. § 2114(c)), gave sole authority to the NRC to evaluate and approve ACLs.[95] If EPA proceeds with this rulemaking, then the definition of "point of exposure" and references to its location should be deleted.

2. Gross alpha particle activity

Issue: EPA's January 2015 proposed rule listed gross alpha particle activity (GAA) as one of the Table 1 groundwater constituents. Although GAA has been removed from Table 1 in the January 2017 proposed rule, EPA has requested comments on whether GAA should be included within Table 1.[96]

Comment: The NRC staff has significant technical concerns with the inclusion of GAA as a constituent in Table 1. GAA does not meet the proposed rule's definition of "constituent," which is "a detectable component within the groundwater."[97] Both government and industry use GAA as a screening parameter for the purpose of measuring the alpha particle activity of all alpha emitting constituents in a water sample. The measurement of GAA is subject to substantial error, bias and non-reproducibility (e.g., the same sample or duplicate samples will not produce similar results). A comprehensive report titled "Evaluation of Gross Alpha and Uranium Measurements for MCL Compliance" written for EPA by the Water Research Foundation (2010)[98], stated that "GAA is subject to various sources of bias and error which lead to substantially higher or lower values than the actual GAA and can cause duplicate

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[95] *Environmental Defense Fund vs. the Nuclear Regulatory Commission*, 66 F.2d 1263 (10th Circuit 1989) "We … hold that AEA Sec. 84(c) permits the NRC to approve, when the contrary is not practicable, licensee-proposed site-specific alternatives that are less stringent than the EPA general standards."
[96] 82 FR at 7411.
[97] *Id.*, at 7427.
[98] Water Research Foundation, "Evaluation of Gross Alpha and Uranium Measurements for MCL Compliance" (2010), *available at* http://www.waterrf.org/PublicReportLibrary/3028.pdf.

measurements to differ significantly." The report goes on to describe the measurement problems inherent to GAA as a consequence of sampling, sample holding time, and limitations of the standard methods and correction.

Although the NRC requires the measurement of GAA in its conforming 10 CFR Part 40 Appendix A regulations, it does so because the measurement of GAA is required in EPA's current 40 CFR Part 192 regulations for conventional mill tailings impoundments. However, the existing regulations for GAA were not required to establish statistically representative constituent concentration standards, meet stability standards, and conduct the required hypothesis tests of trend at any confidence level, or geochemical modeling and analysis as would be required in EPA's proposed rule.

The proposed rule's list of twelve constituents in Table 1 includes the major alpha emitters such as radium-226, radium-228, and uranium. Their inclusion reflects the improvement in technology to cost effectively separately measure major alpha emitters. As a result, the requirement to measure the GAA screening parameter provides no additional benefit, and will only incur unnecessary burdens and costs on the regulatory agency and licensees.

ED_002512_00000067-00025

Message

From: Forsgren, Lee [Forsgren.Lee@epa.gov]
Sent: 11/7/2017 11:52:36 PM
To: Brown, Byron [brown.byron@epa.gov]
CC: Ungerecht, Todd [Todd.Ungerecht@mail.house.gov]; Fotouhi, David [Fotouhi.David@epa.gov]; Lyons, Troy [lyons.troy@epa.gov]
Subject: Re: TMDL Question

Todd,

Happy to talk to you anytime. Just let me know when you are available and Crystal Penman on my staff will find a time that works for everyone.

Lee

Sent from my iPhone

On Nov 7, 2017, at 6:18 PM, Brown, Byron <brown.byron@epa.gov> wrote:

> Hi Todd – putting you in touch with Lee Forsgren, Deputy Assistant Administrator for Water, David Fotouhi, Deputy General Counsel, and Troy Lyons, Associate Administrator for Congressional and Intergovernmental Relations to discuss your question about a Washington state TMDL. Hope all is well.
> - Byron
>
> Byron R. Brown
> Deputy Chief of Staff for Policy
> Office of the Administrator
> U.S. Environmental Protection Agency

Message

From: Richards, Tina [Tina.Richards@mail.house.gov]
Sent: 2/14/2018 3:09:15 AM
To: Brown, Byron [brown.byron@epa.gov]
Subject: WH infrastructure

Do you guys at EPA have insight on the superfund/Brownfields provisions in the WH infrastructure plan? GW is meeting with the WH and our front office asked for our thoughts and I wanted to better understand a couple of the suggestions/provisions. Just let me know if you can chat about the superfund stuff.

ANNOUNCEMENT ON JUNE 18

Accomplishment

On June 18, 2018, EPA is scheduled to approve Oklahoma's first-in-the-nation application to operate a state permit program regulating the disposal of coal combustion residuals (CCR or coal ash) from electric utilities. This will mark the **first time** EPA has approved a state permit program for CCR using the new authority that Congress provided EPA in 2016. **First in the nation.**

CCR Background at EPA

In April 2015, EPA published a final rule under the Resource Conservation and Recovery Act (RCRA) that designated CCR as nonhazardous waste and established national requirements governing the disposal of CCR in landfills and surface impoundments. Unlike the Clean Air Act and the Clean Water Act, which are generally implemented by states through permit programs that are approved by EPA, RCRA originally did not authorize EPA to regulate CCR as nonhazardous waste through state permit programs. Instead, utilities were responsible for directly implementing the requirements of EPA's 2015 CCR rule, which were enforceable only through citizen suits.

JMI's Work in Congress

(Below is entire legislative history, dates, hearings, and votes)

As chairman of the Senate Environment and Public Works Committee, Senator Inhofe led **two hearings** examining the challenges of the 2015 CCR rule and the need for legislation to allow Oklahoma and other states to regulate CCR through EPA-approved state permit programs rather than through the self-implementing requirements of the CCR rule. Representatives of electric utilities and states testified in favor of amending RCRA to allow state permit programs because they would be able to tailor the requirements for disposing of CCR to address the specific risks and concerns posed by an individual utility, rather than through the one-size-fits-all national standards in the 2015 CCR rule.

Chairman Inhofe worked on a bipartisan basis with then-ranking member Barbara Boxer, other members of the Senate, and colleagues in the House of Representatives, along with states, the utility sector, and environmental groups, to craft compromise legislation giving states authority to regulate CCR through permit programs. This legislation was included as part of the Water Infrastructure Improvements for the Nation Act, which passed the Senate by a vote of 78 to 21 and was enacted into law in December 2016.

Under the WIIN Act authority, EPA is required to approve within 180 days of receipt a state's application to operate a permit program in lieu of the 2015 CCR rule if the Administrator determines the state's program will require electric utilities to comply with the requirements of the 2015 CCR rule or successor regulations. However, an approved state program may allow individual permits to include technical requirements that vary from the requirements of the 2015 CCR rule or successor regulations so long those site-specific requirements are at least as protective of the federal requirements.

EPA's Work Implementing the New Law

On April 28, 2017, EPA Administrator Scott Pruitt wrote to the nation's governors informing them about the WIIN Act and encouraging them to submit applications to operate state permit programs. EPA issued interim final guidance on August 10, 2017 to assist states in developing their program applications and providing a framework for how EPA would process the applications.

Oklahoma initially submitted its draft application on July 31, 2017. On December 21, 2017, EPA informed Oklahoma that its application was complete, triggering the 180-day review deadline. EPA hosted a public hearing in Oklahoma City on February 13, 2018, about Oklahoma's application. Separately, EPA is considering changes to the 2015 CCR rule to facilitate the transition to permit programs and to allow use of alternative-risk based standards. EPA published a proposed rule on March 15, 2018, containing more than a dozen potential changes. EPA plans to propose additional changes later this year.

Legislative History in 114th Congress

June 17, 2015 -- Chairman Inhofe led an oversight hearing of the Environment and Public Works Committee examining EPA's 2015 final rule to regulate the disposal of coal combustion residuals from electric utilities. Chairman Inhofe made the following statement at the hearing:

"This is an important issue that cuts across the Committee's areas of jurisdiction—from the regulation of waste, to the impact of EPA's other rules on electric utilities, and to the importance of coal ash to highways and infrastructure projects. EPA has extensively studied the safety of coal ash. For decades, coal ash has been regulated as nonhazardous waste by states. It is also worth noting that coal ash is an important ingredient in concrete and helps extend the lifespan of and control costs for the concrete used in roads and bridges. In fact, many State Departments of Transportation require the use of coal ash in their road projects."

March 2, 2016 -- Chairman Inhofe led a hearing of the Environment and Public Works Committee to consider the bipartisan Improving Coal Combustion Residuals Regulation Act (S. 2446), focusing on how to development state permit programs to regulate CCR. Chairman Inhofe made the following statement at the hearing:

"I agree with the EPA's decision that coal ash is a non-hazardous waste, and I can assure you, in case you are wondering, that there are not 60 votes in the United States Senate that would change that ruling, so Congress should amend RCRA to authorize the State permitting programs for coal ash. The President supports it.

"As Ranking Member Boxer noted at last year's hearing on EPA's coal ash regulation, authorizing State permitting programs 'is really not that different from so many other laws. If you want to talk about permitting, I would be happy to work with you to make that fix, if necessary.' Now, I agree. I see no reason why coal ash should not be regulated through the EPA's approved State permitting programs, just like air, water, and hazardous waste.

"I have served in different capacities ... . I have served as mayor of a major city; I have served in the State legislature; I have served in Congress; and I have served in the Senate. It has been my experience

that the closer you get to the people, the more local, the more responsible the decisions are, because they can find you. You can hide up here; you can't hide when you're in a city council. So I reject the idea that you can't count on ... States to protect us. I don't agree with that at all."

After the legislative hearing, Chairman Inhofe pursued new compromise legislation, referred to as the Coal Combustion Residuals Regulatory Improvement Act, with ranking member Boxer and the original sponsors of S. 2446. This compromise legislation was included as part of S. 2848, the Water Resources Development Act of 2016, which was passed by a vote of 95 to 3 in the Senate on September 15, 2016. Chairman Inhofe applauded the inclusion of the bipartisan Coal Combustion Residuals Regulatory Improvement Act in WRDA 2016. Chairman Inhofe issued the following statement:

"This bipartisan legislation that is in WRDA 2016 gives states the needed flexibility and authority to regulate coal ash to best support their state economies while also protecting the health of families and communities," Inhofe said. "This provision provides utilities the regulatory certainty they have been seeking and corrects the implementation problems with EPA's recent coal ash rule. I thank Sens. Hoeven and Manchin for keeping this issue alive in recent years and Ranking Member Boxer, Sen. Capito and the other EPW Committee members for coming together to craft this compromise language. I look forward to working with my colleagues in the House of Representatives to getting this compromise coal ash legislation enacted into law."

The Environmental Council of the States issued a statement supporting the Senate's passage of the CCR legislation as part of the Water Resources Development Act:

"The Environmental Council of the States commends the Senate on its passage yesterday of the Coal Combustion Regulatory Improvement Act (Act), authorizing states to develop and carry out programs to control coal combustion residual (CCR) units. Included as Section 8001 in S. 2848 of the Water Resources Development Act (WRDA) 2016, the Act amends the Resource Recovery and Conservation Act to allow states to directly oversee and enforce CCR unit compliance, in a manner consistent with the U.S. Environmental Protection Agency's April 2015 final CCR rule (80 Fed. Reg. 21,302). ECOS long has supported states having such authority, and ECOS representatives have testified in both the Senate and House several times over the years on the importance of legislative action on the CCR issue. ECOS extends its deep appreciation to the Senators who led the effort to advance the Act. ECOS also thanks the state experts who offered their expertise and experience with CCR facilities to inform the process, and in particular our colleagues at the Association of State and Territorial Solid Waste Management Officials who were steadfastly dedicated to the issue."

December 5, 2017 – Senator Inhofe worked on a bipartisan basis with colleagues in the Senate and House to ensure the final deal on the Water Infrastructure Improvements for the Nation Act (WIIN Act) included compromise legislation negotiated by Senator Inhofe to authorize state permit programs for regulating coal combustion residuals from electric utilities. Senator Inhofe released the following statement:

"We're pleased that the final WIIN package builds off the Senate passed provision and provides the authority that states have been seeking to regulate coal ash through authorized state permit programs," the senators said. "This new permitting authority fixes the main problems with the recent coal ash regulation issued by the Environmental Protection Agency, by removing citizen suits as the sole means of enforcement and allowing states to tailor permit requirements on a case-by-case basis. We're happy

that we were able to work with our colleagues in the House and Senate on a bipartisan basis to get this important legislation across the finish line."

December 9, 2016 – By a vote of 78 to 21, the Senate passed the Water Infrastructure Improvements for the Nation Act (WIIN Act), which included compromise legislation negotiated by Senator Inhofe to authorize state permit programs to regulate coal combustion residuals. Senator Inhofe released the following statement:

"I am pleased that the WIIN Act has crossed the finish line with strong, bipartisan support," Inhofe said. "This bill – soon to be law – fulfills many important Oklahoma priorities. It helps Oklahoma rural electric cooperatives and the families they serve by returning the regulation of coal combustion residuals to states."

The inclusion of the coal ash legislation in the WIIN Act garnered broad support from the utility sector:

"Public Service Company of Oklahoma and American Electric Power strongly support the water resources bill, and appreciate Senator Inhofe's strong leadership in its passage. In particular, we applaud the Senator's efforts on a provision in the WIIN bill that solves the major shortcomings of current federal regulation of coal combustion residuals (CCRs), by giving states the primary authority over CCRs through state permit programs," said Stuart Solomon, president and COO of the Public Service Company of Oklahoma.

"EEI thanks Senator Inhofe for his leadership in completing the water resources bill, which contains critically important provisions for the safe management of coal ash. As the EPA's coal ash regulation goes into effect and our industry begins to close coal ash basins, these legislative provisions will enable states to be more involved in the permitting process for the closure of basins. Permanently closing basins in a manner that puts safety first, protects the environment, and minimizes impacts to communities and customers is vitally important to our industry," said Tom Kuhn, president of the Edison Electric Institute.

"America's electric co-ops are extremely grateful to Chairman Inhofe for championing the WIIN Act, which will bolster co-ops' efforts to provide affordable and reliable electricity to rural America. Because of his hard work, this bill promotes critical infrastructure projects pertaining to hydropower, flood control, water supply and emergency management. This bill is a win for America's rural electric consumers, and we appreciate the chairman's unwavering support for provisions that inject greatly needed certainty into the regulation of coal ash by giving states clear permitting authority and reducing litigation," said Jim Matheson, CEO of NRECA.

"OG&E greatly appreciates Senator Inhofe's leadership in including his coal ash provision in the 'Water Infrastructure Improvements for the Nation Act' conference report. His provision resolves a legislative stalemate to the satisfaction of both the electric industry and environmentalist community. The Inhofe provision brings legal certainty and predictability to the generation of electricity that will benefit Oklahoma electric customers, beneficial users of coal ash and the environment," said Paul Renfrow, vice president of public affairs for OG&E Energy Corp.

December 16, 2016 -- The WIIN Act was signed into law (PL-114-322). Senator Inhofe's Coal Ash provision is Section 2301.

Message

From: Herrgott, Alex (Inhofe) [Alex_Herrgott@inhofe.senate.gov]
Sent: 3/28/2017 8:32:48 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: RE: follow up re: Truck Trailer Manufacturers Assn

Yep, I am a bad guy

From: Brown, Byron [mailto:brown.byron@epa.gov]
Sent: Tuesday, March 28, 2017 4:03 PM
To: Herrgott, Alex (Inhofe) <Alex_Herrgott@inhofe.senate.gov>
Subject: RE: follow up re: Truck Trailer Manufacturers Assn

Saw JMI and Luke here today. Where were you? Are they keeping baby in a corner?

From: Herrgott, Alex (Inhofe) [mailto:Alex_Herrgott@inhofe.senate.gov]
Sent: Tuesday, March 28, 2017 12:04 PM
To: Brown, Byron <brown.byron@epa.gov>
Subject: FW: follow up re: Truck Trailer Manufacturers Assn

Tom is a good old Baucus staffer.

Let me know if you have time to reach out to him.

Hope all is well.

Alex

From: "Herrgott, Alex (Inhofe)" <Alex_Herrgott@inhofe.senate.gov>
Date: Tuesday, January 17, 2017 at 1:35 PM
To: Tom Lynch <tom.lynch@icemillerstrategies.com>
Cc: Jeff Sims <jeff@ttmanet.org>, John Freiler <john@ttmanet.org>
Subject: RE: follow up re: Truck Trailer Manufacturers Assn

Tom,

Thank you for this email. I will make sure we get this in front of Scott immediately. We are working on the confirmation hearing tomorrow, but once we get past we indeed will do a full review, and this will be something we will be reaching out to you on. We will have to look at all options as we unwind many of the rules over the past few years.

I will be in touch.

Thanks

Alex

From: Tom Lynch [mailto:tom.lynch@icemillerstrategies.com]
Sent: Tuesday, January 17, 2017 1:28 PM
To: Herrgott, Alex (Inhofe) <Alex_Herrgott@inhofe.senate.gov>; Herrgott, Alex (EPW) <Alex_Herrgott@epw.senate.gov>

Cc: Jeff Sims <jeff@ttmanet.org>; John Freiler <john@ttmanet.org>
Subject: follow up re: Truck Trailer Manufacturers Assn

AH - Great to see you the other night. Thanks again. As we discussed, my client is interested in establishing contact with Scott Pruitt's office going forward in order to discuss the Greenhouse Gas Phase 2 rulemaking from October, 2016 where EPA adopted an unsupportable claim regarding its Clean Air Act jurisdiction. Attached is the two-page discussion about the law and EPA's interpretation, EPA's failure to appropriately exercise discretion, and the counterproductive nature of foreseeable outcomes including three more highway deaths annually.

Tom Lynch
Ice Miller Strategies LLC
20 F St. NW, Ste. 850
Washington, DC 20001
202 824-8662 direct
Ex. 6 mobile

202-824-8666 main
202-824-8667 fax

www.icemillerstrategies.com

Message

From: Tomassi, Chris (Appropriations) [Chris_Tomassi@appro.senate.gov]
Sent: 9/7/2017 10:29:32 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: RE: question

Hey Byron – I'm traveling tomorrow. Are you free now?

From: Brown, Byron [mailto:brown.byron@epa.gov]
Sent: Thursday, September 7, 2017 6:25 PM
To: Tomassi, Chris (Appropriations) <Chris_Tomassi@appro.senate.gov>
Subject: question

Hi Chris – I wanted to see if you would be free to chat on Friday about something? My number is 564-1456. Thanks.

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

Message

From: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Sent: 7/18/2017 9:45:10 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: FW: CERCLA Letter coming around for signature
Attachments: 07182017 CERCLA 108b letter to EPA.pdf

In case you did not yet receive this.

Susan

From: Williams, Andrew (Heller)
Sent: Tuesday, July 18, 2017 5:41 PM
To: Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov>; Wright, Jennie (Inhofe) <Jennie_Wright@inhofe.senate.gov>; Earl, Andrew (Crapo) <Andrew_Earl@crapo.senate.gov>; Parker, Darren (Risch) <Darren_Parker@Risch.senate.gov>; Cox, Ed (Hatch) <Ed_Cox@hatch.senate.gov>; Hansen, Heath (Lee) <Heath_Hansen@lee.senate.gov>; Valanos, Eleni (Rubio) <Eleni_Valanos@rubio.senate.gov>; Marino Thacker, Meghan (Daines) <Meghan_Thacker@daines.senate.gov>; Dickson, Lane (Energy) <Lane_Dickson@energy.senate.gov>; Wiegard, Pierce (Sullivan) <Pierce_Wiegard@sullivan.senate.gov>
Subject: RE: CERCLA Letter coming around for signature

All-

Thanks again for signing on. Attached is the signed copy sent to EPA.

Andrew

From: Williams, Andrew (Heller)
Sent: Tuesday, July 18, 2017 3:25 PM
To: Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov>; Wright, Jennie (Inhofe) <Jennie_Wright@inhofe.senate.gov>; Earl, Andrew (Crapo) <Andrew_Earl@crapo.senate.gov>; Parker, Darren (Risch) <Darren_Parker@Risch.senate.gov>; Cox, Ed (Hatch) <Ed_Cox@hatch.senate.gov>; Hansen, Heath (Lee) <Heath_Hansen@lee.senate.gov>; Valanos, Eleni (Rubio) <Eleni_Valanos@rubio.senate.gov>; Marino Thacker, Meghan (Daines) <Meghan_Thacker@daines.senate.gov>; Dickson, Lane (Energy) <Lane_Dickson@energy.senate.gov>; Wiegard, Pierce (Sullivan) <Pierce_Wiegard@sullivan.senate.gov>
Subject: CERCLA Letter coming around for signature

Hi all,

Thanks again for your boss's support on the CERCLA 108(b) letter. We will be circulating it for signature this afternoon, so please let your front offices know that it's coming.

Thanks,

Andrew
4-4313

United States Senate
WASHINGTON, DC 20510

July 18, 2017

The Honorable Scott Pruitt
Administrator
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Re: Proposed Rule: Financial Requirement Under CERCLA Section 108(b) of Facilities in the Hardrock Mining Industry

Dear Administrator Pruitt:

We greatly appreciate the extension of time for stakeholders to comment on the U.S. Environmental Protection Agency's (EPA) proposed rule, "Financial Responsibility Requirements Under CERCLA 108(b) for Classes of Facilities in the Hardrock Mining Industry," which was published in the *Federal Register* on January 11, 2017 (82 Fed. Reg. 3388). This extension was necessary to allow stakeholders a meaningful opportunity to review and comment on the many complex issues raised by that proposal.

In this letter, we focus on just one issue: the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 108(b) financial responsibility rule proposed by the prior administration relies on a misinterpretation of the statute. As a result, that proposal is unnecessary and duplicative and exceeds EPA's authority under the law.

Section 108(b) of CERCLA is narrowly focused on the risk that the Superfund Trust Fund would have to pay for the costs of responding to releases associated with the management of hazardous substances by high-risk classes of facilities. The statute states that any financial responsibility requirements promulgated under this section must be "consistent with the degree and duration of risk associated with the production, transportation, treatment, storage, or disposal of hazardous substances." 42 U.S.C. § 9608(b)(1). This authority requires a two-part analysis. First, because all references to risk in CERCLA section 108(b) are in the present tense, any financial responsibility requirements imposed under that section must be consistent with the risk posed by the current management of hazardous substances. Second, if there is any current risk, any financial responsibility requirements must be tailored to address only the degree and duration of any current risk, prohibiting duplicative financial assurance requirements.

The rule proposed by the prior administration fails to follow these statutory directives. It improperly relies on legacy contamination and activities that predate modern environmental regulation to claim there are risks associated with the production, transportation, treatment, storage, or disposal of hazardous substances by the hardrock mining industry. Legacy contamination is not the risk that Congress directed EPA to address under section 108(b) and

information about historic mining practices does not form a record basis for a rule under that section. The analysis put forth by the prior administration also ignores the numerous state and federal financial assurance programs that address any risk that may exist. As a result, the proposed rule fails to tailor financial assurance "consistent with the degree and duration of risk" as required by section 108(b), contrary to the direction of Congress.

As a result of its erroneous interpretation of the statute, the prior administration has proposed a rule that would unlawfully impose duplicative financial assurance requirements. Section 108(b) expressly states that CERCLA financial assurance is "for facilities in addition to those under subtitle C of the Solid Waste Disposal Act and other Federal law." The report of the Senate Committee on Environment and Public Works on S. 1480 in the 96th Congress makes it clear that this language is intended to limit CERCLA financial responsibility requirements to facilities that are *not* covered by Resource Conservation and Recovery Act financial responsibility or other federal financial responsibility requirements. According to the committee:

> The bill requires also that facilities maintain evidence of financial responsibility consistent with the degree and duration of risks associated with the production, transportation, treatment, storage, and disposal of hazardous substances. These requirements are in addition to the financial responsibility requirements promulgated under the authority of section 3004(6) of the Solid Waste Disposal Act. It is not the intention of the Committee that operators of facilities covered by section 3004(6) of that Act be subject to two financial responsibility requirements for the same dangers. S. Rept. 96-848 (2d Sess, 96th Cong.), at 92.

The committee report further states that the purpose of this provision is "to extend financial responsibility requirements to facilities and transporters who are *not* now covered by any requirements under section 3004(6)." *Id.* (emphasis added). If the Administrator promulgates financial responsibility requirements applicable to a class of facilities, Congress also ensured that duplicative requirements are not later created under state law. The statute preempts state financial responsibility requirements on facilities that are covered by financial responsibility under CERCLA. 42 U.S.C. § 9614(d).

Incredibly, the prior administration interprets CERCLA to authorize the very duplicative requirements that the Senate Environment and Public Works Committee expressly disapproved. This interpretation must be rejected.

Finally, even if EPA could lawfully ignore the plain language of the statute, rely on risks from legacy contamination, and ignore the protection provided by existing financial responsibility requirements, the analysis put forth by the prior administration still does not support a finding that there is a significant financial risk to the Superfund Trust Fund to be addressed under CERCLA. The past administration determined that its proposed regulation will reduce expenditures from the Superfund Trust Fund for hardrock mining sites by only $527 million over 34 years, or an average of $15.5 million a year. Fifteen million dollars a year is not a significant risk to the Trust Fund and does not justify the imposition of financial assurance requirements that EPA estimates will cost $171 million a year. It is our understanding analyses conducted by

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affected industries estimate the cost of this new federal program to be several orders of magnitude higher.

The cost of compliance with this unlawful and duplicative federal program will discourage domestic mineral production and stymie future investment and development opportunities, leading to greater import reliance for metals and minerals, and putting the United States domestic manufacturing, energy, and national security sectors at a major disadvantage. Furthermore, this rule will have substantial adverse impacts to local communities who depend on the high-paying family-wage jobs and tax revenues supported by the industry.

We understand that EPA is currently under a court order to finalize a rule by December 1, 2017. However, the level of financial responsibility requirements under CERCLA section 108(b) is the level "which the President *in his discretion* believes is appropriate." 42 U.S.C. § 9608(b)(2) (emphasis added). After reviewing the statute, the administrative record, and the comments received during the comment period, it is our hope that you will conclude, as we have, that this rulemaking is unlawful and duplicative.

Thank you for your consideration and please do not hesitate to contact our offices if we can be of further assistance.

Sincerely,

Dean Heller
U.S. Senator

John Barrasso, M.D.
U.S. Senator

Mike Crapo
U.S. Senator

James E. Risch
U.S. Senator

Orrin Hatch
U.S. Senator

Michael S. Lee
U.S. Senator

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James M. Inhofe
U.S. Senator

Marco Rubio
U.S. Senator

Steve Daines
U.S. Senator

Lisa Murkowski
U.S. Senator

Dan Sullivan
U.S. Senator

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Message

From: Vey, Madeline [Madeline.Vey@mail.house.gov]
Sent: 3/5/2018 4:24:33 PM
To: Ringel, Aaron [ringel.aaron@epa.gov]
CC: Darwin, Veronica [darwin.veronica@epa.gov]; Brown, Byron [brown.byron@epa.gov]; Rodrick, Christian [rodrick.christian@epa.gov]
Subject: Re: following up

Might be easier for y'all to call me since we don't have a dial in number. 10 am works well for me.

Thanks!

Madeline Barter Vey
Legislative Director/Policy Coordinator
Rep. Robert E. Latta (OH-05)

On Mar 5, 2018, at 11:08 AM, Ringel, Aaron <ringel.aaron@epa.gov> wrote:

> That works for me, would you like us to give you a call?
>
> -Aaron
>
> **From:** Vey, Madeline [mailto:Madeline.Vey@mail.house.gov]
> **Sent:** Friday, March 2, 2018 7:56 PM
> **To:** Darwin, Veronica <darwin.veronica@epa.gov>
> **Cc:** Brown, Byron <brown.byron@epa.gov>; Ringel, Aaron <ringel.aaron@epa.gov>
> **Subject:** RE: following up
>
> Thanks, how about 10 am on Tuesday?
>
> Have a nice weekend,
>
> Madeline
>
> **From:** Darwin, Veronica [mailto:darwin.veronica@epa.gov]
> **Sent:** Friday, March 2, 2018 7:52 AM
> **To:** Vey, Madeline <Madeline.Vey@mail.house.gov>
> **Cc:** Brown, Byron <brown.byron@epa.gov>; Ringel, Aaron <ringel.aaron@epa.gov>
> **Subject:** Re: following up
>
> Madeline,
> I am happy to discuss early next week. Monday or Tuesday before noon will work for me. Let me know.
> Veronica
>
> Sent from my iPhone
>
> On Mar 1, 2018, at 6:40 PM, Vey, Madeline <Madeline.Vey@mail.house.gov> wrote:
>
> > Thank you Byron, I appreciate you connecting me to the right people.

Veronica, might you have time to talk early next week about this issue? I'll be out of the office all day tomorrow.

And thank you for copying Aaron, sorry Aaron-I couldn't find your email address earlier when I was reaching out to Byron!

Thanks,

Madeline

Madeline Barter Vey
Legislative Director/Policy Coordinator
Congressman Robert E. Latta OH-05
2448 Rayburn House Office Building
202-225-6405

From: Brown, Byron [mailto:brown.byron@epa.gov]
Sent: Thursday, March 1, 2018 9:56 AM
To: Vey, Madeline <Madeline.Vey@mail.house.gov>
Cc: Darwin, Veronica <darwin.veronica@epa.gov>; Ringel, Aaron <ringel.aaron@epa.gov>
Subject: RE: following up

Madeline – I am connecting you with Veronica Darwin, senior advisor to the Administrator, who has been looking into the A-Gas issue and recently spoke to the state regulatory agency. I am also copying Aaron Ringel from the Office of Congressional and Intergovernmental Relations for his awareness. Thanks.

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

From: Vey, Madeline [mailto:Madeline.Vey@mail.house.gov]
Sent: Thursday, March 1, 2018 9:46 AM
To: Brown, Byron <brown.byron@epa.gov>
Subject: following up

Good Morning Byron,

Thank you so much for getting back to me, I'd love to be connected with the correct people to discuss the Agas issue with.

Best,

Madeline

Madeline Barter Vey
Legislative Director/Policy Coordinator
Congressman Robert E. Latta OH-05
2448 Rayburn House Office Building
202-225-6405

Message

From: Williams, Andrew (Heller) [Andrew_Williams@heller.senate.gov]
Sent: 7/18/2017 9:43:31 PM
To: Lyons, Troy [lyons.troy@epa.gov]; Brown, Byron [brown.byron@epa.gov]
Subject: Heller letter on CERCLA 108(b)
Attachments: 07182017 Heller CERCLA 108b letter to EPA.pdf

Good evening,

Attached is a letter for Administrator Pruitt from Sen. Heller and 10 other Members regarding the EPA's proposed rule under CERCLA 108(b).

Thanks, and let me know if you have any questions.

Andrew Williams
Legislative Assistant
U.S. Senator Dean Heller
(202) 224-6244

United States Senate
WASHINGTON, DC 20510

July 18, 2017

The Honorable Scott Pruitt
Administrator
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Re: Proposed Rule: Financial Requirement Under CERCLA Section 108(b) of Facilities in the Hardrock Mining Industry

Dear Administrator Pruitt:

We greatly appreciate the extension of time for stakeholders to comment on the U.S. Environmental Protection Agency's (EPA) proposed rule, "Financial Responsibility Requirements Under CERCLA 108(b) for Classes of Facilities in the Hardrock Mining Industry," which was published in the *Federal Register* on January 11, 2017 (82 Fed. Reg. 3388). This extension was necessary to allow stakeholders a meaningful opportunity to review and comment on the many complex issues raised by that proposal.

In this letter, we focus on just one issue: the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 108(b) financial responsibility rule proposed by the prior administration relies on a misinterpretation of the statute. As a result, that proposal is unnecessary and duplicative and exceeds EPA's authority under the law.

Section 108(b) of CERCLA is narrowly focused on the risk that the Superfund Trust Fund would have to pay for the costs of responding to releases associated with the management of hazardous substances by high-risk classes of facilities. The statute states that any financial responsibility requirements promulgated under this section must be "consistent with the degree and duration of risk associated with the production, transportation, treatment, storage, or disposal of hazardous substances." 42 U.S.C. § 9608(b)(1). This authority requires a two-part analysis. First, because all references to risk in CERCLA section 108(b) are in the present tense, any financial responsibility requirements imposed under that section must be consistent with the risk posed by the current management of hazardous substances. Second, if there is any current risk, any financial responsibility requirements must be tailored to address only the degree and duration of any current risk, prohibiting duplicative financial assurance requirements.

The rule proposed by the prior administration fails to follow these statutory directives. It improperly relies on legacy contamination and activities that predate modern environmental regulation to claim there are risks associated with the production, transportation, treatment, storage, or disposal of hazardous substances by the hardrock mining industry. Legacy contamination is not the risk that Congress directed EPA to address under section 108(b) and

information about historic mining practices does not form a record basis for a rule under that section. The analysis put forth by the prior administration also ignores the numerous state and federal financial assurance programs that address any risk that may exist. As a result, the proposed rule fails to tailor financial assurance "consistent with the degree and duration of risk" as required by section 108(b), contrary to the direction of Congress.

As a result of its erroneous interpretation of the statute, the prior administration has proposed a rule that would unlawfully impose duplicative financial assurance requirements. Section 108(b) expressly states that CERCLA financial assurance is "for facilities in addition to those under subtitle C of the Solid Waste Disposal Act and other Federal law." The report of the Senate Committee on Environment and Public Works on S. 1480 in the 96th Congress makes it clear that this language is intended to limit CERCLA financial responsibility requirements to facilities that are *not* covered by Resource Conservation and Recovery Act financial responsibility or other federal financial responsibility requirements. According to the committee:

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The committee report further states that the purpose of this provision is "to extend financial responsibility requirements to facilities and transporters who are *not* now covered by any requirements under section 3004(6)." *Id.* (emphasis added). If the Administrator promulgates financial responsibility requirements applicable to a class of facilities, Congress also ensured that duplicative requirements are not later created under state law. The statute preempts state financial responsibility requirements on facilities that are covered by financial responsibility under CERCLA. 42 U.S.C. § 9614(d).

Incredibly, the prior administration interprets CERCLA to authorize the very duplicative requirements that the Senate Environment and Public Works Committee expressly disapproved. This interpretation must be rejected.

Finally, even if EPA could lawfully ignore the plain language of the statute, rely on risks from legacy contamination, and ignore the protection provided by existing financial responsibility requirements, the analysis put forth by the prior administration still does not support a finding that there is a significant financial risk to the Superfund Trust Fund to be addressed under CERCLA. The past administration determined that its proposed regulation will reduce expenditures from the Superfund Trust Fund for hardrock mining sites by only $527 million over 34 years, or an average of $15.5 million a year. Fifteen million dollars a year is not a significant risk to the Trust Fund and does not justify the imposition of financial assurance requirements that EPA estimates will cost $171 million a year. It is our understanding analyses conducted by

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affected industries estimate the cost of this new federal program to be several orders of magnitude higher.

The cost of compliance with this unlawful and duplicative federal program will discourage domestic mineral production and stymie future investment and development opportunities, leading to greater import reliance for metals and minerals, and putting the United States domestic manufacturing, energy, and national security sectors at a major disadvantage. Furthermore, this rule will have substantial adverse impacts to local communities who depend on the high-paying family-wage jobs and tax revenues supported by the industry.

We understand that EPA is currently under a court order to finalize a rule by December 1, 2017. However, the level of financial responsibility requirements under CERCLA section 108(b) is the level "which the President *in his discretion* believes is appropriate." 42 U.S.C. § 9608(b)(2) (emphasis added). After reviewing the statute, the administrative record, and the comments received during the comment period, it is our hope that you will conclude, as we have, that this rulemaking is unlawful and duplicative.

Thank you for your consideration and please do not hesitate to contact our offices if we can be of further assistance.

Sincerely,

Dean Heller
U.S. Senator

John Barrasso, M.D.
U.S. Senator

Mike Crapo
U.S. Senator

James E. Risch
U.S. Senator

Orrin Hatch
U.S. Senator

Michael S. Lee
U.S. Senator

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James M. Inhofe
U.S. Senator

Marco Rubio
U.S. Senator

Steve Daines
U.S. Senator

Lisa Murkowski
U.S. Senator

Dan Sullivan
U.S. Senator

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Message

From: Herrgott, Alex (Inhofe) [Alex_Herrgott@inhofe.senate.gov]
Sent: 3/28/2017 4:04:20 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: FW: follow up re: Truck Trailer Manufacturers Assn

Tom is a good old Baucus staffer.

Let me know if you have time to reach out to him.

Hope all is well.

Alex

From: "Herrgott, Alex (Inhofe)" <Alex_Herrgott@inhofe.senate.gov>
Date: Tuesday, January 17, 2017 at 1:35 PM
To: Tom Lynch <tom.lynch@icemillerstrategies.com>
Cc: Jeff Sims <jeff@ttmanet.org>, John Freiler <john@ttmanet.org>
Subject: RE: follow up re: Truck Trailer Manufacturers Assn

Tom,

Thank you for this email. I will make sure we get this in front of Scott immediately. We are working on the confirmation hearing tomorrow, but once we get past we indeed will do a full review, and this will be something we will be reaching out to you on. We will have to look at all options as we unwind many of the rules over the past few years.

I will be in touch.

Thanks

Alex

From: Tom Lynch [mailto:tom.lynch@icemillerstrategies.com]
Sent: Tuesday, January 17, 2017 1:28 PM
To: Herrgott, Alex (Inhofe) <Alex_Herrgott@inhofe.senate.gov>; Herrgott, Alex (EPW) <Alex_Herrgott@epw.senate.gov>
Cc: Jeff Sims <jeff@ttmanet.org>; John Freiler <john@ttmanet.org>
Subject: follow up re: Truck Trailer Manufacturers Assn

AH - Great to see you the other night. Thanks again. As we discussed, my client is interested in establishing contact with Scott Pruitt's office going forward in order to discuss the Greenhouse Gas Phase 2 rulemaking from October, 2016 where EPA adopted an unsupportable claim regarding its Clean Air Act jurisdiction. Attached is the two-page discussion about the law and EPA's interpretation, EPA's failure to appropriately exercise discretion, and the counterproductive nature of foreseeable outcomes including three more highway deaths annually.

Tom Lynch
Ice Miller Strategies LLC
20 F St. NW, Ste. 850
Washington, DC 20001
202 824-8662 direct
Ex. 6 mobile

202-824-8666 main
202-824-8667 fax

www.icemillerstrategies.com

Message

From: Freire, JP (Hatch) [JP_Freire@hatch.senate.gov]
Sent: 3/17/2017 8:09:14 PM
To: Konkus, John [konkus.john@epa.gov]
CC: Jackson, Ryan [jackson.ryan@epa.gov]; Ferguson, Lincoln [ferguson.lincoln@epa.gov]; Dravis, Samantha [dravis.samantha@epa.gov]; Brown, Byron [brown.byron@epa.gov]
Subject: Re: Draft Flint Op-Ed 415 Words

Folks, we will be sitting down at 4:50 or so to go over the plan for next week. I'm not sure about the available meeting space but if someone could make a call on that I'd be much obliged.

On Mar 16, 2017, at 12:47 PM, Konkus, John <konkus.john@epa.gov> wrote:

Working on placement now. If you all want to work on edits in the meantime...

Deliberative Process / Ex. 5

Message

From: Freire, JP (Hatch) [JP_Freire@hatch.senate.gov]
Sent: 3/16/2017 6:15:19 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: Re: CAFE Op-ed

That's great.

J.P. Freire
Director of Communications
Office of Senator Orrin Hatch
(202) 228-0210—Office
Ex. 6 —Mobile

From: "Brown, Byron" <brown.byron@epa.gov>
Date: Thursday, March 16, 2017 at 1:27 PM
To: "Freire, JP (Hatch)" <JP_Freire@hatch.senate.gov>
Subject: Re: CAFE Op-ed

I should be free after 3 if that will work or is that too late and do you need to speak sooner?

Sent from my iPhone

On Mar 16, 2017, at 1:15 PM, Freire, JP (Hatch) <JP_Freire@hatch.senate.gov> wrote:

> Byron,
>
> Excited to be working with you. Do you have time to speak on the phone sometime today? Should be 10 minutes or so.
>
> **J.P. Freire**
> **Director of Communications**
> Office of Senator Orrin Hatch
> (202) 228-0210—Office
> Ex. 6 —Mobile
> <image001.png><image002.png><image003.png><image004.png>
>
> ---
>
> **From:** "Brown, Byron" <brown.byron@epa.gov>
> **Date:** Wednesday, March 15, 2017 at 9:22 PM
> **To:** "Dravis, Samantha" <dravis.samantha@epa.gov>
> **Cc:** "Jackson, Ryan" <jackson.ryan@epa.gov>, "Konkus, John" <konkus.john@epa.gov>, "Freire, JP (Hatch)" <JP_Freire@hatch.senate.gov>, "Ferguson, Lincoln" <ferguson.lincoln@epa.gov>
> **Subject:** Re: CAFE Op-ed

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Sent from my iPhone

On Mar 15, 2017, at 8:00 PM, Dravis, Samantha <dravis.samantha@epa.gov> wrote:

Deliberative Process / Ex. 5

Sent from my iPhone

On Mar 15, 2017, at 7:58 PM, Jackson, Ryan <jackson.ryan@epa.gov> wrote:l

Guys please hurry and get this get this placed. I was assuming that was done well before now.

Ryan Jackson
Chief of Staff
U.S. EPA

Ex. 6

On Mar 15, 2017, at 6:55 PM, Konkus, John <konkus.john@epa.gov> wrote:

Samantha and Byron: Would you mind please taking a look at the attached op-ed tonight before I send it to USA Today tomorrow?

From: Ferguson, Lincoln
Sent: Wednesday, March 15, 2017 6:13 PM
To: Jackson, Ryan <jackson.ryan@epa.gov>
Cc: Konkus, John <konkus.john@epa.gov>
Subject: CAFE Op-ed

Attached is the updated version of the CAFÉ op-ed with input from JP. Can we get this in from of SP before we release? USA Today is needing it ASAP – but hopefully we can still shoot to get it in this weekend.

Thanks,
Lincoln

<LF EDITS Draft CAFE Op-Ed EDITS.DOCX>

Message

From: Vey, Madeline [Madeline.Vey@mail.house.gov]
Sent: 3/3/2018 12:55:38 AM
To: Darwin, Veronica [darwin.veronica@epa.gov]
CC: Brown, Byron [brown.byron@epa.gov]; Ringel, Aaron [ringel.aaron@epa.gov]
Subject: RE: following up

Thanks, how about 10 am on Tuesday?

Have a nice weekend,

Madeline

From: Darwin, Veronica [mailto:darwin.veronica@epa.gov]
Sent: Friday, March 2, 2018 7:52 AM
To: Vey, Madeline <Madeline.Vey@mail.house.gov>
Cc: Brown, Byron <brown.byron@epa.gov>; Ringel, Aaron <ringel.aaron@epa.gov>
Subject: Re: following up

Madeline,
I am happy to discuss early next week. Monday or Tuesday before noon will work for me. Let me know.
Veronica

Sent from my iPhone

On Mar 1, 2018, at 6:40 PM, Vey, Madeline <Madeline.Vey@mail.house.gov> wrote:

> Thank you Byron, I appreciate you connecting me to the right people.
>
> Veronica, might you have time to talk early next week about this issue? I'll be out of the office all day tomorrow.
>
> And thank you for copying Aaron, sorry Aaron-I couldn't find your email address earlier when I was reaching out to Byron!
>
> Thanks,
>
> Madeline
>
> Madeline Barter Vey
> Legislative Director/Policy Coordinator
> Congressman Robert E. Latta OH-05
> 2448 Rayburn House Office Building
> 202-225-6405
>
> ---
>
> **From:** Brown, Byron [mailto:brown.byron@epa.gov]
> **Sent:** Thursday, March 1, 2018 9:56 AM
> **To:** Vey, Madeline <Madeline.Vey@mail.house.gov>

Cc: Darwin, Veronica <darwin.veronica@epa.gov>; Ringel, Aaron <ringel.aaron@epa.gov>
Subject: RE: following up

Madeline – I am connecting you with Veronica Darwin, senior advisor to the Administrator, who has been looking into the A-Gas issue and recently spoke to the state regulatory agency. I am also copying Aaron Ringel from the Office of Congressional and Intergovernmental Relations for his awareness. Thanks.

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

From: Vey, Madeline [mailto:Madeline.Vey@mail.house.gov]
Sent: Thursday, March 1, 2018 9:46 AM
To: Brown, Byron <brown.byron@epa.gov>
Subject: following up

Good Morning Byron,

Thank you so much for getting back to me, I'd love to be connected with the correct people to discuss the Agas issue with.

Best,

Madeline

Madeline Barter Vey
Legislative Director/Policy Coordinator
Congressman Robert E. Latta OH-05
2448 Rayburn House Office Building
202-225-6405

Message

From: Nabity, Caroline [Caroline.Nabity@mail.house.gov]
Sent: 6/6/2018 2:10:06 PM
To: Brown, Byron [brown.byron@epa.gov]
CC: Castor, Stephen [Stephen.Castor@mail.house.gov]
Subject: Transcript Review

Byron,

Just wanted to confirm 2pm tomorrow still works. I have reserved room 6480 in the O'Neill House Office Building. This is the same room where the transcribed interview took place.

Thanks,
Caroline Nabity

Message

From: Mitchell, Will [Will.Mitchell@mail.house.gov]
Sent: 10/6/2017 4:27:18 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: Regional Haze & CERCLA 108(b) Taconite Issues
Attachments: Letter-Region5EPA-USSteel-RegionalHazeFIPTaconite-072117.pdf; EPA - Reps. Nolan & Bergman - CERCLA108(b) Iron Ore Letter_170731.pdf

Mr. Brown,

I wanted to flag two (of many) important items on EPA's docket we are tracking related to taconite/iron ore mining.

The first is the ongoing issue between U.S. Steel and EPA regarding Regional Haze mediation. As I've noted to Region V staff, we stand ready to assist in a productive way on this matter as much as possible.

The second is CERCLA 108(b) rulemaking with respect to taconite operations. I am reattaching the letter Reps. Nolan and Bergman transmitted back in July on this issue.

Thank you for your continued work on these issues, and please don't hesitate to contact me if we can be of further assistance.

Will

Will Mitchell
Legislative Director
Office of Congressman Rick Nolan (MN-08)
(202) 225-6211

Congress of the United States
Washington, DC 20515

July 31, 2017

The Honorable Scott Pruitt, Administrator
U.S. Environmental Protection Agency (EPA)
William Jefferson Clinton Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

RE: Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 108(b) Hardrock Mining Financial Assurance Regulations (EPA-HQ-SFUND-2015-0781)

Dear Administrator Pruitt:

Representing all eight of the United States' active iron ore mining and processing facilities and the thousands of good-paying jobs they provide, we write to raise concerns regarding the EPA's inclusion of this industry in its proposed Section 108(b) rule[1].

Specifically, we believe the agency erred by including the domestic iron ore industry as a covered class in its definition of hardrock mining rather than excluding it with other similar hardrock mining classes that present low Superfund risk.

In doing so, EPA exposed approximately 4,500 family-sustaining jobs in Minnesota and Michigan to burdensome and financially devastating regulations that are not commensurate with the level of CERCLA risk posed by this well-established, low risk-industry that has a history of responsible environmental reclamation practices.

As you may know, in its proposed CERCLA 108(b) rule, EPA solicited comments on whether the iron ore industry presents a lower risk of injury as compared to other classes of hardrock mining and whether such a low-risk designation merits excluding the iron ore industry from the rule. As the EPA reviews these comments, we hope you'll see the merits of an exclusion for a number of reasons, including those outlined below.

Unlike other classes of hardrock mining that rely on heavy chemicals to process mineral commodities, the iron ore sector employs physical separation techniques to separate iron units from the host rock. These techniques have been employed in Michigan's Upper Peninsula and Northeast Minnesota for approximately 170 years and produce value-added iron ore pellets, which are the critical raw material used in the production of iron and steel. The resulting mined areas have been subsequently used for recreation and public drinking water reservoirs. As a

[1] This proposed rule is a product of lawsuits brought by environmental groups in 2008 and 2014, leading to a court order requiring EPA to issue a proposed Superfund/CERCLA 108(b) rule covering the hardrock mining sector by December 2016 and further requiring a final financial assurance rule or determination to be fully promulgated by December 2017.

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result, the iron ore industry has minimal CERCLA liabilities as compared to certain other classes of hardrock mining.

Compliance with the rule would come on top of current State regulatory authority and financial assurances already in place. Despite the fact that the iron ore industry has only negligible potential CERCLA liabilities and no history of leaving the federal government on the hook for cleanup costs, we are with the understanding that the proposed CERCLA 108(b) rule would require that the industry post financial assurance for an exorbitant amount that is orders of magnitude larger than any reasonable estimate of the industry's total potential CERCLA liability.

Any requirement to securitize these inflated liability estimates would deprive capital investment needed to remain cost competitive and cause devastating impacts for the strategically important iron ore and steel industries. Both of these industries remain in the fledgling stages of recovery following the commodity recession brought on by the steel import crisis of 2015 and 2016.

We thank you for weighing these concerns and understand EPA's desire to protect against future CERCLA expenditures arising from industries that pose significant CERCLA risks to the Superfund. However, we believe the iron ore industry poses no such imminent risk, and look forward to working with you and your staff on this important issue.

Sincerely,

Richard M. Nolan
Member of Congress

Jack Bergman
Member of Congress

CC: Mr. Byron R. Brown, Deputy Chief of Staff for Policy, Office of the Administrator

ED_002512_00000113-00002

United States Steel Corporation
Environmental Affairs
1350 Penn Liberty Plaza I, Suite 200
Pittsburgh, PA 15219-2800
E-mail: twoodwell@uss.com

Tishie Woodwell
General Manager,
Environmental Affairs

Via Email and Regular Mail

July 21, 2017

Robert A. Kaplan
Acting Regional Administrator, Region 5
U.S. Environmental Protection Agency
77 West Jackson Boulevard, Mail Code: R-19J
Chicago, IL 60604-3507

Re: U. S. EPA Regional Haze Federal Implementation Plan for Taconite

Dear Acting Regional Administrator Kaplan:

In 2013, U. S. EPA (EPA) promulgated a Federal Implementation Plan (FIP) for taconite facilities based upon limited data that it acquired from United States Steel Corporation's (U. S. Steel) Minntac facility which was the first in the industry to implement nitrogen oxide (NO_x) reduction technology. However, after further investigation and evaluation of data provided by U. S. Steel and other taconite facilities regarding differences in furnaces and other relevant factors, EPA acknowledged that its approach of setting uniform standards in the industry was not feasible. This was the basis for EPA's promulgation of a revised FIP in April 2016. However, while in the revised FIP EPA reconsidered regional haze requirements for the other taconite facilities in the United States, it did not take the same approach or reconsider the limits for U. S. Steel's facilities in Minnesota. Because EPA rejected U. S. Steel's comments and request to apply the case-by-case approach for U. S. Steel's facilities as it did for other facilities in the industry, U. S. Steel was forced to file a petition for administrative review and a petition for judicial review.

Since those filings, U. S. Steel has provided EPA with additional data and information – and continues to provide such information – that supports a determination that the limits applicable to U. S. Steel in the FIP are not appropriate. Through this process of exchanging information and associated negotiation discussions, U. S. Steel firmly believed that EPA would recognize the inequities and revise the FIP for U. S. Steel's facilities consistent with the case-by-case approach utilized in assessing the other taconite facilities. While EPA and U. S. Steel have been working together on establishing case-by-case limits for U. S. Steel, more recently, EPA has advised U. S. Steel that it does not wish to continue that dialogue, rejected U. S. Steel's request to mediate, and instead elected to proceed with litigation to defend its application of the inequitable, uniform standards set forth in the 2013 FIP to U. S. Steel. It is in the spirit of the longstanding and continued collaboration with EPA that I am respectfully requesting that EPA reconsider its decision to reject U. S. Steel's request to mediate the issue so that an equitable resolution can be reached.

Despite unfavorable market conditions and unfairly traded imports, U. S. Steel remains one of the largest American integrated steel producers. We manufacture a wide range of value-added steel sheet and tubular products for the automotive, appliance, container, industrial machinery, construction, and oil and gas industries. The competitive production of taconite is critical to the vitality of U. S. Steel's operations, as steel-making starts at U. S. Steel's taconite facilities in Northern Minnesota; Minntac and Keetac. Although a steel company, U. S. Steel is the largest domestic producer of taconite pellets.

U. S. Steel also leads in the iron ore industry in developing Low NO_x technology that reduces regional haze. We have demonstrated our commitment to improving the air quality by already installing this Low NO_x burner technology on four of our six indurating furnace lines.

Although the FIP was litigated by the entire taconite industry (U. S. Steel, Cliffs Natural Resources and ArcelorMittal), only U. S. Steel remains without a settlement and revised rule. Notwithstanding EPA's denial of U. S. Steel's request to mediate, we strongly believe that an equitable agreement is within reach, and that with the assistance of a structured approach such as mediation, reasonable and fair resolution can be reached.

Despite EPA's rejection of the proposed mediation, we remain optimistic that a resolution can be reached and have illustrated our commitment to that end by our agreement to collect the additional temperature data, requested by the EPA pursuant to a Clean Air Act Section 114 Request. We agree with EPA that the information collected may be beneficial in determining the feasibility of additional control technology. We anticipate that this new information will be available within the next thirty days, though it is our goal to provide it to EPA sooner, if available. We believe that this data, along with a review of additional data from the application of Low NO_x burners at Minntac operating lines would contribute towards productive mediation.

In addition, it is important to identify a feasible solution for Keetac and Minntac that adheres to the Clean Air Act Best Available Retrofit Technology (BART) requirements. We strongly believe that the current FIP's application as it applies to U. S. Steel operations does not meet the Clean Air Act goal of improved visibility. In fact, while we will readily acknowledge that it was not EPA's intent, the FIP as currently applied to U. S. Steel's operations, could actually result in contributing negatively to regional haze. In addition, the revised April 2016 FIP places U. S. Steel in a significant competitive disadvantage. This is especially troubling since the foundation of the FIP is based upon technology developed by U. S. Steel.

We firmly believe mediation is an appropriate forum to further address this issue and are confident that mediation would result in a reasonable and fair FIP revision that is consistent with the Clean Air Act. Therefore, on behalf of U. S. Steel, I respectfully request the EPA reconsider its earlier decision and agree to engage in mediation to facilitate a reasonable resolution of the application of the FIP to U. S. Steel's Keetac and Minntac operations. Additionally, we believe that a stay in the application of the 2013 FIP NO_x limits for U. S. Steel is appropriate under the circumstances and would facilitate a successful mediation. The current FIP will impact U. S. Steel's operations at Minntac's Line 6 beginning in August 2017. Line 6 already has controls installed, is operating under an annual NO_x limit from the facility Title V permit and is also currently subject to SO_2 limits from the 2013 FIP. A stay would not negatively impact the environment, nor would it result in a competitive advantage for U. S. Steel, as the

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earliest compliance date applicable to other taconite facilities is not until late 2018, with the remaining taconite facility compliance dates extending into 2019 and beyond.

If you have any questions, or would like to schedule a meeting to discuss this matter please contact Chrissy Bartovich at (218) 749-7364 or clbartovich@uss.com; or me at (412) 433-5916 or twoodwell@uss.com.We look forward to your response and a swift resolution of the matter.

Sincerely,

Tishie Woodwell

Tishie Woodwell
General Manager
Environmental Affairs

Cc: David Fotouhi, Deputy General Counsel, EPA
Douglas Aburano (EPA Region V)
Chrissy Bartovich (USS)
Todd Young (USS)
Dave Hacker (USS)

ED_002512_00000114-00003

Message

From: Darwin, Veronica [darwin.veronica@epa.gov]
Sent: 3/2/2018 12:51:37 PM
To: Vey, Madeline [Madeline.Vey@mail.house.gov]
CC: Brown, Byron [brown.byron@epa.gov]; Ringel, Aaron [ringel.aaron@epa.gov]
Subject: Re: following up

Madeline,
I am happy to discuss early next week. Monday or Tuesday before noon will work for me. Let me know.
Veronica

Sent from my iPhone

On Mar 1, 2018, at 6:40 PM, Vey, Madeline <Madeline.Vey@mail.house.gov> wrote:

> Thank you Byron, I appreciate you connecting me to the right people.
>
> Veronica, might you have time to talk early next week about this issue? I'll be out of the office all day tomorrow.
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> And thank you for copying Aaron, sorry Aaron-I couldn't find your email address earlier when I was reaching out to Byron!
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> Thanks,
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> Madeline
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> Madeline Barter Vey
> Legislative Director/Policy Coordinator
> Congressman Robert E. Latta OH-05
> 2448 Rayburn House Office Building
> 202-225-6405

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> **Sent:** Thursday, March 1, 2018 9:56 AM
> **To:** Vey, Madeline <Madeline.Vey@mail.house.gov>
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> Madeline – I am connecting you with Veronica Darwin, senior advisor to the Administrator, who has been looking into the A-Gas issue and recently spoke to the state regulatory agency. I am also copying Aaron Ringel from the Office of Congressional and Intergovernmental Relations for his awareness. Thanks.
>
> Byron R. Brown
> Deputy Chief of Staff for Policy
> Office of the Administrator

From: Vey, Madeline [mailto:Madeline.Vey@mail.house.gov]
Sent: Thursday, March 1, 2018 9:46 AM
To: Brown, Byron <brown.byron@epa.gov>
Subject: following up

Good Morning Byron,

Thank you so much for getting back to me, I'd love to be connected with the correct people to discuss the Agas issue with.

Best,

Madeline

Madeline Barter Vey
Legislative Director/Policy Coordinator
Congressman Robert E. Latta OH-05
2448 Rayburn House Office Building
202-225-6405

Message

From: Nabity, Caroline [Caroline.Nabity@mail.house.gov]
Sent: 6/5/2018 9:46:55 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: RE: Contact info

Thanks, Byron. Thursday, June 7 at 2pm will work for the transcript review. I will send an email tomorrow with the conference room we will be in.

Caroline

From: Brown, Byron [mailto:brown.byron@epa.gov]
Sent: Tuesday, June 5, 2018 5:44 PM
To: Nabity, Caroline <Caroline.Nabity@mail.house.gov>
Subject: Contact info

Hi Caroline – just wanted to send you my email so you would have it. Thanks. - Byron

Message

From: Freire, JP (Hatch) [JP_Freire@hatch.senate.gov]
Sent: 3/16/2017 5:14:53 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: Re: CAFE Op-ed

Byron,

Excited to be working with you. Do you have time to speak on the phone sometime today? Should be 10 minutes or so.

J.P. Freire
Director of Communications
Office of Senator Orrin Hatch
(202) 228-0210—Office
Ex. 6 —Mobile

From: "Brown, Byron" <brown.byron@epa.gov>
Date: Wednesday, March 15, 2017 at 9:22 PM
To: "Dravis, Samantha" <dravis.samantha@epa.gov>
Cc: "Jackson, Ryan" <jackson.ryan@epa.gov>, "Konkus, John" <konkus.john@epa.gov>, "Freire, JP (Hatch)" <JP_Freire@hatch.senate.gov>, "Ferguson, Lincoln" <ferguson.lincoln@epa.gov>
Subject: Re: CAFE Op-ed

Deliberative Process / Ex. 5

Sent from my iPhone

On Mar 15, 2017, at 8:00 PM, Dravis, Samantha <dravis.samantha@epa.gov> wrote:

Deliberative Process / Ex. 5

Sent from my iPhone

On Mar 15, 2017, at 7:58 PM, Jackson, Ryan <jackson.ryan@epa.gov> wrote:I

Guys please hurry and get this get this placed. I was assuming that was done well before now.

Ryan Jackson
Chief of Staff
U.S. EPA
Ex. 6

On Mar 15, 2017, at 6:55 PM, Konkus, John <konkus.john@epa.gov> wrote:

> Samantha and Byron: Would you mind please taking a look at the attached op-ed tonight before I send it to USA Today tomorrow?
>
> ---
>
> **From:** Ferguson, Lincoln
> **Sent:** Wednesday, March 15, 2017 6:13 PM
> **To:** Jackson, Ryan <jackson.ryan@epa.gov>
> **Cc:** Konkus, John <konkus.john@epa.gov>
> **Subject:** CAFE Op-ed
>
> Attached is the updated version of the CAFÉ op-ed with input from JP. Can we get this in from of SP before we release? USA Today is needing it ASAP – but hopefully we can still shoot to get it in this weekend.
>
> Thanks,
> Lincoln
>
> <LF EDITS Draft CAFE Op-Ed EDITS.DOCX>

Message

From: Konkus, John [konkus.john@epa.gov]
Sent: 3/16/2017 4:47:41 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]; Ferguson, Lincoln [ferguson.lincoln@epa.gov]; Freire, JP (Hatch) [JP_Freire@hatch.senate.gov]; Dravis, Samantha [dravis.samantha@epa.gov]; Brown, Byron [brown.byron@epa.gov]
Subject: Draft Flint Op-Ed 415 Words

Working on placement now. If you all want to work on edits in the meantime…

Deliberative Process / Ex. 5

Message

From: Small, Jeff [Jeff.Small@mail.house.gov]
Sent: 2/7/2018 4:19:49 PM
To: Bowman, Liz [Bowman.Liz@epa.gov]
CC: Brown, Byron [brown.byron@epa.gov]; Palich, Christian [palich.christian@epa.gov]; Bennett, Tate [Bennett.Tate@epa.gov]; Ringel, Aaron [ringel.aaron@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: RE: Follow-up 2/9/18 Western Caucus Policy Retreat Request
Attachments: Revised House Policy Invite.pdf

Correct. Capitol Hill Club on Friday. We have Bryon in the 11:45a.m. slot.

Attached and below is the updated agenda.

Jeff Small
Executive Director | Congressional Western Caucus
Senior Advisor | Congressman Paul A. Gosar, D.D.S.
2057 Rayburn HOB | Washington, DC 20515
(202) 225-2315 main
jeff.small@mail.house.gov

From: Bowman, Liz [mailto:Bowman.Liz@epa.gov]
Sent: Wednesday, February 07, 2018 10:54 AM
To: Small, Jeff
Subject: RE: Follow-up 2/9/18 Western Caucus Policy Retreat Request

This is at the Capitol Hill club, correct?

WESTERN CAUCUS FOUNDATION

THE HONORABLE STEVE DAINES
HONORARY CO-CHAIR

THE HONORABLE PAUL GOSAR
HONORARY CO-CHAIR

House Staff Policy Planning Retreat

Friday, February 9, 2018

Capitol Hill Club

****Note: In the event of a government shutdown, the Retreat will go on.**

MORNING SESSION (Staff only)

- 9:45a.m. — Welcome Arrival and Coffee
- 10a.m. — Jeff Small, Executive Director, Congressional Western Caucus
- 10:15a.m. — Kiel Weaver, Policy Assistant, Speaker Paul Ryan
- 10:30a.m. — Morning Keynote Speaker
    - Todd Willens, Assistant Secretary, Department of the Interior
- 11:00a.m. — Glenn Casamassa, Associate Deputy Chief, USDA
- 11:15a.m. — Cody Stewart, Staff Director, House Committee on Natural Resources
- 11:30a.m. — White House Staff, Tim Pataki and Mike Catanzaro
- 11:45a.m. — Byron Brown, Deputy Chief of Staff for Policy, EPA

LUNCH AND AFTERNOON SESSION (Open to Staff and Foundation Supporters)

- 12:00p.m. — Southwest Inspired Luncheon
- 12:30p.m. — Afternoon Keynote Speaker
    - Douglas-Holtz-Eakin, American Action Forum
- 1:00p.m. — 2018 Trips and events — Darrell Henry, Western Caucus Foundation
- 1:10p.m. — Myron Ebel, Competitive Enterprise Institute & EPA Transition Director
- 1:30p.m. — Conclusion of the Event

RSVP to: info@westerncaucusfoundation.org or Ashley Ingram at (574) 850-7575

Western Caucus Foundation
400 N. Capitol St., #382-B
Washington, DC 20001

******This event is planned to fully comply with Congressional Ethics Rules and Other Applicable Laws******

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THE HONORABLE STEVE DAINES
HONORARY CO-CHAIR

THE HONORABLE PAUL GOSAR
HONORARY CO-CHAIR

House Staff Policy Planning Retreat

Friday, February 9, 2018

Capitol Hill Club

****Note: In the event of a government shutdown, the Retreat will go on.**

MORNING SESSION (Staff only)

- 9:45a.m. — Welcome Arrival and Coffee
- 10a.m. — Jeff Small, Executive Director, Congressional Western Caucus
- 10:15a.m. — Kiel Weaver, Policy Assistant, Speaker Paul Ryan
- 10:30a.m. — Morning Keynote Speaker
  - Todd Willens, Assistant Secretary, Department of the Interior
- 11:00a.m. — Glenn Casamassa, Associate Deputy Chief, USDA
- 11:15a.m. — Cody Stewart, Staff Director, House Committee on Natural Resources
- 11:30a.m. — White House Staff, Tim Pataki and Mike Catanzaro
- 11:45a.m. — Byron Brown, Deputy Chief of Staff for Policy, EPA

LUNCH AND AFTERNOON SESSION (Open to Staff and Foundation Supporters)

- 12:00p.m. — Southwest Inspired Luncheon
- 12:30p.m. — Afternoon Keynote Speaker
  - Douglas-Holtz-Eakin, American Action Forum
- 1:00p.m. — 2018 Trips and events — Darrell Henry, Western Caucus Foundation
- 1:10p.m. — Myron Ebel, Competitive Enterprise Institute & EPA Transition Director
- 1:30p.m. — Conclusion of the Event

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Message

From: Weaver, Kiel [Kiel.Weaver@mail.house.gov]
Sent: 4/23/2017 4:26:04 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: RE: Congratulations

Thanks Byron. We should talk soon.

From: Brown, Byron [brown.byron@epa.gov]
Sent: Thursday, April 20, 2017 2:32 PM
To: Weaver, Kiel
Subject: Congratulations

Saw the news about your new job. Congratulations and good luck. - Byron

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

Message

From: Small, Jeff [Jeff.Small@mail.house.gov]
Sent: 2/6/2018 10:31:07 PM
To: Bowman, Liz [Bowman.Liz@epa.gov]
CC: Bennett, Tate [Bennett.Tate@epa.gov]; Brown, Byron [brown.byron@epa.gov]; Ringel, Aaron [ringel.aaron@epa.gov]; Palich, Christian [palich.christian@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Hanson, Tanner [Tanner.Hanson@mail.house.gov]
Subject: RE: Follow-up 2/9/18 Western Caucus Policy Retreat Request
Attachments: House Policy Invite.doc; WCF 2018 Retreat Speakers.docx

11:45a.m. works great!

Attached is some more info.

Let me know if you all have any other questions.

Should be a solid planning session.

Look forward to seeing you all.

Jeff Small
Executive Director | Congressional Western Caucus
Senior Advisor | Congressman Paul A. Gosar, D.D.S.
2057 Rayburn HOB | Washington, DC 20515
(202) 225-2315 main
jeff.small@mail.house.gov

From: Bowman, Liz [mailto:Bowman.Liz@epa.gov]
Sent: Tuesday, February 06, 2018 5:25 PM
To: Small, Jeff
Cc: Bennett, Tate; Brown, Byron; Ringel, Aaron; Palich, Christian; Gunasekara, Mandy; Hanson, Tanner
Subject: FW: Follow-up 2/9/18 Western Caucus Policy Retreat Request

Hi Jeff – Byron Brown (deputy chief of staff) and I can head over there for the 11:45 a.m. slot. Bryon can discuss EPA's recent decision on hard-rock mining. Does that work for you? If so, please confirm the time and send any additional details my way. Thank you! – Liz Bowman

---

From: Small, Jeff [mailto:Jeff.Small@mail.house.gov]
Sent: Tuesday, February 6, 2018 2:45 PM
To: Bennett, Tate <Bennett.Tate@epa.gov>; Ringel, Aaron <ringel.aaron@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Konkus, John <konkus.john@epa.gov>; Kelly, Albert <kelly.albert@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Cc: Hanson, Tanner <Tanner.Hanson@mail.house.gov>; 'Henry, Darrell' <dhenry@roqstrategies.com>
Subject: Follow-up 2/9/18 Western Caucus Policy Retreat Request

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Circling back to see if you all might be able to provide an Assistant Secretary or senior employee for our staff retreat this Friday and also if anyone from Congressional Affairs/Communications can attend?

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10:15 a.m.–10:30a.m. slot
10:45 a.m.–11:00a.m. slot
11:45 a.m.–noon slot

Let us know if you have any other questions or if you want to jump on a call. Thank you again for your consideration.

Sincerely,

Jeff Small
Executive Director | Congressional Western Caucus
Senior Advisor | Congressman Paul A. Gosar, D.D.S.

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Sent: Thursday, February 01, 2018 12:31 PM
To: Small, Jeff
Cc: Ringel, Aaron; Palich, Christian; Konkus, John; Kelly, Albert; Gunasekara, Mandy
Subject: Re: 2/9/18 Policy Retreat Request

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> **Subject:** 2/9/18 Policy Retreat Request
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~~Would be great if you could discuss the Committee's agenda for 2018 and infrastructure.~~

Please confirm if you can make it when you can and the approximate time that would work best for you all. Let me know if you have any questions.

Apologies for the short notice. Appreciate your consideration.

Sincerely,

Jeff Small
Executive Director | Congressional Western Caucus
Senior Advisor | Congressman Paul A. Gosar, D.D.S.

<image001.png>

House Staff Policy Planning Retreat

Invited: Congressional Western Caucus Staff and Invited Guests

Guest Speakers To Be Announced

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- **10-12:00 p.m. — Policy Discussion and Planning**
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- **1:50 p.m. — Conclusion of the Event**

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Ashley Ingram, (574) 850-7575

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HONORARY CO-CHAIR

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HONORARY CO-CHAIR

House Staff Policy Planning Retreat

Invited: Congressional Western Caucus Staff & Foundation Supporters at noon (for lunch with guest speakers)

Friday, February 9, 2018
Capitol Hill Club

STAFF ONLY SESSION

- **9:45 a.m. — Welcome Arrival and Coffee**
- **10-12:00 p.m. — Policy Discussion and Planning**

LUNCH AND GUEST SPEAKER SESSION
****Open to Staff and Foundation Supporters**

- **12:00 p.m. —Southwest Inspired Luncheon**
- **12:30 p.m. — Keynote Speakers**
  - **Douglas-Holtz-Eakin, American Action Forum**
  - **Others TBA**
- **1:50 p.m. — Conclusion of the Event**

RSVP to:
info@westerncaucusfoundation.org
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House Staff Policy Planning Retreat

Friday, February 9, 2018
Capitol Hill Club

9:45a.m. -1:50p.m.

Policy Speakers (10a.m. – noon):

10 a.m.–10:15 a.m. – Jeff Small, Western Caucus Executive Director, Presentation/Policy Agenda–Confirmed.

10:15 a.m.–10:30a.m. slot –

10:45 a.m.–11:00a.m. slot –

11:00 a.m.–11:15a.m. slot – Cody Stewart, Staff Director, House Committee on Natural Resources –Confirmed.

11:30 a.m.–11:45a.m. – White House Staff, Tim Pataki and Mike Catanzaro –Tim Confirmed.

11:45 a.m.–Noon – Deputy Chief of Staff for Policy, Byron Brown–Confirmed.

Todd Willens, Assistant Secretary, Department of the Interior–Confirmed. Time?

Kiel Weaver, Speaker's Office –

Glenn Casamassa, Associate Deputy Chief, USDA –Tentatively Confirmed.

Assistant Secretary from DOE? –

Tim Petty and one other DOI? – Tim can't. they are checking on others

E&C Staff Director? –Likely can't. Deputy Staff Director possibly

Lunch (Noon–12:30p.m.)

Keynote Speakers (12:30p.m.–1:50p.m.)

12:30 p.m.–1:00p.m. Douglas Holtz-Eakin American Action Network –Confirmed.

1:00 p.m.–1:10p.m. Darrell Henry, Executive Director, Western Caucus Foundation, Trips and other events –Confirmed.

1:10 p.m.–1:40p.m. slot –

1:40 p.m.–1:50p.m. Myron Ebel, Director, Center for Energy and Environment, Competitive Enterprise Institute & EPA Transition Director –Confirmed.

Brian Walsh Trump?

Matt Schlapp? Jeff emailed

Tucker Carlson? – can't attend.

Richard Viguerie – can't attend

Message

From: Small, Jeff [Jeff.Small@mail.house.gov]
Sent: 2/6/2018 10:30:18 PM
To: Palich, Christian [palich.christian@epa.gov]
CC: Ringel, Aaron [ringel.aaron@epa.gov]; Brown, Byron [brown.byron@epa.gov]; Lyons, Troy [lyons.troy@epa.gov]
Subject: RE: Follow-up 2/9/18 Western Caucus Policy Retreat Request

Perfect. Thank you sir!

Jeff Small
Executive Director | Congressional Western Caucus
Senior Advisor | Congressman Paul A. Gosar, D.D.S.
2057 Rayburn HOB | Washington, DC 20515
(202) 225-2315 main
jeff.small@mail.house.gov

From: Palich, Christian [mailto:palich.christian@epa.gov]
Sent: Tuesday, February 06, 2018 5:18 PM
To: Small, Jeff
Cc: Ringel, Aaron; Brown, Byron; Lyons, Troy
Subject: Re: Follow-up 2/9/18 Western Caucus Policy Retreat Request

Hi Jeff,

I'm planning to come for Byron's talk and perhaps a little before around 11am. Look forward to seeing everyone and appreciate the invite.

Have a great evening,

Christian R. Palich
Deputy Associate Administrator
Congressional & Intergovernmental Relations
202.306.4656

Sent from my iPhone

On Feb 6, 2018, at 5:14 PM, Small, Jeff <Jeff.Small@mail.house.gov> wrote:

> That works great. Thank you all very much. We have slot locked in for him.
>
> You all are welcome to stay for lunch and as long or as short of the rest of the program as you want.
>
> Let me know if you all have other questions or need anything else from me.
>
> My direct is Deliberative Process / Ex. 5
>
> Sincerely,
>
> **Jeff Small**

Executive Director | Congressional Western Caucus
Senior Advisor | Congressman Paul A. Gosar, D.D.S.
2057 Rayburn HOB | Washington, DC 20515
(202) 225-2315 main
jeff.small@mail.house.gov
<image001.png><image002.png><image003.png>

From: Ringel, Aaron [mailto:ringel.aaron@epa.gov]
Sent: Tuesday, February 06, 2018 5:06 PM
To: Small, Jeff
Cc: Brown, Byron; Lyons, Troy; Palich, Christian
Subject: RE: Follow-up 2/9/18 Western Caucus Policy Retreat Request

Hi Jeff,

Our Deputy Chief of Staff for Policy, Byron Brown, is available to speak. The 11:45 slot would work with his schedule if still available.

Best,
Aaron

Aaron E. Ringel
Deputy Associate Administrator
Office of Congressional & Intergovernmental Relations
U.S. Environmental Protection Agency

W: 202.564.4373
Ringel.Aaron@epa.gov

From: Small, Jeff [mailto:Jeff.Small@mail.house.gov]
Sent: Tuesday, February 6, 2018 2:45 PM
To: Bennett, Tate <Bennett.Tate@epa.gov>; Ringel, Aaron <ringel.aaron@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Konkus, John <konkus.john@epa.gov>; Kelly, Albert <kelly.albert@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Cc: Hanson, Tanner <Tanner.Hanson@mail.house.gov>; 'Henry, Darrell' <dhenry@roqstrategies.com>
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To: Small, Jeff
Cc: Ringel, Aaron; Palich, Christian; Konkus, John; Kelly, Albert; Gunasekara, Mandy
Subject: Re: 2/9/18 Policy Retreat Request

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> Apologies for the short notice. Appreciate your consideration.
>
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<image001.png>

House Staff Policy Planning Retreat

Invited: Congressional Western Caucus Staff and Invited Guests

Guest Speakers To Be Announced

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<House Policy Invite.doc>

Message

From: Castor, Stephen [Stephen.Castor@mail.house.gov]
Sent: 6/4/2018 9:28:09 PM
To: Brown, Byron [brown.byron@epa.gov]
CC: Lyons, Troy [lyons.troy@epa.gov]; Baptist, Erik [Baptist.Erik@epa.gov]
Subject: RE: minority letter

I'm sorry, I have a transcribed interview tomorrow, and expect it to last all day. Wednesday, I have plenty of time available to connect.

From: Brown, Byron <brown.byron@epa.gov>
Sent: Monday, June 4, 2018 5:23 PM
To: Castor, Stephen <Stephen.Castor@mail.house.gov>
Cc: Lyons, Troy <lyons.troy@epa.gov>; Baptist, Erik <Baptist.Erik@epa.gov>
Subject: RE: minority letter

Hi Steve – just left you a message. Would 1 pm Tuesday work for a call? Looks like folks here are free at that time.

From: Castor, Stephen [mailto:Stephen.Castor@mail.house.gov]
Sent: Monday, June 4, 2018 3:55 PM
To: Brown, Byron <brown.byron@epa.gov>
Cc: Lyons, Troy <lyons.troy@epa.gov>; Baptist, Erik <Baptist.Erik@epa.gov>
Subject: RE: minority letter

Here is the letter from our Dems.

From: Castor, Stephen
Sent: Monday, June 4, 2018 1:38 PM
To: Brown, Byron <brown.byron@epa.gov>
Cc: Lyons, Troy <lyons.troy@epa.gov>; Baptist, Erik <Baptist.Erik@epa.gov>
Subject: Re: minority letter

Hi Byron - I tried you a couple times and left voicemails last week. Sorry we didn't connect. We are not happy about the release of information by our Democratic colleagues, but were not afforded an opportunity to discuss, review, or object to their letter before it was transmitted. We first heard about from the press. I will send you the letter when I am able to get back to my desk. I've been completely out of pocket in several meetings today. I will give you a ring. -Steve

On Jun 4, 2018, at 11:22 AM, Brown, Byron <brown.byron@epa.gov> wrote:

> Steve – I have seen news reports this morning about a letter from the minority to Chairman Gowdy concerning Millan Hupp's transcribed interview that includes several excerpts of the transcript. I could not find a copy of the letter on the committee website, so could you please forward a copy. I also want to object to the selective leak of the transcript by the minority – especially before the witness has had a chance to review. We'd like to discuss this further, along with the status of the broader document production and sensitivity concerning some of the information contained in the documents and that may have been discussed in Mr. Perrotta's interview. I left a voicemail on Thursday afternoon, so let me know when you are available to discuss. Thanks. – Byron, 564-1456.

Message

From: Vey, Madeline [Madeline.Vey@mail.house.gov]
Sent: 3/1/2018 2:45:38 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: following up

Good Morning Byron,

Thank you so much for getting back to me, I'd love to be connected with the correct people to discuss the Agas issue with.

Best,

Madeline

Madeline Barter Vey
Legislative Director/Policy Coordinator
Congressman Robert E. Latta OH-05
2448 Rayburn House Office Building
202-225-6405

Message

From: Small, Jeff [Jeff.Small@mail.house.gov]
Sent: 2/6/2018 10:14:31 PM
To: Ringel, Aaron [ringel.aaron@epa.gov]
CC: Brown, Byron [brown.byron@epa.gov]; Lyons, Troy [lyons.troy@epa.gov]; Palich, Christian [palich.christian@epa.gov]
Subject: RE: Follow-up 2/9/18 Western Caucus Policy Retreat Request
Attachments: House Policy Invite.doc

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Sincerely,

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Senior Advisor | Congressman Paul A. Gosar, D.D.S.

<image001.png>

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Western Caucus Foundation
400 N. Capitol St., #382-B
Washington, DC 20001

This event is planned to fully comply with Congressional Ethics Rules and Other Applicable Laws

The Western Caucus Foundation (WCF) is a charitable and educational organization organized and operated under Section 501(c)(3). It will provide education and communications to policy makers and the public to further enhance, sustain, and preserve the West's dynamic and unique culture.

THE HONORABLE STEVE DAINES
HONORARY CO-CHAIR

THE HONORABLE PAUL GOSAR
HONORARY CO-CHAIR

House Staff Policy Planning Retreat

Invited: Congressional Western Caucus Staff & Foundation Supporters at noon (for lunch with guest speakers)

Friday, February 9, 2018
Capitol Hill Club

STAFF ONLY SESSION

- **9:45 a.m. — Welcome Arrival and Coffee**
- **10-12:00 p.m. — Policy Discussion and Planning**

LUNCH AND GUEST SPEAKER SESSION
****Open to Staff and Foundation Supporters**

- **12:00 p.m. —Southwest Inspired Luncheon**
- **12:30 p.m. — Keynote Speakers**
  - **Douglas-Holtz-Eakin, American Action Forum**
  - **Others TBA**
- **1:50 p.m. — Conclusion of the Event**

RSVP to:
info@westerncaucusfoundation.org
Ashley Ingram, (574) 850-7575

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Message

From: Castor, Stephen [Stephen.Castor@mail.house.gov]
Sent: 6/4/2018 7:55:28 PM
To: Brown, Byron [brown.byron@epa.gov]
CC: Lyons, Troy [lyons.troy@epa.gov]; Baptist, Erik [Baptist.Erik@epa.gov]
Subject: RE: minority letter
Attachments: 2018-06-04.EEC Connolly to Gowdy re. EPA Pruitt.pdf

Here is the letter from our Dems.

From: Castor, Stephen
Sent: Monday, June 4, 2018 1:38 PM
To: Brown, Byron <brown.byron@epa.gov>
Cc: Lyons, Troy <lyons.troy@epa.gov>; Baptist, Erik <Baptist.Erik@epa.gov>
Subject: Re: minority letter

Hi Byron - I tried you a couple times and left voicemails last week. Sorry we didn't connect. We are not happy about the release of information by our Democratic colleagues, but were not afforded an opportunity to discuss, review, or object to their letter before it was transmitted. We first heard about from the press. I will send you the letter when I am able to get back to my desk. I've been completely out of pocket in several meetings today. I will give you a ring. -Steve

On Jun 4, 2018, at 11:22 AM, Brown, Byron <brown.byron@epa.gov> wrote:

> Steve – I have seen news reports this morning about a letter from the minority to Chairman Gowdy concerning Millan Hupp's transcribed interview that includes several excerpts of the transcript. I could not find a copy of the letter on the committee website, so could you please forward a copy. I also want to object to the selective leak of the transcript by the minority – especially before the witness has had a chance to review. We'd like to discuss this further, along with the status of the broader document production and sensitivity concerning some of the information contained in the documents and that may have been discussed in Mr. Perrotta's interview. I left a voicemail on Thursday afternoon, so let me know when you are available to discuss. Thanks. – Byron, 564-1456.

TREY GOWDY, SOUTH CAROLINA
CHAIRMAN

ONE HUNDRED FIFTEENTH CONGRESS

ELIJAH E. CUMMINGS, MARYLAND
RANKING MINORITY MEMBER

Congress of the United States

House of Representatives

COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM

2157 RAYBURN HOUSE OFFICE BUILDING

WASHINGTON, DC 20515–6143

MAJORITY (202) 225-5074
MINORITY (202) 225-5051

http://oversight.house.gov

June 4, 2018

The Honorable Trey Gowdy
Chairman
Committee on Oversight and Government Reform
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairman Gowdy:

We are writing to request that you issue a subpoena to obtain documents that are currently being withheld by the Environmental Protection Agency (EPA) relating to Administrator Scott Pruitt's multiple abuses of authority in using agency staff for his own personal purposes.

On April 12, 2018, we sent a letter to Administrator Pruitt explaining that Kevin Chmielewski, who had served as Deputy Chief of Staff for Operations at EPA, had blown the whistle on these abuses. For example, we wrote:

> Mr. Chmielewski said that you had EPA's Director of Scheduling and Advance Millan Hupp act as your personal real estate representative, spending weeks improperly using federal government resources and time to contact rental and seller's agents, and touring numerous properties in which you might wish to reside.[1]

To investigate these allegations, we requested all "documents and communications referring or relating to Millan Hupp's assistance with the Administrator's rental or purchase of real estate, including but not limited to contacts with any rental or seller's agents, travel to and from rental properties, and documents showing the time spent on this project."

EPA issued a statement condemning Mr. Chmielewski as being part of "a group of disgruntled employees who have either been dismissed or reassigned."[2]

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[1] Letter from Senator Thomas R. Carper, Senator Sheldon Whitehouse, Representative Elijah E. Cummings, Representative Gerald E. Connolly, and Representative Donald S. Beyer Jr., to Administrator Scott Pruitt, Environmental Protection Agency (Apr. 12, 2018) (online at https://edit-democrats-oversight.house.gov/sites/democrats.oversight.house.gov/files/4.12.2018%20Letter%20to%20Pruitt.pdf).

[2] *Former Pruitt Aide to Talk to Congressional Investigators This Week*, CNN (Apr. 10, 2018) (online at www.cnn.com/2018/04/10/politics/epa-pruitt-chmielewski/index.html).

On May 18, 2018, Republican and Democratic Committee staff conducted a transcribed interview with Ms. Hupp, the Director of Scheduling and Advance for Administrator Pruitt. During her interview with Committee staff, Ms. Hupp not only confirmed the previous allegations against Administrator Pruitt, but revealed significant new details about the extent to which he utilized her for personal tasks, including using his credit card to book personal flights and even attempting to obtain an "old mattress" from the Managing Director of the Trump Hotel in Washington, D.C.

If Ms. Hupp's statements to the Committee are accurate, Administrator Pruitt crossed a very clear line and must be held accountable. Federal ethics laws prohibit Administrator Pruitt from using his official position for personal gain and from requesting and accepting services from a subordinate employee that are not part of that employee's official duties. Your previous document requests to the EPA have not included a request for information on this topic. We ask that you issue a subpoena for the documents from our April 12, 2018 request that EPA is withholding or allow Committee Members to debate and vote on a subpoena motion at our next business meeting.

Ms. Hupp's Interview Statements to the Committee

During her interview, Ms. Hupp stated that Administrator Pruitt asked her to help him find a new residence during the summer of 2017, but that he did not pay her for these services:

Q: You said in the last hour that you helped Mr. Pruitt find residence number two. Is that correct?
A: That's correct.
Q: What did you do to help find him this residence?
A: I helped him search for available properties.
Q: Would you email leasing companies?
A: I sent a couple emails to realtors, yes.
Q: Do you remember when you did this?
A: It was sometime over the summer, if you're referring to the timeframe.
Q: Did you do it during work hours?
A: I do recall sending a couple emails over work hours, yes.
Q: Did you use your work email address?
A: I did not.
Q: Did you use your work phone?
A: I did not.
Q: Did you use your work computer?
A: To send emails?
Q: Yes.
A: I did not.
Q: How many hours or days were spent looking for housing for the Administrator?
A: I do not know.
Q: Was it just several hours once? Was it several hours several times?
A: It was over the course of a couple months.

Q: How many realtors did you work with?
A: I recall working with two realtors.
Q: Did you visit any properties on behalf of the Administrator?
A: I did.
Q: Did you do this during work hours?
A: There were a couple properties that I left during work to go visit, yes.
Q: Did you take leave when you left?
A: I did not.
Q: Why not?
A: They were generally during lunch hour. I never took lunch, so I felt that leaving for an hour was appropriate.
Q: So you would go tour the property and return to work?
A: I would.
Q: Did the Administrator ask you to do this?
A: To do what specifically?
Q: To look for housing for him.
A: He asked for my help in seeking housing, yes.
Q: Do you remember what he said?
A: I—no, not specifically.
Q: Did he verbally ask you to do this? Did he send an email?
A: He verbally asked me.
Q: Do you remember when he verbally asked you?
A: It was sometime over the summer.
Q: When he asked you to do this, did he specify when you should be helping him look for housing? Did he specify during work hours, outside of work hours?
A: He did not.
Q: Did the Administrator pay you for helping him look for housing?
A: He did not.

Ms. Hupp informed Committee staff that she looked for long-term rental housing for Administrator Pruitt for several hours per week over the course of several months, personally visiting more than ten locations:

Q: All in all, about how many hours do you think you spent assisting him trying to find a new place to live?
A: I have no idea.
Q: Is it fair to say it was more than 10 hours?
A: Yes.
Q: Is it fair to say it was more than 20?
A: It was over the span of a couple months.
Q: And was it a couple hours a week or was it more than that?
A: It was more than that.
Q: So if it was—now we're going to test my math again—was it 5 hours a week maybe?
A: I don't know. I would be speculating if I gave you a number.

Q: It was more than a couple hours a week and it was over the span of more than 1 month?
A: Yes.
Q: And in that, did you search for rental opportunities, is that what you did, on the internet? I'm sorry, that was my internet sign.
A: I did some searching, yes.
Q: Where did you look?
A: I don't remember.
Q: Were you looking on temporary rental opportunities, like craigslist kind of options, or just with particular buildings?
A: I was looking at rental opportunities. They weren't temporary. They were—I was looking at rental opportunities.
Q: And when you found them, you would then communicate with whoever was the renter, the landlord?
A: Yes.
Q: And then sometimes you would go visit the places?
A: Yes.
Q: Do you recall how many places you maybe visited?
A: I do not.
Q: And was it five?
A: It was more than five.
Q: More than five. Ten?
A: I don't know. Probably more than ten.
Q: Twenty?
A: I don't know.
Q: How come it took so long?
A: I don't know.
Q: When you found rental options, did you find a good option before the one that the Administrator picked?
A: What do you mean?
Q: Well, so when you found options, did you then discuss them with the Administrator?
A: Yes.
Q: Did you guys consider renting another option before the one that he ended up picking?
A: I don't remember if he and his wife considered—seriously considered other options before this one.

Ms. Hupp explained to Committee staff that after months of searching, Administrator Pruitt and his wife selected an apartment at 13th and U Streets in Washington, D.C., only to leave the apartment shortly thereafter:

Q: What was the concern with the apartment at 13th and U?
A: My understanding was simply that they were not comfortable in the area. That's the extent of my knowledge as to why they left.

Q: And how was that communicated to you?
A: General discussions.
Q: With who?
A: With the Administrator.
Q: Did he ask you to help him to get out of that lease?
A: He did not.
Q: Did you help him get the lease? What was your involvement in that?
A: Which lease?
Q: This is the 13th and U apartment.
A: That was during the timeframe when I was helping him to find an apartment, yes.
Q: So what did you do for that particular apartment?
A: As I recall, I connected him with the realtor that helped him to find that location.
Q: Did you tour that location?
A: I do not recall touring that location.
Q: And then were you—were you involved in the lease process, or did he do that with a realtor on his own?
A: The Pruitts did that with the realtor.

Ms. Hupp informed Committee staff that she also helped Administrator Pruitt with other personal tasks, including contacting the Managing Director of the Trump International Hotel in Washington, D.C. to obtain an old mattress:

Q: And the email is dated September 14th, 2017, it's a Thursday at 12:01 p.m., from you to him. You say: "I'm following up on a voicemail I left you just a bit ago. I work for EPA Administrator Pruitt and was hopeful you could give me a quick call when you have a couple minutes."
It appears he responded that evening at 11:04 p.m. And the subject line of your email was: "Inquiry on behalf of EPA Administrator Scott Pruitt." And it appears that he's the managing director for—from his subject line—from his, I'm sorry, signature line—Trump International Hotel, Washington, D.C., which is the post office.
Q: Do you recall why you would have reached out to him?
A: I do not recall sending this email, but I do recall there being discussions about the possibility of securing an old mattress from the Trump Hotel.
Q: Discussions with who?
A: With the Administrator.
Q: And can you describe the content of those discussions?
A: I don't recall specifically other than he had expressed interest in securing a mattress.
Q: Did he say what the mattress was for?
A: It was around the same time that he was moving.
Q: Did he indicate that he wanted to use the mattress to sleep on, I assume?
A: I don't recall specifically.

Q: Okay. So can you just break down for us how that would have occurred, because it sounds like an odd conversation. Maybe you could just explain for us what it sounded like.
A: As I remember, the Administrator had spoken with someone at the Trump Hotel who had indicated that there could be a mattress that he could purchase, an old mattress that he could purchase. But that's the extent of the conversation that I can—that I can remember.
Q: Do you know why he'd want to purchase an old mattress from the Trump Hotel?
A: I do not.
Q: Do you know who he spoke with at the Trump Hotel?
A: I do not.
Q: Do you remember what came of that conversation?
A: I do not.
Q: Do you know whether he ever ended up purchasing an old mattress from the Trump Hotel?
A: I do not.
Q: Do you remember whether you ever connected with somebody from the Trump Hotel to have that conversation about it?
A: I do not remember.
Q: Okay. So you don't recall if you ever actually connected or there was a mattress or there wasn't a mattress or any of the details around that?
A: I do not recall ever connecting with someone on this topic, and I do not recall whatever came of the inquiry into the mattress.
Q: Did you end up having to find Mr. Pruitt a mattress from some other location?
A: I did not.
Q: Were you involved in assisting him with furnishing his residence, any of his residences?
A: I was not.
Q: Except for this one inquiry about finding an old mattress.
A: Yes. This is the only one that I can recall.
Q: Which I assume was not for use at the EPA?
A: Not to my knowledge.

Ms. Hupp informed Committee staff during the interview that she had Administrator Pruitt's personal credit card and booked personal travel for him:

Q: Are there other things that you do or have done for him personally?
A: I have helped him book travel before.
Q: Personal travel?
A: Yes.
Q: To where?
A: I assisted him in booking travel to his trip to the Rose Bowl.
Q: And why did you end up doing that?
A: He requested help.
Q: And did you do that during work time, during personal time?

A: It was during personal time.
Q: So afterhours?
A: I was at home on vacation for Christmas.
Q: And did you use your sort of work email or you used personal?
A: I used my work email to share details with the security team.
Q: But you were home, were you using a personal computer to search for flights, I take it?
A: I was. And he actually sent me specific flight information. I did not do the searching for him.
Q: So he needed your help making the reservation?
A: Yes.
Q: I don't really understand. If he had searched for the flight, why does he need help making the reservation?
A: I don't know.
Q: Is it like an online system or—
A: I don't know. He just sent me the flight details and asked me to book for him.
Q: Okay. Did you call or do it online?
A: I did it online.
Q: And it was his personal travel, so did he give you his personal credit card?
A: He did.
Q: And you used his personal credit card to do that, I take it?
A: As necessary, yes.
Q: Oh, you have his personal credit card already?
A: Yes, I do have it.
Q: And you used it to purchase things for him personally, I take it?
A: I have used it to purchase flights for him, yes.
Q: Personal flights?
A: Yes.

Ms. Hupp informed Committee staff that she did these personal tasks for Administrator Pruitt because of her personal friendship with him:

Q: Would you consider Administrator Pruitt a family friend?
A: I would consider him a friend of mine, yes.
Q: When did that relationship develop?
A: What do you mean?
Q: So it sounds like you started working for him for the PAC. Was he your supervisor at the PAC?
A: He was my principal.
Q: And how did you develop—how, when did you develop a personal friendship with him, as opposed to professional?
A: Well, we worked very closely together and spent a lot of time together. I traveled with him, so naturally a friendship developed.
Q: And as personal friends, what is that—I'm just trying to get a sense of what that means to you. Do you guys have social dinners, you meet up socially?

A: We have in the past, yes.
Q: With his family or just with him?
A: Usually just with him.
Q: But not related to work?
A: That's correct.

Federal Ethics Laws and Regulations

Federal ethics rules prohibit federal employees from using public office for private gain.[3] The Director of the Office of Government Ethics, David Apol, sent a letter to EPA's Designated Agency Ethics Official on April 6, 2018, that raised concerns that Administrator Pruitt may have violated those laws.[4] Mr. Apol wrote:

> Nevertheless, reports of the Administrator making frequent official trips to his home state at Government expense to offset the expense of returning home for personal or political reasons do raise concerns about whether the Administrator is using his public office for personal gain in violation of ethics rules. Further, reports that the Administrator's subordinates may have assisted him in finding housing also raise concerns about whether the Administrator misused his position.[5]

Federal law also prohibits supervisors from soliciting gifts from their employees and from accepting gifts from subordinates that are not traditionally given or regularly exchanged for special occasions:

> (a) An employee may not—
>
> (1) solicit a contribution from another employee for a gift to an official superior;
>
> (2) make a donation as a gift or give a gift to an official superior; or
>
> (3) accept a gift from an employee receiving less pay than himself.
>
> (b) An employee who violates this section shall be subject to appropriate disciplinary action by the employing agency or entity.[6]

---

[3] 5 C.F.R. § 2635.702.

[4] Letter from David J. Apol, Acting Director and General Counsel, Office of Government Ethics, to Kevin Minoli, Principal Deputy General Counsel and Designated Agency Ethics Official, Environmental Protection Agency (Apr. 6, 2018) (online at https://oge.app.box.com/v/LettertoEPADAEO).

[5] *Id.*

[6] 5 U.S.C. § 7351.

In addition, the regulations implementing this statute state:

(b) Except as provided in this subpart, an employee may not, directly or indirectly, accept a gift from an employee receiving less pay than himself unless:

(1) The two employees are not in a subordinate-official superior relationship; and

(2) there is a personal relationship between the two employees that would justify the gift.[7]

The implementing regulations also have exceptions, but they do not appear to apply in this case:

(a) General exceptions. On an occasional basis, including any occasion on which gifts are traditionally given or exchanged, the following may be given to an official superior or accepted from a subordinate or other employee receiving less pay:

(1) Items, other than cash, with an aggregate market value of $10 or less per occasion;

(2) items such as food and refreshments to be shared in the office among several employees;

(3) personal hospitality provided at a residence which is of a type and value customarily provided by the employee to personal friends;

(4) items given in connection with the receipt of personal hospitality if of a type and value customarily given on such occasions; and

(5) leave transferred under subpart I of part 630of this title to an employee who is not an immediate supervisor, unless obtained in violation of § 630.912 of this title.[8]

The regulations define the term gift as follows:

(b) Gift includes any gratuity, favor, discount, entertainment, hospitality, loan, forbearance, or other item having monetary value. It includes services as well as gifts of training, transportation, local travel, lodgings and meals, whether provided in-kind, by purchase of a ticket, payment in advance, or reimbursement

[7] 5 C.F.R. § 2635.302(b).

[8] 5 C.F.R. § 2635.304.

after the expense has been incurred.[9]

The regulations also provide that employees must use official time to perform official duties:

(a) Use of an employee's own time. Unless authorized in accordance with law or regulations to use such time for other purposes, an employee shall use official time in an honest effort to perform official duties. An employee not under a leave system, including a Presidential appointee exempted under 5 U.S.C. 6301(2), has an obligation to expend an honest effort and a reasonable proportion of his time in the performance of official duties. ...

(b) Use of a subordinate's time. An employee shall not encourage, direct, coerce, or request a subordinate to use official time to perform activities other than those required in the performance of official duties or authorized in accordance with law or regulation.[10]

Request for Subpoena

For the reasons set forth above, we request that you issue a subpoena by June 18, 2018, compelling Administrator Pruitt to produce all of the documents requested in the letter sent to him on April 12, 2018, as well as the following documents relating to Ms. Hupp's interview statements to Committee staff:

(1) all documents and communications relating to Ms. Hupp's efforts to find Administrator Pruitt a mattress;

(2) all documents and communications relating to Ms. Hupp's efforts to secure personal travel for Administrator Pruitt;

(3) all documents and communications relating to EPA employees performing non-work related or personal tasks for Administrator Pruitt, including any discussion of the appropriateness or legality of those actions; and

(4) any agency policies, communications, or ethical guidance regarding EPA employees performing non-work related or personal tasks for their EPA supervisors, including the Administrator.

If you decide not to issue this subpoena, then we ask that you bring this matter before the Committee at the next regularly scheduled a business meeting so all Committee Members can have the opportunity to debate and vote on a motion to issue the subpoena.

---

[9] 5 C.F.R. § 2635.203.

[10] 5 C.F.R. § 2635.705.

Thank you for your consideration of this request.

Sincerely,

Elijah E. Cummings
Ranking Member

Gerald E. Connolly
Ranking Member
Subcommittee on Government Operations

cc: The Honorable Mark Meadows
Chairman, Subcommittee on Government Operations

Message

From: Vecera, Andrew [Andrew.Vecera@mail.house.gov]
Sent: 4/20/2017 6:36:19 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: RE: Congratulations

Thank you Byron! I wouldn't have had this opportunity without you taking a chance on me!

As an aside, to schedule a meeting with you and perhaps other EPA policy staff, who is the best person to contact?

From: Brown, Byron [mailto:brown.byron@epa.gov]
Sent: Thursday, April 20, 2017 2:34 PM
To: Vecera, Andrew
Subject: Congratulations

Heard about the promotion. Congratulations! Good luck and hope all is well. - Byron

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

Message

From: Castor, Stephen [Stephen.Castor@mail.house.gov]
Sent: 6/4/2018 5:38:17 PM
To: Brown, Byron [brown.byron@epa.gov]
CC: Lyons, Troy [lyons.troy@epa.gov]; Baptist, Erik [Baptist.Erik@epa.gov]
Subject: Re: minority letter

Hi Byron - I tried you a couple times and left voicemails last week. Sorry we didn't connect. We are not happy about the release of information by our Democratic colleagues, but were not afforded an opportunity to discuss, review, or object to their letter before it was transmitted. We first heard about from the press. I will send you the letter when I am able to get back to my desk. I've been completely out of pocket in several meetings today. I will give you a ring. -Steve

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Message

From: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Sent: 3/13/2017 6:52:41 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]; Brown, Byron [brown.byron@epa.gov]; Dravis, Samantha [dravis.samantha@epa.gov]
CC: Gunasekara, Mandy (EPW) [Mandy_Gunasekara@epw.senate.gov]
Subject: FW: AAPCA Comments on 2015 Ozone NAAQS Preliminary Interstate Transport Modeling Data
Attachments: removed.txt

The AAPCA comments on modeling are relevant to the WY SIP.

Susan

From: Clint Woods [mailto:cwoods@csg.org]
Sent: Monday, March 13, 2017 2:43 PM
To: Clint Woods <cwoods@csg.org>
Subject: AAPCA Comments on 2015 Ozone NAAQS Preliminary Interstate Transport Modeling Data

Today, the Association of Air Pollution Control Agencies (AAPCA) submitted comments to the U.S. Environmental Protection Agency (EPA) on its Preliminary Interstate Ozone Transport Modeling Data for the 2015 Ozone National Ambient Air Quality Standard (NAAQS), which was signed on December 28, 2016 and published in the Federal Register on January 6, 2017 This letter raises concerns about several technical and policy issues, and asks EPA to clarify Agency plans and provide updated, credible national modeling results for 2023, utilizing state inputs, by August 1, 2017 in order to provide the technical analysis needed for air agencies to meet the October 26, 2018 deadline for Good Neighbor State Implementation Plans (SIPs). The deadline to comment on this preliminary data is April 6, 2017, and AAPCA is compiling state and local air agency comments here.

This letter includes several suggestions for a more cooperative approach to addressing the requirements of Clean Air Act section 110(a)(2)(D)(i)(I) for the 2015 Ozone NAAQS:

- Providing credible tools and clear direction for development of approvable Good Neighbor SIPs for the 2015 Ozone NAAQS will allow U.S. EPA Administrator Pruitt to carry out the goal to "engage in a transparent process that will allow states to have a meaningful opportunity to understand their obligations with regard to reducing emissions that cause or contribute to nonattainment or interference with maintenance in other states through the SIP process."
- Air agencies have received mixed messages from U.S. EPA regarding future interstate transport actions and the reliability of this preliminary information as a basis for state analyses.
- AAPCA disagrees with EPA's inclusion of implementation of the Clean Power Plan in projections for 2023.
- Although EPA has "historically found that the 1 percent threshold is appropriate" in determining significant contributions, this approach is not preordained. EPA should consider whether an alternative threshold above 0.7 parts per billion is appropriate, particularly as this preliminary modeling includes complex, uncertain, six-year projections for linkages across long distances for contributions virtually undetectable by monitors.
- AAPCA is concerned about the continued reliance on the Integrated Planning Model, a proprietary model that often forces air agencies to guess about key inputs and assumptions.

In addition to tracking state and local environmental agency comments on this preliminary data, AAPCA is also compiling relevant comments on EPA's proposed rule, Implementation of the 2015 National Ambient Air Quality Standards for Ozone: Nonattainment Area Classifications and State Implementation Plan Requirements (comment period ended February 13, 2017), and EPA's proposed Response to December 9, 2013 CAA Section 176A Petition From Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New York, Pennsylvania, Rhode Island and Vermont (updated comment deadline: April 13, 2017). As a reminder, AAPCA has compiled state and local agency comments on the Interstate Transport Rule for the 2008 Ozone NAAQS ("CSAPR Update"), state designation recommendations for the

2015 ozone NAAQS, state/local comments on the proposed 2015 revisions to the ozone NAAQS, and surveys of state perspectives on background ozone and the need for timely NAAQS implementation tools.

This month, AAPCA also posted an updated version of the timeline, State Clean Air Act Deadlines, 2016 - 2021:

AAPCA is a consensus-driven organization focused on assisting state and local air quality agencies and personnel with implementation and technical issues associated with the federal Clean Air Act. The Association represents more than 40 state and local air agencies, and senior officials from 20 state environmental agencies currently sit on AAPCA's Board of Directors. AAPCA is based in Lexington, Kentucky as an affiliated association of the Council of State Governments (CSG). You can find more information about AAPCA at http://www.cleanairact.org or follow the Association on Twitter (@AAPCA_States).

Thanks!

Clint Woods
Executive Director
Association of Air Pollution Control Agencies
1776 Avenue of the States
Lexington, KY 40511
859.244.8040 – office
cwoods@csg.org
http://www.cleanairact.org

Message

From: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Sent: 3/10/2017 7:03:14 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
CC: Brown, Byron [brown.byron@epa.gov]; Dravis, Samantha [dravis.samantha@epa.gov]
Subject: draft IRIS doc

It is my understanding that that EPA (NCEA) is about to distribute for internal review a draft IRIS assessment for formaldehyde that fails to take into account data recently published (and soon to be published) in peer reviewed journals (by setting an arbitrary and secret cutoff date for considering information) and that fails to utilize the recent IRIS program changes regarding hazard identification and dose-response assessment (that were adopted at the recommendation of NAS).

Can you ask the appropriate person on your staff to review this matter before the draft is distributed for internal peer review? Or ask that person to call me?

Susan Parker Bodine
Chief Counsel
U .S. Senate Environment & Public Works Committee
410 Dirksen Senate Office Building
Washington, DC 20510
202-224-6176

Message

From: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Sent: 3/10/2017 2:57:57 PM
To: Richardson, RobinH [Richardson.RobinH@epa.gov]
CC: Jackson, Ryan [jackson.ryan@epa.gov]; Brown, Byron [brown.byron@epa.gov]
Subject: EPW hearing on March 29

Robin,

On March 29, at 10 am, EPW is holding a hearing titled "Cleaning Up the Cold War Legacy"

We have invited the Corps of Engineers to discuss FUDS and FUSRAP and are inviting EPA to provide a witness to discuss the NPL cold war legacy sites (I assume Merkley will focus on Hanford. Although not on topic, Gillibrand may take the opportunity to discuss emerging contaminants).
There will be a Wyoming state official to talk about the Atlas Missile sites in Wyoming.
There will also be 2 other witnesses, not yet identified.

As you can tell this would be a FFRRO issue. I recommend you send Barry Breen as your witness.

Please confirm your receipt of this email and the EPA witness.

Thank you,

Susan

Susan Parker Bodine
Chief Counsel
U .S. Senate Environment & Public Works Committee
410 Dirksen Senate Office Building
Washington, DC 20510
202-224-6176

Message

From: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Sent: 3/10/2017 2:17:51 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]; Brown, Byron [brown.byron@epa.gov]
Subject: WY SIP

We have not heard from EPA on the SIP issue.

On separate issue, we want to invite an EPA witness to discuss cold war legacy cleanups on March 29 – I recommend Barry Breen. Should I reach out to Robin Richardson?

From: Jackson, Ryan [mailto:jackson.ryan@epa.gov]
Sent: Thursday, March 9, 2017 8:45 PM
To: Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov>; Brown, Byron <brown.byron@epa.gov>
Subject: RE: Wy Assoc. of Conservation Districts - EPA tech report comments

Susan, what outreach have we done to change the SIP for WY?

From: Bodine, Susan (EPW) [mailto:Susan_Bodine@epw.senate.gov]
Sent: Thursday, March 9, 2017 5:06 PM
To: Jackson, Ryan <jackson.ryan@epa.gov>; Brown, Byron <brown.byron@epa.gov>
Subject: FW: Wy Assoc. of Conservation Districts - EPA tech report comments

I was unaware of this report until I saw the attached comments from the WY Assoc. of Conservation Districts. It was issued as a final report in December 2016. **The citation to the authority for the report is not accurate and must be corrected.** At page 7, footnote 2 it says:

"The two sections of the CWA related to the development of the information presented in this report are CWA Sections 304(a)(2) and 304(f). CWA Section 304(a)(2) generally requires EPA to develop and publish information on the factors necessary to restore and maintain the chemical, physical, and biological integrity of navigable waters. Section 304(a)(2) also allows EPA to provide information on the conditions necessary for the protection and propagation of shellfish, fish, and wildlife in receiving waters and for allowing recreational activities in and on the water. CWA Section 304(f) requires EPA to issue information to control pollution resulting from, among other things, "changes in the movement, flow, or circulation of any navigable waters." "

Section 304(a)(2) pertains to EPA criteria documents that provide guidance to states for establishing water quality standards. Flow is not a pollutant. If a state were to establish a standard based on flow it would not be reviewed by EPA because it is outside EPA's Clean Water Act authority. As a corollary, neither EPA nor an ENGO could require states to establish standards based on flow.

The reference to section 304(f) is correct. EPA is allowed to provide technical guidance on non-point source pollution and hydrologic modification.

The draft version of this report went so far as to include an Appendix entitled "Legal Background and Relevant Case Law" and an Appendix entitled "Overview of the Clean Water Act and Water Quality Standards Relevant to the Development and Use of Criteria for Hydrologic Condition." These appendices argue that EPA has authority to regulate flow. While these Appendices were not included in the final report – by citing section 304(a)(2) the report apparently is intended to support that argument. In fact, in the Response to Comments document, EPA reaffirms its view of its authority to regulate flow :

Comment Category 2 – Comments on the Case Law Appendix, Water Quality Standards and Policy Portions of the Document

Overview of Public Comments on this topic

Many commenters provided comments on the case law appendix, and the document's water quality standards and policy discussions. On the case law appendix, several commenters provided examples of case law that had not been included and that the commenters thought should be included to present a fuller picture of the case law on hydrologic alteration. Several commenters stated that the case law discussion should not be included in the document. Commenters questioned whether the intent of the document was truly to be a technical document or instead a justification for expansion of Federal authority.

Response to Comment Category 2

After careful consideration of public comments and the information provided in the report, EPA and USGS decided to remove the case law and the water quality standards appendices from the document so that the focus of the document is clearly on the technical information presented on potential impacts of hydrologic alteration and approaches that could be considered in developing quantitative flow targets, if desired. While agreeing to remove these sections from the document in response to public comments about the technical nature of the report, EPA and USGS do not think the discussion of case law presented in the draft document was inaccurate.

Comment Category 3 – Comments on Federal authority, state's rights and state's water rights

Overview of Public Comments on this topic

Several commenters expressed the concern that the draft document reflected an overreach of Federal authority and undermined state's rights, including state's water rights. Some commenters said that the case law appendix, water quality standards appendix, and policy discussion throughout the document illustrated their point. Some individuals, states, and organizations identified examples of language in the document that they thought demonstrated overreach of Federal authority.

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The report also must be revised to make it clear that state adoption of flow standards is an action taken under state law, and is not required by the Clean Water Act.

Please refer this matter to the appropriate person.

Susan Bodine

Susan Parker Bodine
Chief Counsel
U .S. Senate Environment & Public Works Committee
410 Dirksen Senate Office Building

Washington, DC 20510
202-224-6176

From: Glover, Kaitlynn (Barrasso)
Sent: Thursday, March 9, 2017 3:01 PM
To: Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov>
Subject: Wy Assoc. of Conservation Districts - EPA tech report comments

Susan, I wanted to pass along the Wyoming Association of Conservation Districts' comments on the referenced technical report.

Message

From: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Sent: 3/9/2017 10:06:01 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]; Brown, Byron [brown.byron@epa.gov]
Subject: FW: Wy Assoc. of Conservation Districts - EPA tech report comments
Attachments: FINAL COMMENTS on hydro alteration EPA USGS 6-9-16.pdf; Final Technical Report on Hydrologic Alteration.pdf

I was unaware of this report until I saw the attached comments from the WY Assoc. of Conservation Districts. It was issued as a final report in December 2016. **The citation to the authority for the report is not accurate and must be corrected.** At page 7, footnote 2 it says:

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potential impacts of hydrologic alteration and approaches that could be considered in developing quantitative flow targets, if desired. Sections 304(a)(2) and 304(f) of the CWA provide EPA with the authority to provide such technical information. CWA Section 304(a)(2) generally requires EPA to develop and publish information on the factors necessary to restore and maintain the chemical, physical, and biological integrity of navigable waters. Section 304(a)(2) also allows EPA to provide information on the factors necessary for the protection and propagation of shellfish, fish, and wildlife in receiving waters and for allowing recreational activities in and on the water. CWA Section 304(f) requires EPA to issue information to control pollution resulting from, among other things, "changes in the movement, flow, or circulation of any navigable waters."

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From: Glover, Kaitlynn (Barrasso)
Sent: Thursday, March 9, 2017 3:01 PM
To: Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov>
Subject: Wy Assoc. of Conservation Districts - EPA tech report comments

Susan, I wanted to pass along the Wyoming Association of Conservation Districts' comments on the referenced technical report.

conserving
natural resources
for our future

Wyoming Association of Conservation Districts
517 E. 19th Street - Cheyenne, WY 82001 - Phone: 307-632-5716 - Fax: 307-638-4099
www.conservewy.com

June 9, 2016

Via Certified Return Receipt & Portal: http://www.regulations.gov

U.S. Environmental Protection Agency
EPA Docket Center; Docket ID No. EPA-HQ-OW-2015-0335
Mail Code 28221T
1200 Pennsylvania Avenue, NW
Washington, DC 20460

RE: Docket ID No. EPA_HQ-OW-2015-0335; Protecting Aquatic Life from Effects of Hydrologic Alteration; Technical report

Dear Sir/Madam,

The Wyoming Association of Conservation Districts, on behalf of our 34 member districts, hereby submits the following comments pertaining to the above referenced report.

The Districts are authorized by Wyo. Stat. §§ 11-16-101 *et. seq.*, to implement soil and water conservation projects and programs, including but not limited to, flood prevention, the conservation, development, utilization and disposal of water within the district. The districts have taken the leadership role in water quality assessment, planning and implementation in the state to address those waters on the state's section 303(d) list of impaired and threatened waters. As such, they have intricate knowledge and expertise of local watershed conditions and work extensively with landowners and their local communities to implement best management practices aimed toward enhancing and improving water quality while maintaining economic stability of the agriculture industry.

The Association and its member districts are specifically involved in the implementation of several programs, projects and processes as it relates specific to federal Clean Water Act requirements and/or State Environmental Quality Act. These include, but are not limited to Section 305(b) State Water Quality assessments, Section 303 Water Quality Standards, Section 303(d) Water Quality impairment determinations/Total Maximum Daily Load programs; Section 404 permitting, Section 402, National Pollutant Discharge Elimination System, among others.

The extensive level of implementation activity related to water quality enhancement and improvement undertaken by conservation districts, specifically related to section 303(d), are detailed in the "Watersheds Progress Report" published periodically by the Association.[1] These reports also detail the significant financial investment that the districts, local communities, landowners/homeowners, and the state of Wyoming have put forth into water quality improvement efforts. Please note, that in 2011 the combined investment into watersheds over a span encompassing two years, 2009-2011, exceeded $21 million. A significant portion of this $21 million is non-federal, private, local and state government investments. All of these investments apply to those waters identified as impaired and threatened on the states section 303(d) list.

It is as a result of this extensive on the ground knowledge and expertise, that the Association can unequivocally question the appropriateness, or lack thereof, of this technical report.

Authority to allocate waters reserved to state

COMMENT:

Section 101(g) – Authority of States over water
"It is the policy of Congress that the authority of each State to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or otherwise impaired by this chapter. It is the further policy of Congress that nothing in this chapter shall be construed to supersede or abrogate rights to quantities of water which have been established by any State. Federal agencies shall cooperate with State and local agencies to develop comprehensive solutions to prevent, reduce and eliminate pollution in concert with programs for managing water resources."

It is extremely disturbing that the EPA completely disregards this provision of the Act and argues that courts have determined that this section does not limit the reach of the EPA into matters of water allocation and administration. As EPA is aware, this language was an amendment to the Act, commonly referred to as the "Wallop Amendment", and was advocated by US State Senator Malcolm Wallop, Wyoming. Rest assured it is commonly understood that the intent behind this amendment was to ensure that the federal agencies, namely EPA, did not attempt via the authorities of the Clean Water Act, to interfere in any way with a state's primacy and authority over water regulation. It is an insult to the late Senator as well as the state of Wyoming to suggest otherwise.

The congressional record on this amendment, in addition to the portion EPA selectively discusses in the report, includes the following:

> ***"It is designed to protect historic rights from mischievous abrogation by those who would use an act, designed solely to protect water quality and wetlands, for other purposes. It does not interfere with the legitimate purposes for which the act was designed. The amendment speaks only—but significantly—to the rights of States to allocate quantities of their water and to determine priority uses. It recognizes the differences in types of water law across the Nation. It***

[1] Watersheds Progress Report, 2005; 2007; 2009; 2011, 2015

> ***recognizes patterns of use. When Wyoming became a State and the Congress ratified our constitution in the Act of Admission, that constitution stated then and states today:***
> ***The water of all natural streams, springs, or lakes or other collections of still water within the boundaries of this State are hereby declared to be the property of the State.***
>
> ***Water quality and interstate movement is an acceptable Federal role and influence. But the States' historic rights to allocate quantity, and establish priority of usage remain inviolate because of this amendment. The Water Pollution Control Act was designed to protect the quality of water and to protect critical wetlands in concert with the various States. In short a responsible Federal role."*** [2]

Allocation and regulation of water quantity is reserved to the State and those authorities lie with the Wyoming State Engineer. Wyoming's initial water law predated her admittance as a state. Records indicate the earliest version of water law was put in place in our state in 1869.[3]

Further, the Wyoming Environmental Quality Act, specifically states that nothing in the act shall be construed to supersede or abrogate any valid water right. ***(35-11-302 et. seq.)***.

It is entirely inappropriate for two federal agencies to develop a technical report advocating actions that would run contrary to state law. It is apparent, this "technical report" is nothing more than an attempt to move in the direction the Wallop amendment fully intended to prohibit. The Association notes, of those individuals acknowledged for their review of the report none represent state water administration agencies or state water quality agencies in the west.

Allocation of federal resources

COMMENT: WACD is astounded that the EPA and USGS have apparently limitless funding and budgets to allow staff resources to be spent developing technical guidance for states to utilize to interfere with the allocation of water within their jurisdictions. WACD would stress that the agencies themselves acknowledge in the disclaimer provided in the preface of the report ***(page v)***, that the report and its recommendations "imposes no legally binding requirements on states or does it confer legal rights or impose legal obligations." Yet the mere fact that the agencies spent considerable time and resources on this document, leads us to believe that is exactly the direction intended. As such, we are unbelievably disturbed by this report and its intent. The Association looks forward to written confirmation from the agencies that there will be no further action such as water quality criterion, funding stipulations or any other manner of coercion placed on the states to implement the "recommendations" contained within the report.

Our local districts, as described in the above referenced Watersheds Progress Reports, work diligently and extensively with our local landowners, communities and local, state and federal entities, to

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[2] 95th Congress . 2d Session; CONGRESSIONAL RESEARCH SERVICE OF THE LIBRARY OF CONGRESS; Volume 3; OCTOBER 1978; SERIAL NO. 95-14; Printed for the use of the Committee on Environment and Public Works

[3] A HISTORY OF WATER LAW, WATER RIGHTS & WATER DEVELOPMENT IN WYOMING 1868-2002, June 2004; Craig O. Cooper, M.S.

implement watershed plans aimed at restoring water quality. These efforts are based on priority issues affecting our water quality. The priority issues our member districts are attempting to address require significant resources and are unrelated to the focus in this technical document. Since 2003, the state of Wyoming's Clean Water Act Section 319 funds have decreased over $780,000.00[4], yet the workload for the state and local governments have increased. If the agencies truly wanted to work towards water quality protection they would work with those closest to the on the ground needs. A technical report aimed at negatively interfering with state water allocation and management authorities is not one of those priority needs. Ironically, one of the greatest needs for Wyoming's local water quality efforts is to be able to utilize advanced science in determining sources of E. coli, yet in attempts to establish an affordable means to obtain lab analysis services through the Wyoming Department of Health Lab, EPA refuses to share the protocol.

WACD would suggest that if the agencies have these level of staff resources to spend on a technical report that so obviously intends to initiate actions to directly interfere with state water administration authorities, then Congress should redirect funding within the agencies to programs, such as the section 319 grant program, that actually address water quality challenges faced by the states.

It is disheartening to know that the agencies apparently have excess resources to spend on technical documents such as this, while those within the states and communities struggle to find adequate resources to address Clean Water Act mandated issues.

Failure to recognize impact to aquatic life of water development

COMMENT: In Wyoming there are approximately 25 rivers and streams, which produce surface flow 365 days per year (perennial), and leave the Wyoming borders.[5]

Wyoming's extensive water development program has resulted in providing for perennial flows in many of our river basins that would otherwise be intermittent and dry up. These developments have also created some of the finest fisheries in the West. This technical report and the documents relied upon, completely fails to acknowledge and recognize that fact. Figure 1. Below depicts areas of blue ribbon fisheries and water development projects demonstrating this reality.

[4] Correspondence from Wyoming Department of Environmental Quality; Nonpoint Source Program Manager
[5] Wyoming Watersheds and Riparian Zones; Q. Skinner, K. Crane, J. Hiller, J. D. Rodgers; 2000

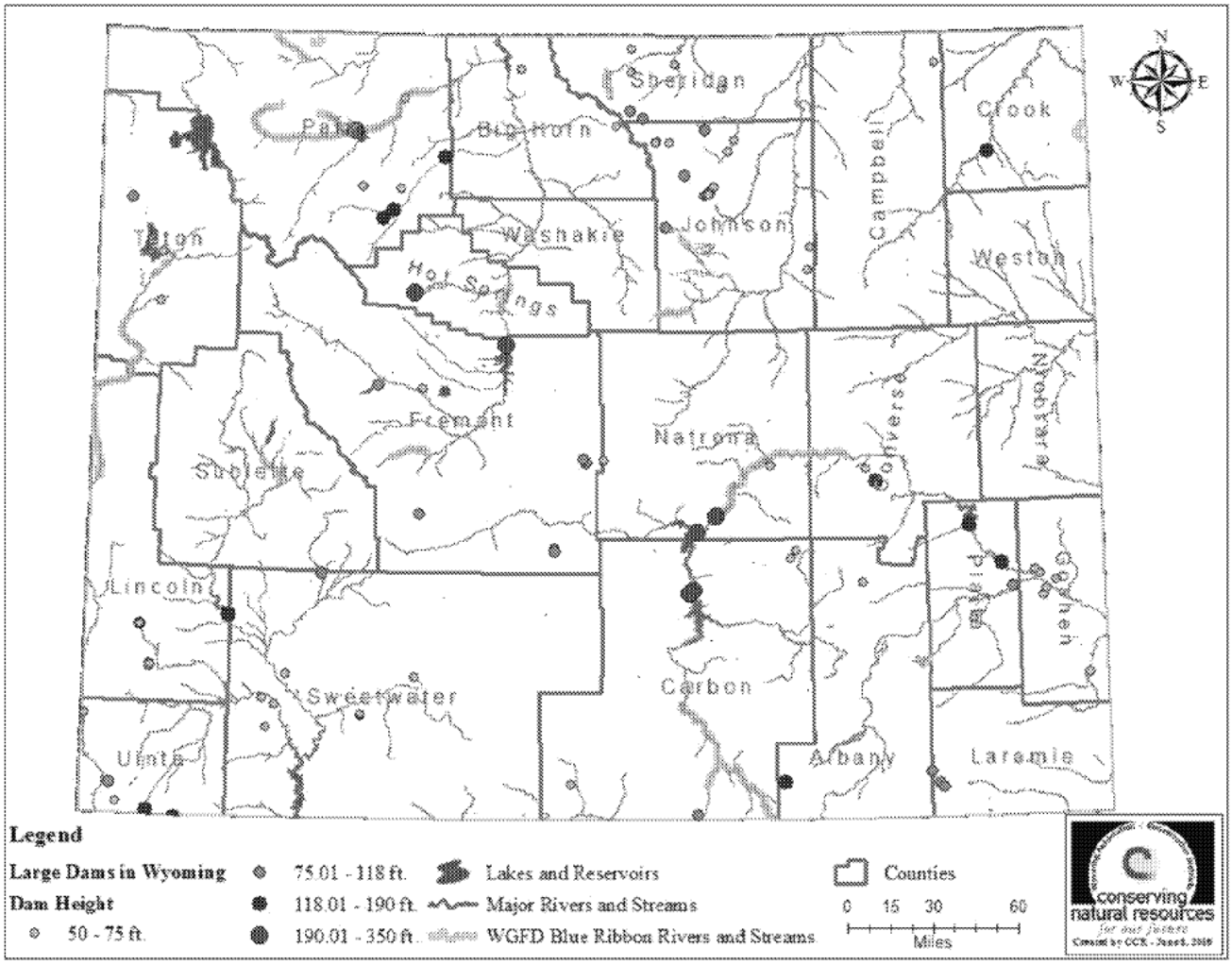


Figure 1. Wyoming's major river basins, blue ribbon trout fisheries and water developments.

Lack of recognition and impacts on other resource values

With private ownership making up 42 percent of Wyoming's land, and with 48 percent or over 30 million acres, of the total acres in Wyoming used for production agriculture[6], agriculture is a $2.2 billion dollar industry in Wyoming[7]. As the third largest economic sector, the stability of the state's economy depends on agriculture.

With Wyoming's arid climate, agriculture could not thrive without the state's water supply. Approximately 80 percent to 85 percent of all use of water within Wyoming is used for agriculture, and 60 percent of all farms and ranches are irrigated.[8] Besides providing food and fiber, farmers and

[6] **http://www.wyfb.org/education/ag-facts**
[7] https://www.nass.usda.gov/Statistics_by_State/Wyoming/Publications/Annual_Statistical_Bulletin/WY_2015_Bulletin.pdf
[8] **http://library.wrds.uwyo.edu/wrp/93-12/93-12.html**

ranchers also provide critical winter habitat for 75 percent of Wyoming's wildlife.[9] A negative impact to Wyoming's agriculture sector and its 11,700 plus farms and ranches[10] has a rippling effect on many other components of our natural environment and our economic stability.

Further, despite withdraws from both surface and groundwater sources, research demonstrates that an estimated 75 percent of withdraws return to the system within one year in normal precipitation years and 50 percent in a drought year.[11]

It is apparent that this technical report does not adequately and thoroughly review the positive impacts to systems from irrigation practices and rather immediately assumes withdraws and water development have had a negative impact.

Conclusion

This technical report does nothing to advance clean water goals in recognition of state primacy, local government priorities or impacts to vital natural resource based industries.

This report provides a very narrow perspective of one resource issue, and fails to consider all other resource issues and values, and shows a complete disregard for those living and working within these watersheds. Obviously no attempt was made to seek state or local review of this report.

This report and its content are indicative of why it is absolutely imperative that the discussion of the relationship between quantity and quality must be maintained at the state level as it's clear that the agencies have little to no knowledge of water law history, water administration, and water development in the west. Nor did the agencies attempt to reach out to those that do in the drafting of this report.

In closing, this report is a blatant attempt to begin the process of requiring states to usurp water rights. It is technically and legally flawed. WACD requests that the technical report be withdrawn and any further efforts of this nature by EPA be abandoned. It is yet one more example of why EPA's relationship with state and local governments and citizens, continues to erode on a daily basis. Wyoming's water resources are best managed for the tourism, recreational, agricultural, municipal and environmental benefits they provide, by Wyoming.

Sincerely,

Shaun Sims
President

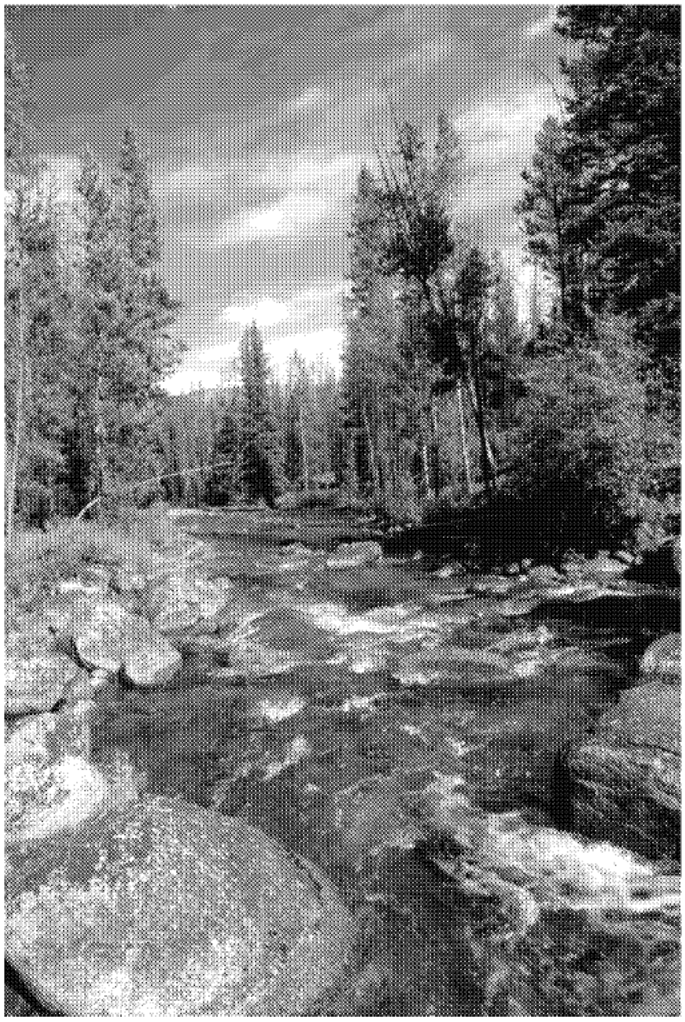
---

[9] http://www.wybeef.com/wyomingagindustryfacts.aspx
[10] http://eadiv.state.wy.us/Wy_facts/facts2015.pdf
[11] http://library.wrds.uwyo.edu/RB/RB92-103.html

SS/bkf

Cc: The Honorable Matt Mead, Governor State of Wyoming
Wyoming's Congressional Delegation
Wyoming Department of Agriculture
Wyoming Department of Environmental Quality
Wyoming State Engineer
National Association of Conservation Districts
Wyoming Stock Growers
Wyoming Farm Bureau Federation
Wyoming Wool Growers

Final EPA-USGS Technical Report: Protecting Aquatic Life from Effects of Hydrologic Alteration



EPA Report 822–R–16–007

USGS Scientific Investigations Report 2016–5164

ED_002512_00000178-00001

U.S. Department of the Interior

U.S. Geological Survey

United States

Environmental Protection Agency

For more information concerning this document contact:

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Diana M. Eignor
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U.S. Geological Survey
Jonathan G. Kennen
New Jersey Water Science Center
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Lawrenceville, NJ 08648
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Email: jgkennen@usgs.gov

Cover. Redfish Lake Creek, Stanley, Idaho. (Photo by Daniel Hart, U.S. Environmental Protection Agency)

ED_002512_00000178-00002

ED_002512_00000178-00003

Final EPA-USGS Technical Report: Protecting Aquatic Life from Effects of Hydrologic Alteration

By Rachael Novak[1], Jonathan G. Kennen[2], Ralph W. Abele[3], Carol F. Baschon[4], Daren M. Carlisle[5], Laura Dlugolecki[6], Diana M. Eignor[7], Joe E. Flotemersch[8], Peter Ford[9], Jamie Fowler[10], Rose Galer[11], Lisa Perras Gordon[12], Susan E. Hansen[13], Bruce Herbold[14], Thomas E. Johnson[15], John M. Johnston[16], Christopher P. Konrad[17], Beth Leamond[18], and Paul W. Seelbach[19].

1. Bureau of Indian Affairs, Washington, D.C. (Formerly with U.S. Environmental Protection Agency (EPA), Office of Water, Office of Science and Technology, Washington, D.C.)
2. U.S. Geological Survey (USGS), New Jersey Water Science Center, Lawrenceville, New Jersey
3. EPA, Region 1, Office of Ecosystem Protection, Boston, Massachusetts
4. EPA, Region 4, Office of Regional Counsel, Atlanta, Georgia
5. USGS, Kansas Water Science Center, Lawrence, Kansas
6. Former Oak Ridge Institute for Science and Education (ORISE) participant in EPA Office of Water, Office of Wetlands, Oceans and Watersheds, Washington, D.C.
7. EPA Office of Water, Office of Science and Technology, Washington, D.C.
8. EPA, Office of Research and Development, National Exposure Research Lab, Cincinnati, Ohio
9. EPA, Office of General Counsel, Washington, D.C.
10. EPA, Office of Water, Office of Wetlands, Oceans and Watersheds, Washington, D.C.
11. Former ORISE participant in EPA Office of Water, Office of Science and Technology Standards and Health Protection Program, Washington, D.C.
12. EPA, Region 4, Water Quality Standards, Atlanta, Georgia
13. EPA, Region 4, Office of Regional Counsel, Atlanta, Georgia
14. EPA, Region 9 (retired), San Francisco, California
15. EPA, Office of Research and Development, National Center for Environmental Assessment, Arlington, Virginia
16. EPA, Office of Research and Development, National Exposure Research Lab, Athens, Georgia
17. USGS Geological Survey, Washington Water Science Center, Tacoma, Washington
18. EPA Office of Water (retired), Office of Science and Technology, Washington, D.C.
19. USGS Geological Survey, Great Lakes Science Center, Ann Arbor, Michigan

Jointly prepared by the U.S. Environmental Protection Agency and U.S. Department of the Interior, U.S. Geological Survey

EPA Report 822–R–16–007

USGS Scientific Investigations Report 2016–5164

U.S. Department of the Interior | United States

U.S. Geological Survey | Environmental Protection Agency

ED_002512_00000178-00004

U.S. Department of the Interior
SALLY JEWELL, Secretary

U.S. Geological Survey
Suzette M. Kimball, Director

U.S. Geological Survey, Reston, Virginia: 2016

U.S. Environmental Protection Agency
GINA McCARTHY, Administrator

Office of Water
Joel Beauvais, Deputy Assistant Administrator

U.S. EPA, Washington, DC: 2016

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Foreword

This report, developed collaboratively by the U.S. Environmental Protection Agency (EPA) and the U.S. Geological Survey (USGS), provides scientific and technical support for efforts by states and Tribes to advance the protection of aquatic life from the adverse effects of hydrologic alterations in streams and rivers. The report presents: a literature review of the natural flow regime and description of the potential effects of flow alteration on aquatic life (Section 4); examples of narrative criteria that some states have developed to support the natural flow regime and maintain healthy aquatic biota (Section 5); and a flexible, non-prescriptive framework that can be used by states, Tribes, and territories to quantify targets for flow regime components that are protective of aquatic life (Section 6).

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The USGS and the EPA have made every effort to ensure the accuracy of the technical information in this document. Depending on individual circumstances, the general descriptions provided here may not apply to a given situation. Interested parties are free to raise questions and objections about the substance of this document and the appropriateness of the application of the information presented to a specific situation. This document does not make any judgment regarding any specific data collected or determinations made as part of a state or tribal water-quality program. State and tribal decision makers retain the discretion to adopt approaches on a case-by-case basis that differ from the approaches described in this report.

The USGS, in accordance with its mission to collect and disseminate reliable, impartial, and timely scientific information that is needed to understand the Nation's water resources, collaborated with the EPA on Sections 1-4, 6, and Appendix B only.

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Conversion Factors

International System of Units to Inch/Pound

Multiply	By	To obtain
Length		
centimeter (cm)	0.3937	inch (in.)
meter (km)	3.2808	foot (ft)
kilometer (km)	0.6213	mile (mi)
	Area	
square meter (m^2)	0.00025	Acre
square kilometer (km^2)	0.3861	square mile (mi^2)
hectare (ha)	2.4710	Acre
	Volume	
cubic meter (m^3)	35.3147	cubic foot (ft^3)
cubic meter (m^3)	0.00026	million gallon (gal)
	Flow rate	
cubic meter per second per square kilometer [$(m^3/s)/km^2$]	91.47	cubic foot per second per square mile [$(ft^3/s)/mi^2$]
cubic meter per second (m^3/s)	22.8244	million gallons per day (Mgal/d)

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as °F = (1.8 × °C) + 32.

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Acronyms

Acronym/Abbreviation	Definition
CADDIS	Causal Analysis/Diagnosis Decision Information System
CFR	Code of Federal Regulations
CWA	Clean Water Act
ELOHA	Ecological Limits of Hydrologic Alteration
EPA	U.S. Environmental Protection Agency
ERA	Ecological Risk Assessment
GCM	General Circulation Model
GIS	Geographic Information System
HSP	Healthy Streams Partnership
IBI	Index of Biotic Integrity
IPCC	Intergovernmental Panel on Climate Change
MS4	Municipal Separate Storm Sewer System
NHD	National Hydrography Dataset
NID	National Inventory of Dams
NPDES	National Pollutant Discharge Elimination System
STORET	EPA Storage and Retrieval Data Warehouse
TCEQ	Texas Commission on Environmental Quality
TMDL	Total Maximum Daily Load
USGS	U.S. Geological Survey
WQS	Water Quality Standards

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1 Abstract

The natural flow regime of a water body, defined as its characteristic pattern of flow magnitude, timing, duration, frequency, and rate of change, plays a critical role in supporting the chemical, physical, and biological integrity of streams and rivers and the services they provide[1]. Human-induced alteration of the natural flow regime can degrade a stream's physical and chemical properties, leading to loss of aquatic life and reduced aquatic biodiversity. Protecting aquatic life from the effects of flow alteration involves maintaining multiple components of the flow regime within their typical range of variation. This report was developed[2] (1) to serve as a source of information for states, Tribes, and territories on the natural flow regime and potential effects of flow alteration on aquatic life and (2) to provide a flexible, nonprescriptive framework that can be used to quantify targets for flow regime components that are protective of aquatic life. As a supplementary resource, Appendix A was added to provide examples where states and Tribes have applied Clean Water Act (CWA) tools to protect aquatic life from altered flow.

Anthropogenic landscape change and water management activities are modifying flood flows, base flows, peak-flow timing, and other flow characteristics in streams and rivers throughout the United States. Under natural conditions, a stream's flow regime is determined by hydrologic properties at two scales, the upstream drainage area (catchment) and the local, reach scale. At the catchment scale, climate determines patterns of water and energy input over time, whereas physical characteristics like soils, geology, and topography

---

[1] The objective of the Clean Water Act (CWA) is to "restore and maintain the chemical, physical and biological integrity of the Nation's waters" (Section 101(a)).

[2] The two sections of the CWA related to the development of the information presented in this report are CWA Sections 304(a)(2) and 304(f). CWA Section 304(a)(2) generally requires EPA to develop and publish information on the factors necessary to restore and maintain the chemical, physical, and biological integrity of navigable waters. Section 304(a)(2) also allows EPA to provide information on the conditions necessary for the protection and propagation of shellfish, fish, and wildlife in receiving waters and for allowing recreational activities in and on the water. CWA Section 304(f) requires EPA to issue information to control pollution resulting from, among other things, "changes in the movement, flow, or circulation of any navigable waters."

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determine pathways, rates of runoff, and routing through the stream network. Reach-scale factors such as local groundwater dynamics further influence natural flow regime characteristics. Human activities that alter the natural flow regime also occur at both the catchment and reach scales and include impoundments, channelization, diversions, groundwater pumping, wastewater discharges, urban development, thermoelectric power generation, and agricultural practices. Many of these activities alter hydrologic processes like infiltration, groundwater recharge, channel storage, or routing and lead to flow conditions outside the natural range of variation. Others directly add or remove water from a stream such that flows are uncommonly high or low over long periods of time. Occurring in conjunction with these activities is climate change. Climate trends observed in recent decades and future projections (for example, rising ambient air temperatures, increasing frequency of heavy precipitation events, reductions in the thickness of snow pack and ice) may magnify the effects of other anthropogenic processes on the natural flow regime.

Alteration of the natural flow regime can have cascading effects on the physical, chemical, and biological properties of riverine ecosystems. Effects on physical properties include altered channel geomorphology (channel incision, widening, bed armoring, etc.), reduced (or augmented) riparian and flood-plain connectivity, and reduced (or augmented) longitudinal (upstream-downstream) and vertical (surface water/groundwater) connectivity. Effects on water quality can also result from altered flow magnitudes. For example, salinity, sedimentation, and water temperature can increase when flow volumes are reduced, whereas erosion and sediment transport can increase with amplified flow volumes. These changes to a stream can in turn lead to the degradation of aquatic life as a result of the loss and disconnection of high-quality habitat. Furthermore, altered flows can fail to provide the cues needed for aquatic species to complete their life cycles and can encourage the invasion and establishment of non-native aquatic species. The ability of a water body to support aquatic life is tied to the maintenance of key flow-regime components.

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Efforts to implement strategies to protect aquatic life from flow alteration will be most effective if numeric targets are identified for flow-regime components that equate to intact and healthy aquatic communities. This report presents a flexible framework that can be used to quantify flow targets that incorporate U.S. Environmental Protection Agency Guidelines for Ecological Risk Assessment (ERA) and concepts from contemporary environmental flow literature. The framework consists of eight steps that begin with identifying biological goals and assessment endpoints and end with an evaluation of effects on aquatic life under varying degrees of flow alteration. The framework does not prescribe any particular analytical approach (for example, statistical or mechanistic modeling methodology), but rather focuses on the process and information needed to evaluate relations between flow and aquatic life and the development of narrative or numeric flow targets.

2 Introduction

Healthy aquatic ecosystems provide an array of services to individuals and society, including clean drinking water, irrigation supplies, and recreational opportunities (U.S. Environmental Protection Agency, 2012c). Sound and sustainable management of aquatic ecosystems is an integral part of managing water resources to meet the needs of society and the goals of the Clean Water Act (CWA; see Box A).

Box A. Goals of the Clean Water Act

In 1972, with the objective of protecting lakes, rivers, streams, estuaries, wetlands, coastal waters, oceans, and other water bodies, the U.S. Congress enacted the Clean Water Act (CWA). The overall objective of the CWA is to "restore and maintain the chemical, physical and biological integrity of the Nation's waters" (Section 101(a)). In addition, the CWA establishes as an interim goal "water quality which provides for the protection and propagation of fish, shellfish and wildlife and provides for recreation in and on the water," wherever attainable (Section 101(a)(2)).

Freshwater aquatic ecosystems are the most altered ecosystems globally; they exhibit declines in biodiversity that far outpace those of terrestrial or marine ecosystems (Dudgeon and others, 2006; Strayer and Dudgeon,

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2010). Although discharge of contaminants ranks as a top threat to aquatic biodiversity, other important sources of stress include urbanization, agriculture practices, and engineered structures used for water-resource development (Vörösmarty and others, 2010). These factors directly and indirectly alter the natural hydrology of a catchment and can have cascading effects on aquatic organisms (Poff and others, 1997). Today's water-resource managers face a common challenge: balancing the needs of a growing human population with the protection of natural hydrologic regimes to support aquatic life, ecosystem health, and services of crucial importance to society (Annear and others, 2004; Postel and Richter, 2003). Further complicating this challenge are expected changes to historic hydrologic conditions as a result of climate change, which add complexity to the task of estimating acceptable levels of hydrologic variation (Milly and others, 2008).

The natural flow regime, defined as the characteristic pattern of flow magnitude, timing, duration, frequency, and rate of change, plays a critical role in supporting the ecological integrity of streams and rivers and the services they provide (Figure 1). Human-induced alteration of the natural flow regime can degrade the physical, chemical, and biological properties of a water body (Annear and others, 2004; Bunn and Arthington, 2002; Naiman and others, 2002; Poff and others, 1997; Poff and Zimmerman, 2010; and many others). For example, an increase in the duration and frequency of high flows can degrade aquatic habitat through scouring and streambank erosion. More frequent low-flow conditions can degrade water quality through elevated concentrations of toxic contaminants resulting from decreased dilution, increased temperatures, or a decrease in dissolved-oxygen concentration. Lower flows can reduce sensitive taxa diversity and abundance, alter life cycles, cause mortality in aquatic life, and promote the expansion of invasive plants and animals (Bunn and Arthington, 2002; Poff and Zimmerman, 2010).

Hydrologic alteration (also referred to as "flow alteration" in this document) can be a primary contributor to the impairment of water bodies that are designated to support aquatic life. Addressing flow conditions can

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contribute to a comprehensive approach to managing and protecting water quality, improving aquatic restoration efforts, and maintaining designated and existing uses (for example, aquatic life, cold-water or warm-water fisheries, economically or recreationally important aquatic species). As the science of flow ecology has uncovered aquatic life needs across the full spectrum of the flow regime (base flows, high flows, etc.), water resource-managers are starting to recognize that protecting aquatic life from the adverse effects of flow alteration involves maintaining multiple components of the flow regime within their typical range of variation. This perspective requires an understanding of natural flow variability over space and time and the many ways in which biota respond to varied flow conditions.

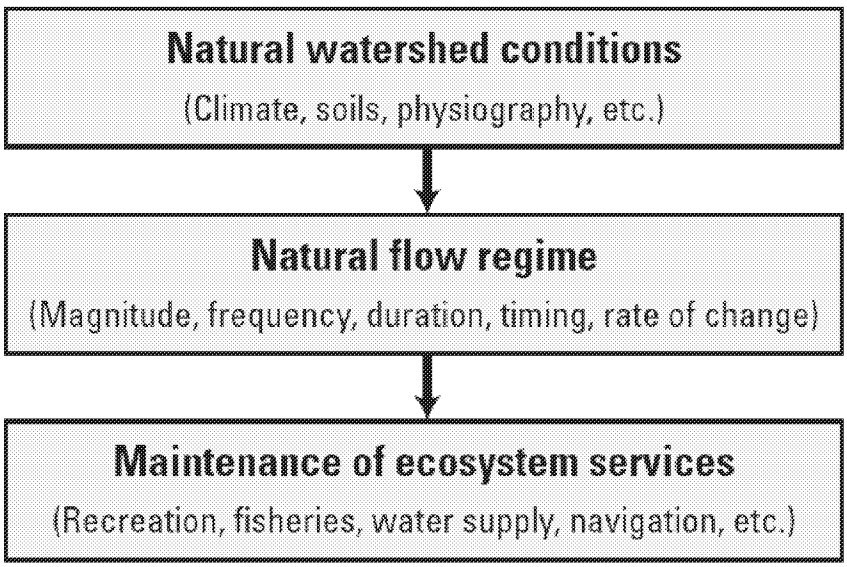

Figure 1. Schematic diagram depicting the interaction between the natural flow regime, natural watershed conditions and the many ecosystem services it helps to maintain.

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3 Purpose, Scope, and Overview

3.1 Purpose and Scope

The purpose of this report is threefold. First, it describes the effects of flow alteration on aquatic life designated uses in streams, rivers, and other natural flowing water bodies. Second, it gives examples of states and Tribes that have narrative flow standards. Third, it provides a flexible, nonprescriptive framework that can be used to quantify flow targets to protect aquatic life from the effects associated with flow alteration. As a supplementary resource, Appendix A was added to provide examples where states and Tribes have applied CWA tools to protect aquatic life from altered flow. Non-flowing waters (lakes or wetlands, for example) and non-freshwater systems (estuaries, tidal waters) are not discussed in this report, nor are other designated uses such as recreation or drinking water, although they also can be affected by hydrologic alteration and can benefit from measures to maintain or restore hydrologic conditions.

This report was developed by the U.S. Environmental Protection Agency (EPA) in collaboration with the U.S. Geological Survey (USGS) in response to evidence that flow alteration has adversely affected the biological integrity of water bodies throughout the United States (Bunn and Arthington, 2002; Carlisle and others, 2010; Poff and Zimmerman, 2010). The information presented is drawn from the Guidelines for Ecological Risk Assessment (U.S. Environmental Protection Agency, 1998), relevant environmental flows literature (for example, Bunn and Arthington, 2002; Petts, 2009; Poff and Zimmerman, 2010), and the experience of states and Tribes that have adopted narrative flow criteria to protect aquatic life uses in their waters.

3.2 Overview

Section 4 is a summary of available scientific information about the effects of flow alteration on ecosystems, including the role of climate change, which can exacerbate the stresses that result from flow alteration. Section 5 provides examples of states and Tribes that have established narrative flow standards and Section 6 presents a flexible, nonprescriptive framework that can be used to quantify targets for flow regime

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components that are protective of aquatic life. Section 6 includes examples of quantification to support states, authorized Tribes, and territories (hereinafter, "states") that wish to adopt flow criteria to protect aquatic life designated uses in their Water Quality Standard regulations. This section also describes the potential role of using narrative criteria as a tool to manage flow to restore and maintain aquatic ecosystems. Appendix A contains examples where states and Tribes have applied CWA tools to protect aquatic life from altered flow.

Climate change is one category among a range of stressors that is likely to increase the vulnerability of rivers and streams to flow alteration and affect the ecosystem services they provide (see Section 4.3.6). Given the inherent difficulties associated with climate change assessment, many natural-resource management agencies will likely encounter increasing challenges as they work to protect and restore the health of aquatic ecosystems. Appendix B provides examples of vulnerability assessments of freshwater aquatic life and environmental flows related to climate change.

3.3 Who Can Use This Information?

This report presents scientific information that can help water-resource managers improve the protection of flow for aquatic life uses. Additionally, it serves as a source of information for a broad stakeholder audience involved in water-resource management and aquatic life protection.

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4 Effects of Altered Flow on Aquatic Life

This section describes the scientific principles of the natural flow regime, hydrologic alteration, and ecological responses to altered flows and presents a general conceptual model of the effects of flow alteration on aquatic life. Potential causes of various types of hydrologic change are outlined and pathways to degraded biological conditions are discussed.

4.1 Conceptual Model of the Biological Effects of Flow Alteration

In Ecological Risk Assessment (Box B, below), a conceptual model consists of a written description and diagram of the relations and pathways between human activities (sources), stressors, and direct and indirect effects on ecological entities (U.S. Environmental Protection Agency, 1998). A conceptual model links one or more stressors to ecological assessment endpoints that are important for achieving management goals. Under the CWA, management goals are established by states as designated uses of waters (for example, to support aquatic life) and criteria to protect those uses.

Box B. Ecological Risk Assessment

Ecological Risk Assessment (ERA) provides a framework for evaluating the likelihood that adverse ecological effects may occur or are occurring as a result of exposure to one or more stressors (U.S. Environmental Protection Agency, 1998). It can apply to a range of environmental problems associated with chemical, physical, and biological stressors, including evaluating the risk posed to aquatic life by flow alteration. A key step in the first phase of the ERA process, problem formulation, is the development of a conceptual model that explicitly demonstrates the hypothesized relations between ecological entities and the stressors to which they may be exposed.

The flow alteration conceptual model (Figure 2) describes in a general way how various stressors can alter the natural flow regime, how flow alteration affects the chemical and physical conditions of an aquatic ecosystem,

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and how those changes may ultimately reduce the ability of a stream to support aquatic life. The general model is intended only to provide a foundation for detailed regional or catchment models; for a specific area, specific types of flow alteration and biological responses should be identified.

The general conceptual model of the biological effects of flow alteration presented in this report (Figure 2) is a broad framework relating hydrologic alteration and its sources to degraded aquatic life. The model is constructed around the following concepts and relations.

- A stream's natural flow regime is primarily a function of climate and physical catchment-scale properties, and is further affected by local, reach-scale conditions.
- The natural flow regime supports the integrity of aquatic life by maintaining habitat of sufficient size, character, diversity, and connectivity by supporting natural sediment, organic material, water temperature, and water chemistry regimes and by providing cues for spawning, migration, and other life-history strategies.
- A variety of human activities that change pathways and rates of runoff, modify channel storage and dimensions, or directly add water to or remove water from streams can alter the natural flow regime.
- Alteration of the natural flow regime leads to changes in water temperature and chemistry and (or) the physical properties of streams and adjacent riparian areas and flood plains. Feedback between altered flow and altered physical properties can further modify flow characteristics. Changes to stream chemical and physical condition following flow alteration can lead to the reduction, elimination, or disconnection of optimal habitat for aquatic biota.
- Biological responses to flow-mediated changes in stream chemistry and physical habitat can have cascading effects across trophic levels and aquatic communities, which may result in degraded aquatic life as determined by measures of effect (for example, survival, growth, and reproduction of aquatic biota).

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The following sections describe the components of the general conceptual model. A detailed conceptual model of flow alteration with explicit directional relations is provided in Section 6.4. For detailed conceptual models developed for the EPA Causal Analysis/Diagnosis Decision Information System (CADDIS), see U.S. Environmental Protection Agency (2012a), https://www3.epa.gov/caddis/.

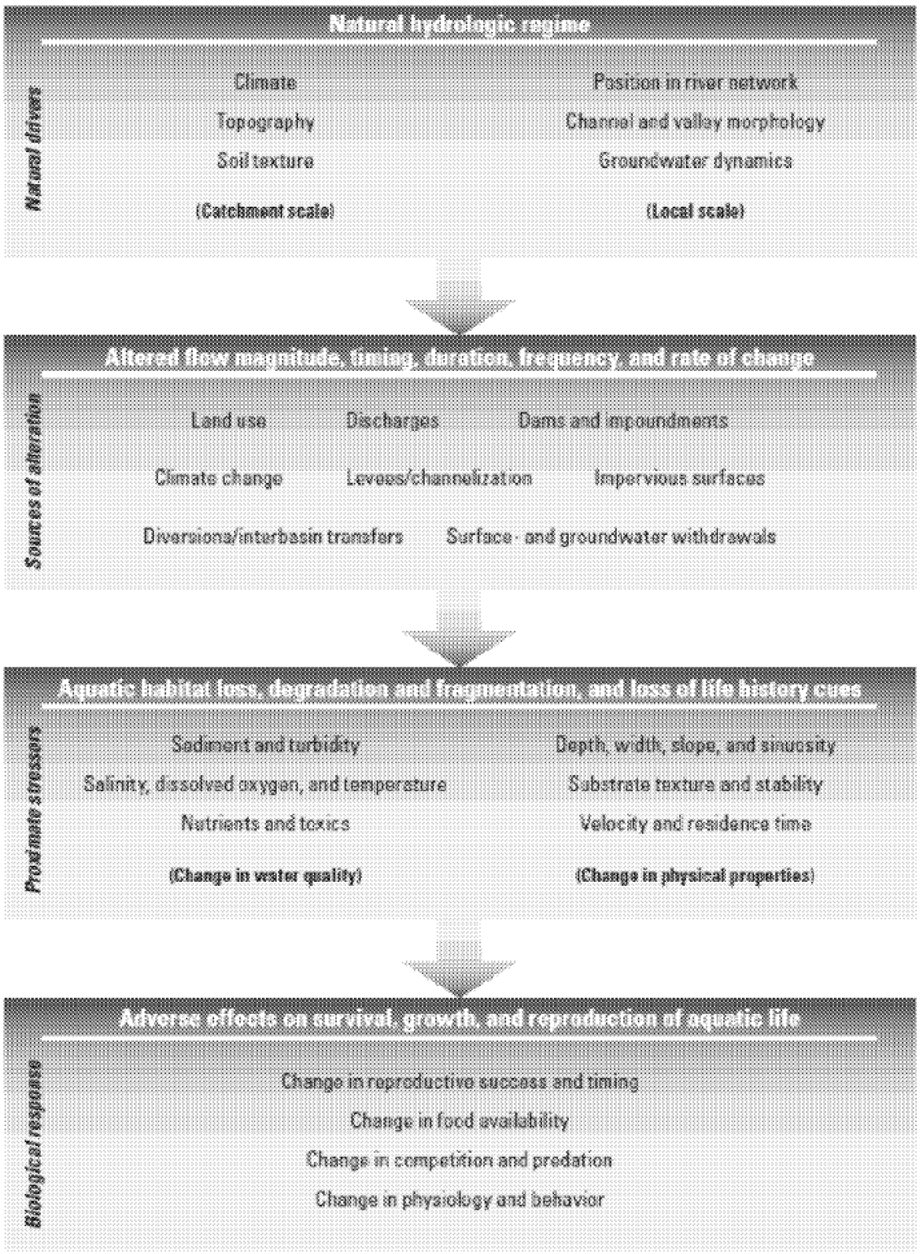

Figure 2. Schematic diagram illustrating a generalized conceptual model of the biological effects of flow alteration.

4.2 Drivers of the Natural Flow Regime

The natural flow regime is the characteristic pattern of flow in a stream under natural conditions. Poff and others (1997) present five components of the natural flow regime that are critical to aquatic ecosystems:

- the *magnitude* of flow over a given time interval (for example, average flow rate [reported in either cubic feet per second or cubic meters per second] during the month of April, or the spring season);
- the *frequency* with which flow is above or below a threshold value (for example, the number of times that flow exceeds the long-term average in one year);
- the *duration* of a flow condition over a given time interval (for example, the number days in a year during which the flow exceeds some value);
- the *timing* of a flow condition (for example, the date of the annual peak flow); and
- the *rate of change* of flow (for example, how rapidly flow increases during a storm event).

A stream's natural flow regime is largely a function of the climate and physical properties of its unique upstream drainage area (catchment[3]). Climate determines patterns of water and energy input over time, whereas physical catchment characteristics such as soils, geology, vegetation, and topography determine infiltration pathways (surface or subsurface) and rates of runoff and routing of streamflow through the drainage network. For example, a large proportion of rainfall in a catchment dominated by steep slopes and poorly-permeable soils will be converted to surface runoff that is quickly routed through the channel network. The flow regime of a stream in such a catchment would be characterized by high peak flows relative to average conditions, high rates of hydrologic change during and after storm events, and relatively low dry-

[3] The term "catchment" throughout this report refers specifically to the unique drainage area upstream from a stream reach of interest. Although the term "watershed" also fits this definition, catchment is used in this report because managers use the term "watershed" to describe larger geographic or planning units within a state or region.

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weather flows. In contrast, in a catchment dominated by well-drained soils and abundant natural vegetation, peak flows would more closely match average flows as a result of higher rates of infiltration and groundwater routing to the stream channel.

Although the natural flow regime is driven primarily by catchment-scale properties, flow characteristics are also affected by local-scale drivers specific to individual stream reaches and the location of the reach within the river network. Heterogeneity of local topography and geology, for example, can result in variable groundwater inputs among reaches with similar catchment-scale properties. Other potential local-scale drivers of the natural flow regime include channel morphology and riparian vegetation, although such characteristics are themselves affected by the flow regime.

4.3 Sources of Flow Alteration

The natural flow regime is driven by both catchment and local properties; human activities that alter the natural flow regime also occur at both of these scales. Changes to water quantity (flow volume) may result in loss of the designated use, such as when perennial streams or rivers are anthropogenically dewatered or intermittent streams are dewatered permanently or well beyond their natural variability. This section describes the major potential sources of flow alteration and their typical effects on the natural flow regime. Other sources of flow alteration (for example, artificial perennialization of intermittent streams [see Section 4.3.4]) may need to be considered depending on local or regional circumstances.

Recent assessments indicate that hydrologic alteration is pervasive in the Nation's streams and rivers. In a national assessment, the USGS found that human alteration of waterways has affected the magnitude of minimum and maximum streamflows in more than 86 percent of monitored streams (Carlisle and others, 2013). In addition, human-caused depletion of minimum and maximum flows was associated with a twofold

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increase in the likelihood of effects on fish and macroinvertebrate communities[4] (Carlisle and others, 2011). Sources of such effects may include groundwater and surface-water withdrawals, new and existing dams, impoundments and reservoirs, interbasin transfers, altered channel morphology, impervious cover, culverts, stream crossings and water diversions. Human adaptations to increased drought, including expansion of surface- and groundwater uses, may compound these effects by decreasing the magnitude of low flows and increasing the frequency and duration of low flows in streams and rivers. Alterations in high flows can affect use; for instance, an increase in impervious surface area may cause an increase in flow, resulting in deleterious alterations to habitat or the biological community. The following sections describe potential stressors in more detail.

4.3.1 Dams and Impoundments

Dams and impoundments (for example, reservoirs) are designed to control and store streamflow for various purposes and can provide multiple societal benefits through increased recreation opportunities, flood attenuation, hydroelectric power, irrigation, public water supply, and transportation (Collier and others, 1996). However, dams are also a cause of flow alteration throughout the United States, as only about 40 large rivers (defined as longer than 200 kilometers) remain free-flowing (Benke, 1990). At a national scale, when interregional flow variation before and after dam construction is compared, streams below dams can be subject to reduced high and low flows, augmented low flows, reduced seasonal variation, and other changes relative to predam conditions, resulting in a regional homogenization of the flow regime (Poff and others,

[4] Carlisle and others (2011) use the term "impairment" to describe this effect on the aquatic community, defining it as occurring when the value of the ratio of the observed condition to the expected reference condition (O/E) was less than that at 90 percent of reference sites within the same region. The aquatic community at a site was considered "unimpaired" when the O/E did not meet this condition. Although the term "impairment" is used in the original publication, the term "affected" is used for the purposes of this report to avoid confusion with the specific use of the term "impaired" in CWA programs.

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2007). At a finer scale, however, within a more homogenous hydroclimatic region, dams can create new flow regimes (McManamay and others, 2012). The ecological costs of controlling natural flows can have wide-ranging effects on the chemical, physical, and biological integrity of streams and rivers (Collier and others, 1996; Dynesius and Nilsson, 1994; Magilligan and Nislow; 2005; Poff and others, 2007; Wang and others, 2011; Zimmerman and others, 2010). The various types of effects are highly dependent on dam purpose, size, and release operations (Poff and Hart, 2002).

As of 2013, more than 87,000 dams were represented in the U.S. National Inventory of Dams (NID) (U.S. Army Corps of Engineers, 2013). Not included in this total are small impoundments for farm ponds, fishing ponds, community amenities that fragment stream networks (for example, impoundments less than 2 meters [m] high), and larger dams that have not yet been included in the national database. New geographic information system (GIS) and remote-sensing tools are used to identify the extent and number of small impoundments, which may be in the tens of thousands per state. For example, a study in the Apalachicola-Chattahoochee-Flint River Basin in the southeastern United States identified the presence of more than 25,362 impoundments (Ignatius and Stallins, 2011), whereas the NID database recognized 1,415 (fewer than 6 percent of the reported total) in the same basin. The extensive presence of dams on United States waterways in the NID (U.S. Army Corps of Engineers, 2013) is shown in Figure 3. Estimates made by Poff and Hart (2002), identify more than 2,000,000 dams across the country, which includes small and large sized dams.

Studies have shown that dam reoperation (when operational guidelines for the dam are modified to address environmental management concerns about downstream fisheries, riparian habitats, recreation, flow, etc.) and removal of obsolete dams have the potential to restore ecological function downstream of dams (Watts and others, 2011). Although the ability to modify operations varies on the basis of the type and purpose of the dam (that is, hydropower, flood control, irrigation, etc.), virtually all dams, regardless of size, have the potential to be modified (Arthington, 2012). Since 2000, large-scale flow experiments have become an

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important component of water-management planning, with considerably more than 100 large-scale flow experiments documented worldwide, including 56 in the United States alone (Olden and others, 2014). Alterations to dam operations, including changes in the magnitude, frequency, and duration of high-flow events; changes to minimum releases; and alteration of reservoir drawdown regimes or restoration of flows to bypassed reaches; can result in ecological benefits, including recovery of fish and shellfish, improved water quality, reactivation of flood-plain storage, and suppression of non-native species (Konrad and others, 2011; Olden and others, 2014; Richter and Thomas, 2007; Poff and Schmidt, 2016; Kennedy and others, 2016.). Key components of successful dam reoperation include clearly articulating objectives and expectations prior to beginning reoperation, inclusion of a process to monitor or model the short -and long-term effects of proposed release operations, and the ability to adaptively manage the dam operations (Konrad and others, 2011; Richter and Thomas, 2007). Similar to the benefits noted for dam reoperation, restoration of stream and river flows through removal of obsolete dams may re-establish natural habitat connectivity for aquatic life, expose shoal and riffle habitat, restore water quality (for example, dissolved oxygen, pH, temperature and ammonia), and re-establish sediment transport dynamics and downstream sediment deposition (Poff and Hart, 2002; Kornis and others, 2015; Pess and others, 2014; Tuckerman and Zawiski, 2007).

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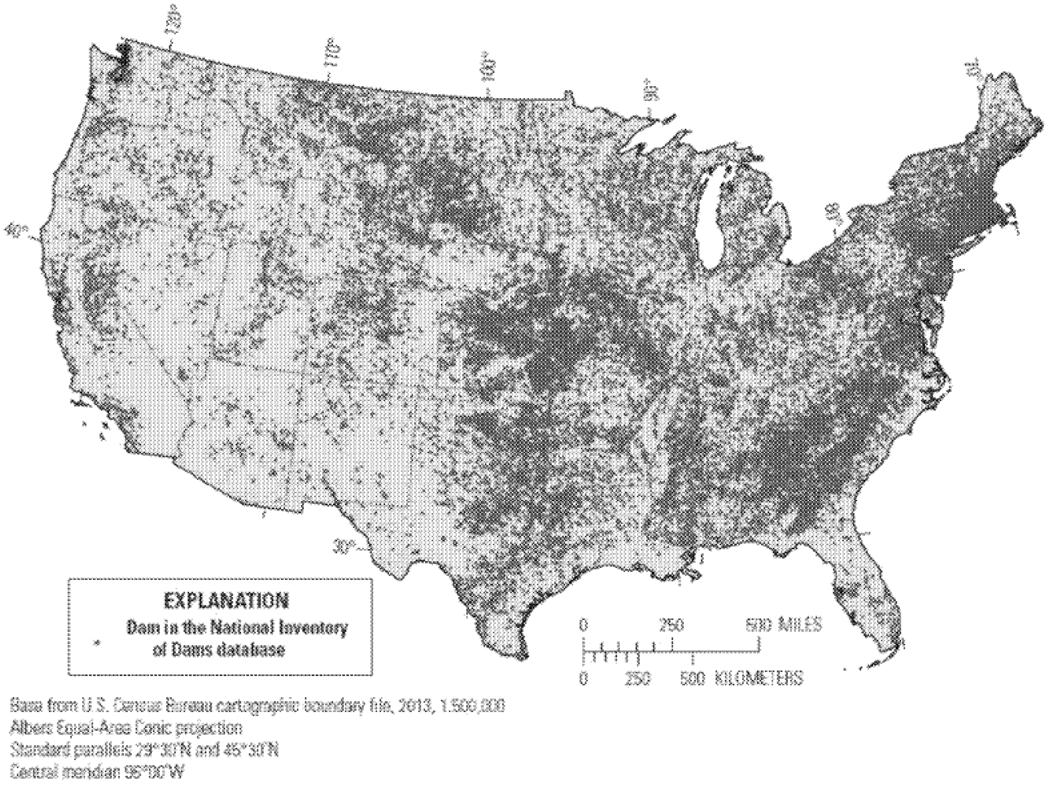

Figure 3. Map showing dams in the conterminous United States listed in the National Inventory of Dams (NID) (U.S. Army Corps of Engineers, 2013).

The NID database contains the most comprehensive set of dam information in the United States and lists dams with at least one of the following criteria: high hazard classification, significant hazard classification, equals or exceeds 25 feet in height and exceeds 15 acre-feet in storage, and (or) equals or exceeds 6 feet in height and exceeds 50 acre-feet in storage.

4.3.2 Diversions

Diversions remove a specified volume of flow from a stream channel; direct diversions respond directly to demands for water, which are usually highest during the dry season, and storage diversions can transport water during any flow, often intended to be released at a later time for future water needs. Diversions include permanent or temporary structures and water pumps designed to divert water to ditches, canals, or storage structures; storage diversions are commonly coupled with reservoirs. Diverted waters are used for hydropower, irrigation, recreational, municipal, industrial, and other purposes. Permanent infrastructure to convey diverted waters (pipelines, canals, ditches, etc.) exists throughout the United States; a large number of these structures are found in certain areas of the country (Figure 4).

The effects of diversions on the flow regime depend on the quantity and timing of the diversion (for example, see Figure 5) (Bradford and Heinonen, 2008). Although the largest diversions by volume occur during storm events, a greater proportion of flow is generally removed during low-flow periods, when plants and wildlife are already under stress. Although diversions result in an immediate decrease in downstream flow magnitude, some of the diverted water may eventually return to the stream as irrigation return flow or point-source discharge (see Section 4.3.4). This is not the case, however, for interbasin water transfers, a distinct class of diversion in which water is transported out of one basin and used in another, affecting both donor and receiving streams. Regardless of the fate of the water, the quantity and timing of the diversion can alter the natural flow regime.

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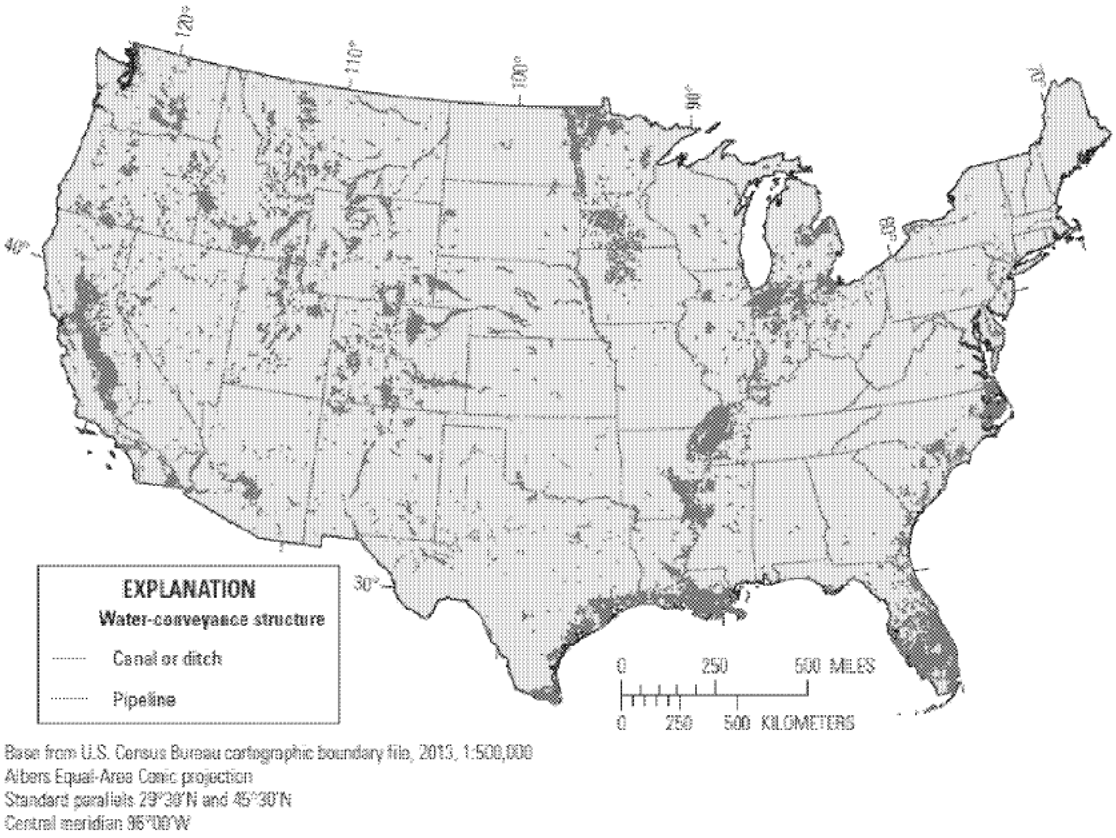

Figure 4. Map showing location of water-conveyance structures in the medium-resolution National Hydrography Dataset (NHD) (U.S. Geological Survey, 2012), illustrating the widespread extent of canals, ditches, and pipelines in the conterminous United States.

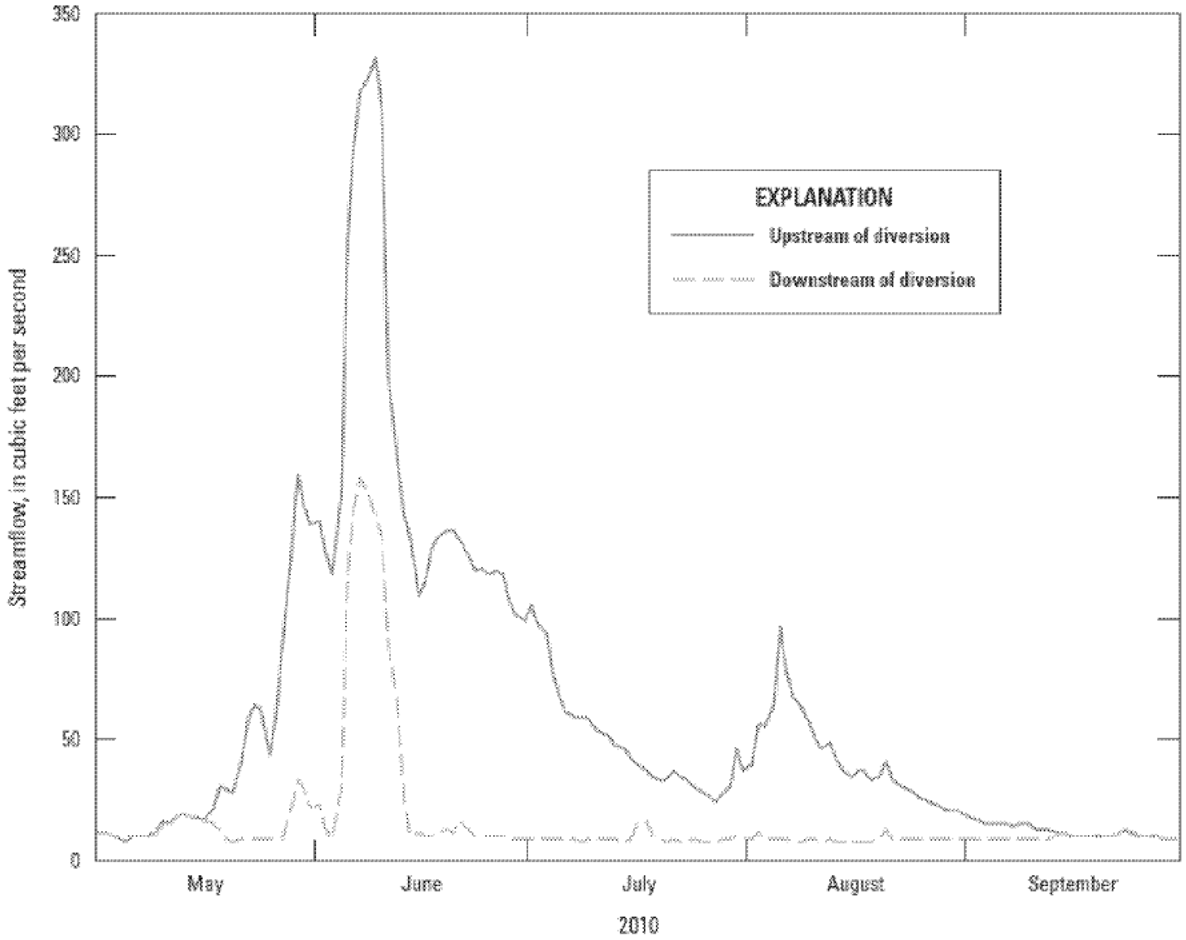

Figure 5. Graph showing streamflow at Halfmoon Creek, Colorado (U.S. Geological Survey station number 7083000), May–September, 2010.

(Streamgages are located upstream and immediately downstream from the diversion structure. Diverted water is stored in a nearby reservoir for irrigation.)

4.3.3 Groundwater Withdrawals

Most surface-water features interact with shallow groundwater, serving as points of discharge or recharge to local and regional aquifers. In many parts of the United States, groundwater contributes to streamflow and is the primary natural source of water during periods without substantial precipitation and runoff. Groundwater is also a major source of water for irrigation, public water supplies, industrial, and other uses (Maupin and others, 2014). Once thought to be limited to the arid West, groundwater depletion has been identified throughout the United States. The rate of groundwater depletion continues to increase and has been

recognized globally as a threat to sustainability of water supplies (Konikow, 2013). Groundwater withdrawals can lower the water table, resulting in reduced discharge to streams (Barlow and Leake, 2012; Reeves and others, 2009; Winter and others, 1998; Zarriello and Ries, 2000; Zorn and others, 2008; Wahl and Tortorelli, 1997). In some cases, particularly where wells are located close to a stream, the water table can be lowered to such a degree that the hydraulic gradient at the stream-aquifer boundary is reversed, and streamflow is induced to flow into the aquifer (Barlow and Leake, 2012). Some of the important factors that affect the timing of groundwater-withdrawal impacts on streamflow are the distance of individual wells from streams, the hydraulic properties of the aquifer and streambed materials, and the timing of withdrawals (Barlow and Leake, 2012). Groundwater withdrawals for irrigation increase during drought, when the only source of streamflow may be base flows from groundwater. The ecological effects of reduced groundwater contributions to streamflow, like those of other reductions in stream base flows, include the desiccation of aquatic and riparian habitat, reduced velocities and increased sedimentation, increased water temperature, and reduced connectivity of the stream network (discussed in Sections 4.4 and 4.5). These effects are exacerbated by groundwater demand, which spikes at times of the year when adequate flows are needed to support important biological behaviors and processes (for example, in summer when certain fish migrate and reproduce). Wahl and Tortorelli (1997) provide an example of the long-term impacts on streamflow due to groundwater withdrawals in a basin in western Oklahoma.

4.3.4 Effluents and Other Artificial Inputs (Discharges)

In contrast to diversions, surface- and groundwater withdrawals, and other human activities that remove water from streams, effluents, and other artificial inputs add water to streams but can also alter natural flow patterns. Examples of discharges and other artificial inputs include industrial facilities, municipal wastewater-treatment facilities, tile drainage systems, agriculture return flows, pumping and drainage from stormwater

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control structures and others. The effects on streamflow from these additions are amplified when they consist of water that is not part of the natural water budget of the stream, such as deep groundwater or water derived from other basins, as in the case of interbasin transfers (Jackson and others, 2001). Such exogenous contributions shift the hydrograph upward and may be especially noticeable during natural low-flow periods as well as during flood flows resulting from storm events (Figure 6). This flow augmentation distorts the flow-sediment balance characteristic of undisturbed catchments, leading to effects such as channel downcutting and bank erosion as the stream strives to attain a new balance between water and sediment flux (as discussed in Section 4.4.1). In many arid environments, streamflow during dry seasons is composed almost entirely of treated effluent from wastewater-treatment facilities (Brooks and others, 2006). These inputs can cause a change in the stability of natural systems by artificially raising the water level during low-flow periods.

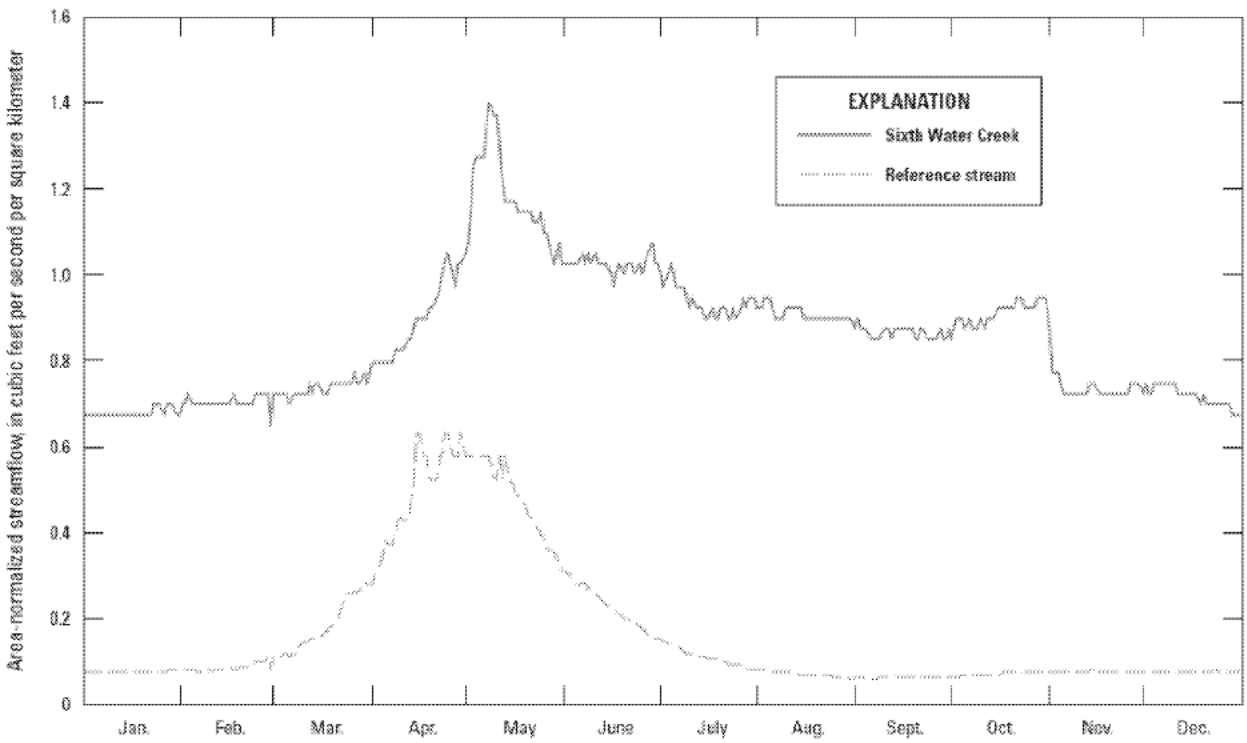

Figure 6. Graph showing artificially augmented daily streamflow at Sixth Water Creek, Utah (U.S. Geological Survey station number 10149000), January–December, 2000.

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4.3.5 Land-Cover Alteration (Land Use)

The alteration of natural land cover for agricultural, forestry, industrial, mining, or urban use can modify several hydrologic processes that govern the amount and timing of runoff from the land surface, as well as other important processes and characteristics (for example, sediment dynamics, temperature). Such land-cover alterations may involve the removal of or change in vegetation cover, construction of impervious surfaces (for example, parking lots and rooftops), land grading, stream-channel alteration, or construction of engineered drainage systems. These changes reduce the potential for precipitation to be stored in shallow depressions and soils (Blann and others, 2009; Konrad and Booth, 2005) and allow a greater fraction of precipitation to enter stream channels through surface runoff, rather than infiltrate into the ground or evaporate. Moreover, engineered drainage systems (for example, municipal stormwater systems) and road networks can directly route runoff to receiving waters, increasing the rate of change to streamflow during a storm event. As a result, streams in developed areas exhibit extreme flashiness, characterized by a rapid rise in flow during storm events to a high peak-flow rate followed by rapid recession of flow after precipitation ceases (Dunne and Leopold, 1978; Walsh and others, 2005a, 2005b).

In addition, impervious surfaces may reduce base flow in the days, weeks, or even months after a storm event as a result of reduced infiltration and groundwater recharge. In agricultural areas, the opposite effect is observed with subsurface drainage structures (or tile drains), which discharge groundwater that would otherwise be held in storage or lost through evapotranspiration. However, agricultural drainage systems can reduce base flow, particularly when drainage lowers the water table and decreases groundwater recharge (Blann and others, 2009). During prolonged drought, differences in low-flow conditions between developed and natural streams generally are less pronounced than during average or high-flow conditions because developed areas tend to have a smaller effect on the deep groundwater recharge that supports flow during

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drought conditions than on the shallow groundwater and runoff that contribute water to a stream when precipitation is more plentiful (Konrad and Booth, 2005).

Urban and agricultural land uses can accompany water-use and management practices such as interbasin transfers, irrigation and other surface-water withdrawals, on-site wastewater disposal, impoundment, and groundwater pumping. Each of these practices affects the direction and magnitude of flow alteration in urban and agricultural streams and can compound hydrologic effects, as discussed previously.

The effects of mining on streamflow depend on the size and type of mining, subsidence of underground mines, catchment characteristics and vegetative cover, the geology of the mine and degree of valley fills, the extent of underground mine pools and sediment ponds, the amount of soil compaction and infiltration, and type and timing of reclamation. For example, valley fills resulting from surface mining have been found to increase peak flows, unless other transport pathways, such as substantial connections to underground mines, intercept the stormwater discharges to streams (Messinger, 2003).

Finally, other management activities can cause flow alteration. Improperly sized road stream crossings may cause flooding, erosion, and sedimentation modifying the flow regime (Hoffman and others, 2012). Timber harvesting in forested areas generally increases peak flows and base flows as a result of decreased evapotranspiration and increased snowpack resulting from decreased canopy interception (Harr and others, 1982; Hewlett and Hibbert, 1961). The magnitude and duration of the effects are dependent on the size and type of harvest and the rate of vegetation regeneration.

4.3.6 Climate Change

Climate change is an important and complex source of flow alteration because of the broad geographic extent of its effects and the lack of management options for direct mitigation at the watershed scale. Recent climate trends have included rising ambient air and water temperatures, increased frequency of extreme weather such as heavy precipitation events, increased intensity of droughts, altered fire regimes, longer growing

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seasons, and reductions in snow and ice, all of which are expected to continue in the coming years and decades (Karl and others, 2009). Some of these changes have occurred or are projected to occur throughout the United States, such as increases in the frequency of very heavy precipitation events during the 20th century (Melillo and others, 2014). Increasing terrestrial disturbances from climate change (for example more frequent wildfires, debris flows, biological invasions, and insect outbreaks) can alter terrestrial inputs to streams (for example hydrologic runoff, sediment, and large wood) thereby affecting the flow regime (Davis and others, 2013). Other changes have been or are projected to be limited to certain regions, such as a projected increase in winter and spring precipitation in the northern United States and a decrease in winter and spring precipitation in the southwestern United States (Melillo and others, 2014).

Each of these aspects of climate change can substantially alter historic flow patterns. Projected nationwide increases in the frequency of heavy storm events and summer droughts have the potential to result in more frequent flooding and extreme low flows in streams and rivers across the United States. Specific effects on streamflows, however, will vary by region on the basis of regional climate change and hydrologic regimes. For example, observed trends in the magnitude of 7-day low flows at streamgages with minimal landscape effects vary across the United States, with some regions exhibiting a trend of decreasing low flows (longer dry spells) and others trending toward higher low flows (Figure 7) (U.S. Environmental Protection Agency, 2014b). Anthropogenic alterations that reduce streamflow may be further exacerbated by this climate-change trend. In areas where flow regimes are strongly affected by snowmelt, observations show a trend toward earlier timing of spring high flows (Figure 8) that corresponds to declines in the spring snowpack and earlier snowmelt (Melillo and others, 2014). These examples demonstrate the exposure of aquatic ecosystems to climate-driven flow alteration. Exposure analysis is an essential part of an assessment of the vulnerability of aquatic life to climate change. Additional discussion and examples of climate-change vulnerability assessments related to altered flow and aquatic life are included in Appendix B.

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Climate change is occurring in conjunction with other anthropogenic stressors related to population increase and land-use change and may magnify the hydrologic and biological effects of those existing stressors (Intergovernmental Panel on Climate Change, 2007; Karl and others, 2009; Kundzewicz and others, 2008; Palmer and others, 2009; Pittock and Finlayson, 2011). For example, the combination of earlier spring snowmelt and increased water withdrawals can reduce summer flows to levels that would not otherwise occur in response to either stressor alone and that reduce the survival of aquatic biota. An additional example is the compounding effect of increased storm intensity on flood frequency in areas where impervious cover already drives flood flows at a frequency that degrades stream habitat (Intergovernmental Panel on Climate Change, 2007). These and other changes to the flow regime may further benefit invasive species to the detriment of native species (Rahel and Olden, 2008).

Adaptive capacity, or the ability of a stream ecosystem to withstand climate-driven stresses, may be seen in rivers whose flow patterns more closely resemble the natural flow regime. These rivers may be buffered from the harmful effects of climate-related disturbances on aquatic life (Palmer, 2009; Pittock and Finlayson, 2011). Understanding and enhancing adaptive capacity, along with an assessment of climate-change vulnerability, is a key part of climate-change adaptation planning.

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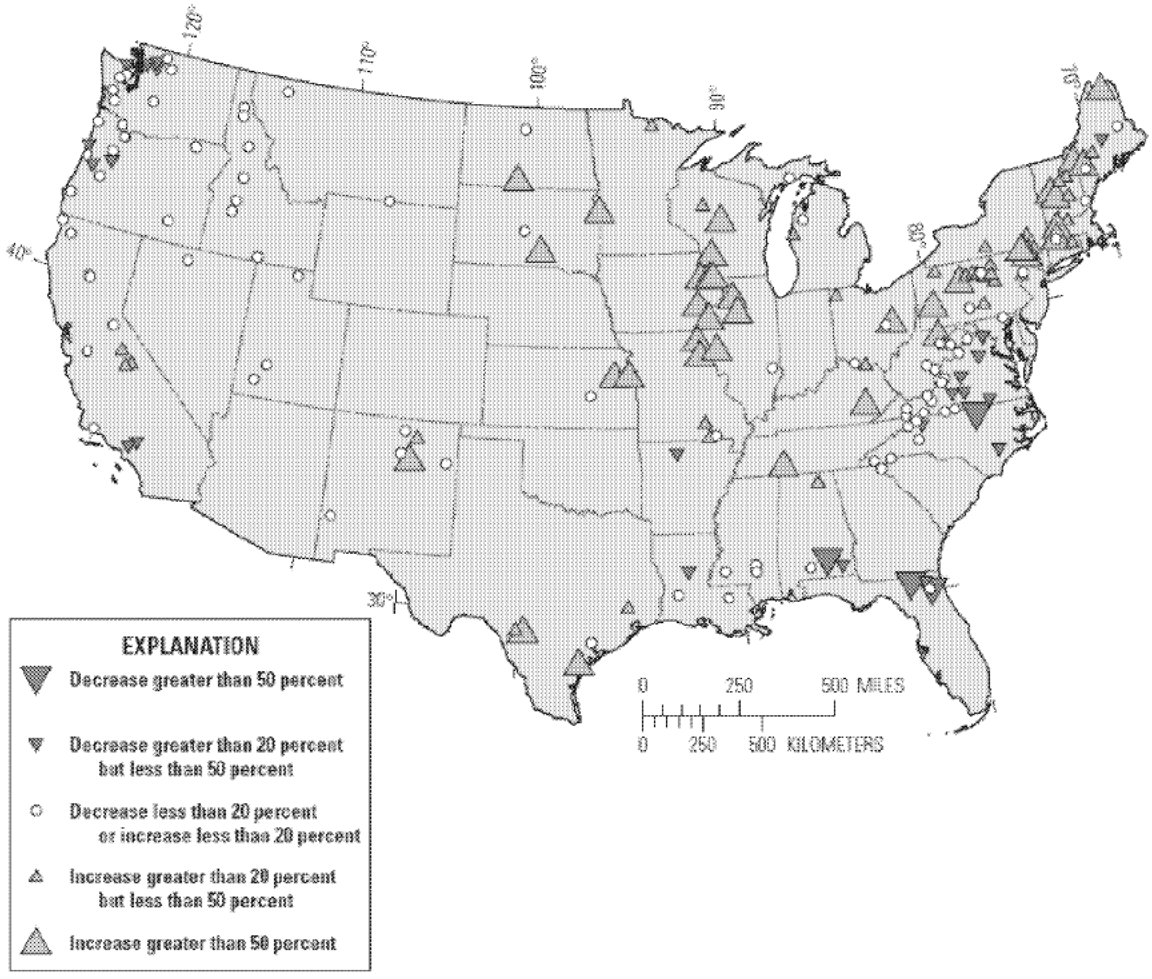
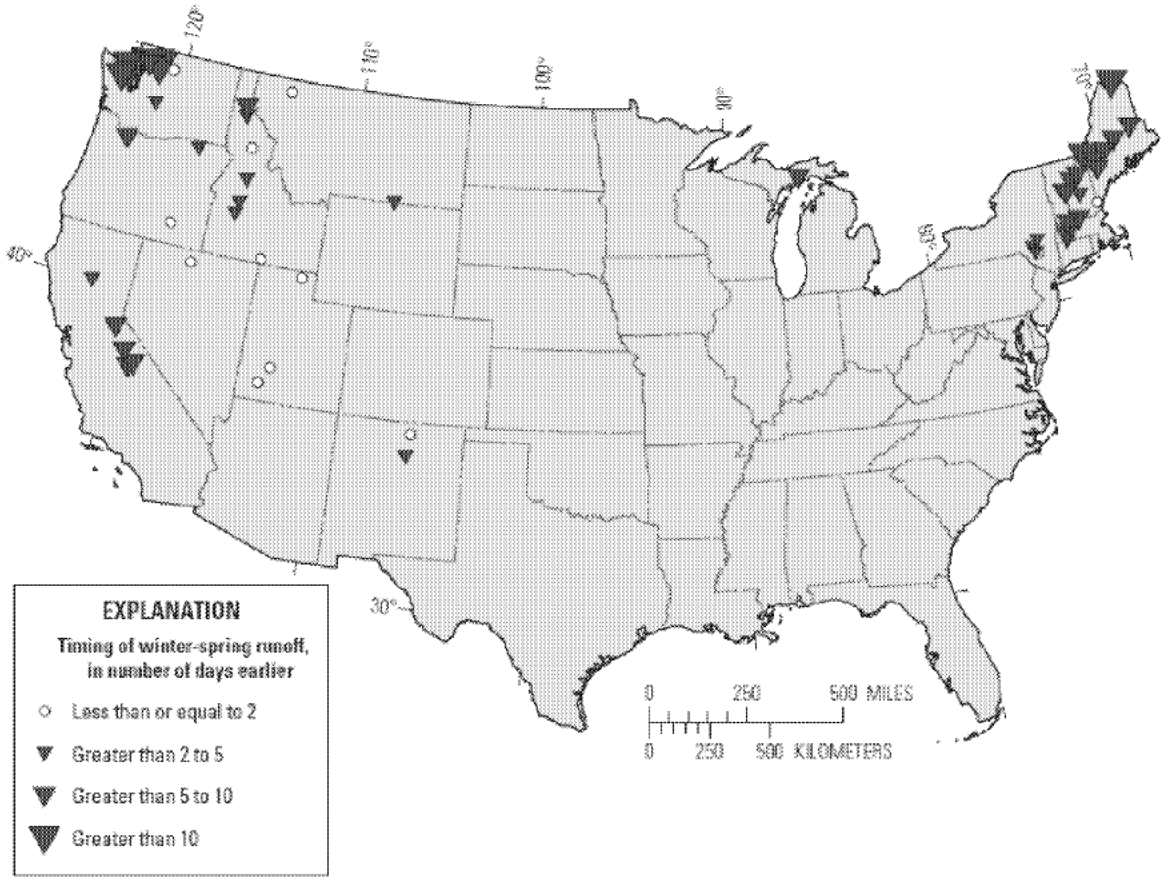


Base from U.S. Census Bureau cartographic boundary file, 2013, 1:500,000
Albers Equal-Area Conic projection
Standard parallels 29°30'N and 45°30'N
Central meridian 95°00'W

Figure 7. Map showing trends in the magnitude of 7-day low streamflows in the United States, 1940-2009.

(Minimum streamflow is based on data from 193 long-term U.S. Geological Survey streamgages over the 70-year period whose drainage basins are only minimally affected by changes in land use and water use. Modified from U.S. Environmental Protection Agency, 2014b)



Base from U.S. Census Bureau cartographic boundary file, 2013, 1:500,000
Albers Equal-Area Conic projection
Standard parallels 29°30'N and 45°30'N
Central meridian 96°00'W

Figure 8. Map showing trends in the timing of winter-spring runoff in the United States, 1940-2009.

(Streamflow trends are based on data from 193 long-term U.S. Geological Survey streamgages over the 70-year period whose drainage basins are only minimally affected by changes in land use and water use. Modified from U.S. Environmental Protection Agency, 2014b).

4.4 Physical and Chemical Effects of Flow Alteration

Changes to the natural flow regime resulting from land-use and water-management practices can affect physical and chemical properties of riverine ecosystems, including geomorphology, connectivity, and water quality (Annear and others, 2004). This section provides an overview of the effects of flow alteration on each of these properties.

4.4.1 Effects on Geomorphology

The natural geomorphology of stream channels and flood plains is shaped largely by watershed hydrology and resulting flow patterns. Geomorphology is the expression of the balance between flow strength (for example, flow magnitude, slope) and flow resistance and sediment supply (for example, grain size, vegetation, sediment load), with a tendency toward channel erosion and degradation when flow strength increases and a tendency toward channel deposition and aggradation when flow resistance and sediment supply increase. Channel geometry, bed substrate, and the presence of geomorphic features such as oxbow lakes, point bars, or riffle-pool sequences vary according to the frequency of bankfull flows, the magnitude of floods, and other flow characteristics (Trush and others, 2000). Research has uncovered a variety of geomorphic responses to flow alteration, with specific effects depending on the type and severity of hydrologic change. These effects can include channel incision, narrowing, or widening; increased deposition of fine sediment or bed armoring (coarsening of the surface of gravel bed rivers relative to the subsurface); and reduced channel migration (Poff and others, 1997).

A primary mechanism for geomorphic change is a shift in energy and sediment dynamics following flow alteration. For example, increased peak flows resulting from urban land use can increase bed erosion and drive channel incision or widening. In contrast, reduced flooding as a result of dam regulation can lower the distribution of nutrient-bearing sediments to flood plains, starve downstream channel and coastal areas of needed sediment, and increase sedimentation upstream from the dam (Syvitski and others, 2005). These

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processes can lead to simplified channels that are disconnected from their natural flood plains. Natural mosaics of geomorphic features serve as important habitats for a range of aquatic and flood-plain species, and the loss of habitat diversity following hydrologic alteration can have adverse effects on the health of biological communities.

4.4.2 Effects on Connectivity

Hydrologic connectivity is the water-mediated transfer of matter, energy, and (or) organisms within or between elements of a hydrologic system (Pringle, 2003). In aquatic ecosystems, it encompasses longitudinal connectivity of the stream network and specific habitat types, as well as lateral connectivity among stream channels, riparian zones, flood plains, and wetlands. The vertical connection between surface water and groundwater is a third dimension of connectivity along the various flow paths that connect points of recharge (beginning at the water table) to points of discharge (for example, a river or stream) (Ward, 1989).

Longitudinal, lateral, and vertical connectivity naturally vary spatially and temporally with climate, geomorphology, groundwater dynamics, and other factors. Longitudinal connectivity, for example, may be continuous from headwaters to lower reaches in one catchment but interrupted by intermittent or ephemeral reaches in another (Larned and others, 2010a, 2010b, 2011). Lateral connectivity is restricted to short-duration flooding of narrow riparian areas in headwater reaches, whereas meandering and braided lower reaches are subject to longer periods of inundation over broader flood plains (Ward and Stanford, 1995). Aquatic biota have adapted to connectivity patterns through space and time, with life-history traits such as migration and spawning closely linked to the timing, frequency, and duration of upstream-downstream and channel/flood-plain connections (Junk and others, 1986; U.S. Environmental Protection Agency, 2015).

Hydrologic alteration can affect connectivity in several ways. Longitudinal connectivity of the stream network is disrupted by dams, weirs, diversions, culverts, stream crossings and other manmade structures that obstruct upstream-downstream passage by fish and other organisms. For instance, culverts can affect the movement of

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fish species during critical life stages due to outlet drops, increased velocity or reduced flows (Diebel and others, 2015). Longitudinal connectivity is also disrupted by fragmentation of aquatic habitat without manmade barriers. For example, an increase in the frequency of zero-flow conditions in a stream reach as a result of water withdrawals can cause the disconnection of upstream areas from the rest of the stream network (U.S. Environmental Protection Agency, 2015). Lateral connectivity among the stream channel, riparian areas, flood plains, and wetlands is reduced as a result of the decreased frequency of high flows and floods caused by geomorphic change (for example, channel incision) or of direct modification of stream channels (channelization, levee construction, etc.). Vertical connectivity is altered directly and indirectly through practices that alter infiltration and runoff (for example, impervious surface), which can affect recharge to groundwater and outflow to surface water. Other activities (for example, drainage) can alter surface-runoff rates and potentially reduce recharge and contribute to flooding. Other practices may cause a rise in the water table and, subsequently, the base level of a stream (for example, reservoirs) (Winter and others, 1998). For systems characterized by an absence of connectivity, flow alterations such as stream channelization, irrigation, and impervious surface area can increase flashiness and increase connectivity (U.S. Environmental Protection Agency, 2015).

4.4.3 Effects on Water Temperature and Chemistry

The water quality effects of flow alteration are varied and can include changes in water temperature, salinity (which is measured by specific conductance), dissolved-oxygen concentration, pH, nutrient concentrations, and other parameters. For example, dilution of dissolved salts or toxic contaminants are reduced because of a decrease in flow magnitude when water is diverted or groundwater is pumped (Caruso, 2002; Olden and Naiman, 2010; Sheng and Devere, 2005). Stream temperature is also closely linked to flow magnitude (Cassie, 2006; Gu and Li, 2002; Wehrly and others, 2006); artificially low flows can result in increased water temperatures as a result of reduced depths and (or) reduced input of cool groundwater. Low flows also

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increase the likelihood of stagnant water with a low dissolved-oxygen concentration. In contrast, dam tailwaters can become supersaturated with gases and harm aquatic life (Weitkamp and Katz, 1980). Additionally, dam tailwaters, particularly those drawing water from the depths of stratified reservoirs, show elevated levels of nutrients and metals, low dissolved-oxygen concentrations, and altered temperature relative to downstream waters (Arnwine, 2006; De Jalon and others, 1994; McCartney, 2009; Olden and Naiman, 2010; Poff and Hart, 2002; Preece and Jones, 2002; Sherman and others, 2007; Vörösmarty and others, 2003). Thermal regime modifications can include an increase in temperatures when warm water is released from the reservoir surface (common in smaller dams and diversions), or lower temperatures when water is released from beneath a reservoir's thermocline (Olden and Naiman, 2010). In urban areas, stream temperatures are elevated during high-flow conditions (constituting an increase in the rate of change) as a result of the input of runoff that has come in contact with warm impervious surfaces. Moreover, runoff from developed lands can transport nutrients, organic matter, sediment, bacteria, metals, and other contaminants to streams (Grimm and others, 2005; Hatt and others, 2004; Morgan and Good, 1988; Mulholland and others, 2008; Paul and Meyer, 2001). Effects may differ among water-body types (for example, lentic and lotic waters).

4.5 Biological Responses to Flow Alteration

The combined physical and chemical effects of flow alteration (summarized in the previous section) may result in the degradation, loss, and disconnection of ecological integrity within a stream system. Moreover, flow modification can eliminate hydrologic cues needed to stimulate spawning or flow volume and timing needed to aid seed dispersal, resulting in a mismatch between flow and species' life-history needs, and can encourage the invasion and establishment of non-native species (Bunn and Arthington, 2002). The ability of a water body to support healthy aquatic life is therefore tied to the maintenance of key flow-regime components.

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Specific biological effects of a given type of flow alteration vary by location and degree of alteration; however, some generalities can be made. Literature summarizing biological responses to altered flows, compiled and reviewed by Bunn and Arthington (2002) and Poff and Zimmerman (2010), includes studies showing overall reductions in the abundance and diversity of fish and macroinvertebrates, excessive growth of aquatic macrophytes, reduced growth of riparian vegetation, and shifts in aquatic and riparian species composition. Similarly, a meta-analysis of research in the South Atlantic United States noted consistently negative ecological responses to anthropogenically induced flow alterations, with fish tending to respond negatively and algae positively, while macroinvertebrates and riparian vegetation often responded negatively, but were more inconsistent (McManamay and others, 2013). These changes are tied to altered habitat. For example, the stabilization of flow downstream of dams tends to reduce habitat diversity and, therefore, species diversity. Reduced longitudinal connectivity of habitat types can reduce the survival of migratory fish species, and reduced lateral connectivity between stream channels and flood-plain wetlands limits access to important reproduction and feeding areas, refugia, and rearing habitat for native and resident fishes. Reduced lateral connectivity can reduce the availability of habitat needed for aquatic life stages of macroinvertebrates and amphibians, and can reduce the potential for gene flow (mixing individuals from different locations). Altered flows may disrupt the cues needed for gametogenesis and spawning and result in loss of habitat occurring during all life stages of freshwater mollusks. Fish spawning is disrupted by changes to the natural seasonal pattern of flow. For some fish species, spawning is triggered by rising flows in the spring; therefore, a shift in the timing of high flows can result in aseasonal reproduction during periods when conditions for larval survival are suboptimal. In addition, changes in species abundance and richness, ecosystem functions such as contaminant removal and nutrient cycling rates, can degrade in the environment due to flow alteration (Palmer and Febria, 2012; Poff and others, 1997; Vaugh and Taylor, 1999).

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The relations among variables such as flow, temperature, habitat features, and biology are key in controlling species distribution (for example, Zorn and others, 2008). Water temperature is an associated hydrologic characteristic and has a particularly strong effect on aquatic organisms in summer months, when streamflows are lowest and temperatures are highest (Brett, 1979; Elliot, 1981; Wehrly and others, 2003). Increases in water temperature that result from alterations such as withdrawals, especially during critical summer low-flow periods, have detrimental biological effects. Dam operations can have diverse effects on biology through modifying the thermal regime, and these modifications depend on the size, purpose, and release operations of the dam. For example, depressed spring and summer temperatures due to dam releases from the deep, cool layer in a stratified reservoir, may result in delayed or reduced spawning of fish species or extirpation of native warm-water biological communities in favor of cool- and cold-water assemblages (Olden, 2006; Preece and Jones, 2002). Dam releases in the winter result in warmer water temperatures, which may eliminate developmental cues and increase growth, leading to earlier aquatic insect emergence. These changes in temperature can create a mismatch between life-history stages and environmental conditions that may increase mortality as a result of high-flow events, predation, reduction in resource availability earlier in the season, and other stresses (Olden and Naiman, 2010; Vannote and others, 1980; Ward and Stanford, 1982).

The result of these hydrologic alterations may be impairment of a water body due to the physical, chemical, or biological effects discussed above. The most severe of alterations, the complete dewatering of a perennial stream or river, will result in complete extirpation of aquatic species in those water bodies. In addition to directly contributing to impairments through ecologically deleterious physical changes (that is, hydrologic, geomorphic, and connectivity change), hydrologic alteration may also be the underlying source of other impairments such as low dissolved oxygen, modified thermal regimes, increased concentrations of sediment, anoxic byproducts (such as downstream of dams), and nutrients or toxic contaminants. While the focus of this report is primarily on those direct physical factors (for example, geomorphic and hydrologic) that can affect

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biological communities, addressing these hydrologic alterations may also help to mitigate the effects of contaminants such as those mentioned above.

5 Examples of States that have Adopted Narrative Flow Standards

This section provides examples of states and Tribes that have used the CWA tools to address the effects of altered flows on aquatic life. Figure 9 illustrates how water-quality management programs are based on Water Quality Standards (WQS) under the CWA.

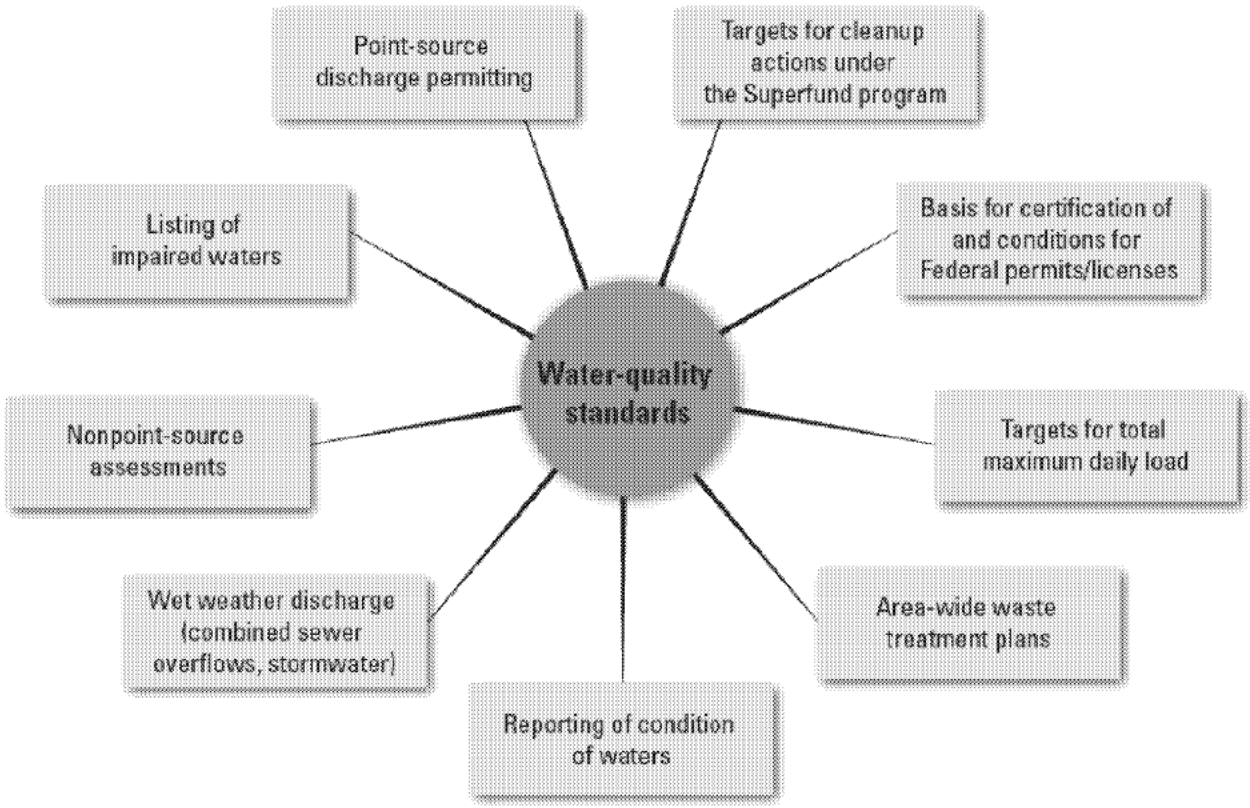

Figure 9. Schematic diagram illustrating environmental management programs utilizing water quality standards developed under the Clean Water Act.

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5.1 Narrative Criteria in State and Tribal Water Quality Standards

One set of CWA tools that some states and Tribes have used to address the effects of hydrologic alteration on aquatic life is water quality standards (WQS), which include designated uses, criteria, and antidegradation requirements. The goals and provisions of the CWA and corresponding EPA regulations provide for states to adopt narrative and (or) numeric chemical-specific criteria, as well as criteria that address the physical and biological integrity of the Nation's waters (see CWA sections 101 and 303(c); see also Title 40 of the Code of Federal Regulations (40 CFR) part 131.11(b)). Table 1 of this section presents examples of narrative flow criteria that some states and Tribes have developed.

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Table 1. Examples of states and Tribes that have adopted narrative flow criteria for the protection of aquatic life.

[Key terms are shown in bold for emphasis; see U.S. Environmental Protection Agency (2014e) for complete text of individual criteria; %, percent; 7Q10, the 7-day, 10-year annual low-flow statistic; WMT, Water Management Type]

State/Tribe	Water Quality Standard description of protected resource and corresponding goal
Kentucky	Section 4. "Aquatic Life. (1) Warm water aquatic habitat. The following parameters and associated criteria shall apply for the protection of productive warm water aquatic communities, fowl, animal wildlife, arboreous growth, agricultural, and industrial uses:…(c) Flow shall not be altered to a degree which will adversely affect the aquatic community."
Missouri	"Waters shall be free from physical, chemical, or **hydrologic changes** that would impair the natural biological community."
New Hampshire	"**surface water quantity** shall be maintained at levels adequate to protect **existing and designated uses**" "These rules shall apply to any person who causes point or nonpoint source discharge(s) of pollutants to surface waters, or who undertakes hydrologic modifications, such as dam construction or water withdrawals, or who undertakes any other activity that affects the beneficial uses or the level of water quality of surface waters."
New York	Classes N and AA-special fresh surface waters … "There shall be **no alteration to flow** that will impair the waters for their **best usages**." Classes AA, A, B, C, D, and A-special waters…."**No alteration** that will impair the waters for their **best usages**."
Rhode Island	"**quantity** for protection of… **fish and wildlife**…adequate to protect **designated uses**" "For activities that will likely cause or contribute to flow alterations, streamflow conditions must be adequate to support **existing and designated uses.**"
Tennessee	Rule 0400-40-03-.03, Criteria for Water Uses: Section (3) The criteria for the use of Fish and Aquatic Life are the following, subsection (n) Habitat—"The quality of stream habitat shall provide for the development of a **diverse aquatic community** that meets regionally-based biological integrity goals. Types of habitat loss include, but are not limited to: channel and substrate alterations….stream **flow** changes….for wadeable streams, the instream habitat within each subecoregion shall be generally similar to that found at **reference streams**. However, streams shall not be assessed as impacted by habitat loss if it

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State/Tribe	Water Quality Standard description of protected resource and corresponding goal
	has been demonstrated that the biological integrity goal has been met." Subsection (o) Flow—"Stream or other waterbody **flows shall support the fish and aquatic life criteria**." "Section (4) The criteria for the use of Recreation are the following: Subsection (m) Flow—Stream **flows** shall support **recreational uses."**
Vermont	Class A(1)—"Changes from **natural flow regime** shall not cause the natural flow regime to be diminished, in aggregate, by more than 5% of 7Q10 at any time;" Class B WMT 1 Waters—"Changes from the **natural flow regime**, in aggregate, shall not result in **natural flows** being diminished by more than a minimal amount provided that **all uses** are fully supported; and when flows are equal to or less than 7Q10, by not more than 5% of 7Q10." Class A(2) Waters and Class B Waters other than WMT1—"Any change from the **natural flow regime** shall provide for maintenance of flow characteristics that ensure the **full support of uses** and comply with the applicable water quality criteria."
Virginia	"**Man-made alterations in stream flow** shall not contravene designated uses including protection of the propagation and growth of **aquatic life**."
Bad River Band of the Lake Superior Tribe of Chippewa Indians	"**Water quantity** and quality that may limit the growth and propagation of, or otherwise cause or contribute to an adverse effect to wild rice, wildlife, and other flora and fauna of cultural importance to the Tribe shall be prohibited." "**Natural hydrological conditions** supportive of the **natural biological community**, including all flora and fauna, and physical characteristics naturally present in the waterbody shall be protected to prevent any adverse effects." "Pollutants or human-induced changes to Tribal waters, the sediments of Tribal waters, or area hydrology that results in changes to the natural biological communities and wildlife habitat shall be prohibited. The migration of fish and other aquatic biota normally present shall not be hindered. **Natural daily and seasonal fluctuations of flow** (including naturally occurring seiche), level, stage, dissolved oxygen, pH, and temperature shall be maintained."
Seminole Tribe	"Class 2-A waters shall be free from activities....that....impair the **biological community** as it naturally occurs....due to....**hydrologic changes.**"

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State/Tribe	Water Quality Standard description of protected resource and corresponding goal
of Florida	

Table 1 demonstrates that narrative flow criteria are written in various ways. However, the language commonly addresses two general components: (1) a description of the resource or attribute to be protected and (or) protection goal; and (2) one or more statements describing the hydrologic condition needed to be maintained to achieve the protection goal. The resource to be protected generally is an explicit reference to aquatic life designated uses or general language that targets the protection of a suite of designated and (or) existing uses (for example, "propagation and growth of aquatic life," "biological community as it naturally occurs," "diverse aquatic community," etc.). For most existing narrative flow criteria, the flow condition to be maintained is written in general terms (for example, "There shall be no alteration to flow....," "natural daily and seasonal fluctuations in flow," etc.). The addition of language that references specific aquatic life endpoints, such as migration or other life-cycle events, may serve as important reminders of biological goals to guide the selection of assessment endpoints, measures of effect (biological and flow indicators), and flow targets to meet aquatic life needs taking into account both near-field and downstream impacts. These concepts are discussed in detail in Section 6.

More complete examples from New Hampshire and Rhode Island narrative flow criteria are as follows and illustrate additional attributes these states chose to emphasize, such as broad applicability across all surface waters:

"Unless flows are caused by naturally occurring conditions, surface water quantity shall be maintained at levels adequate to protect existing and designated uses." (New Hampshire Code of Administrative Rules Env-Wq 1703.01 (d)). "These rules shall apply to any person who causes point or nonpoint source discharge(s) of pollutants to surface waters, or who undertakes hydrologic modifications, such as dam construction or water withdrawals, or who undertakes any other activity that affects the beneficial uses or the level of water quality of surface waters." (New Hampshire Code of Administrative Rules Env-Wq 1701.02 (b)).

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"General Criteria—The following minimum criteria are applicable to all waters of the State, unless criteria specified for individual classes are more stringent:....(h). For activities that will likely cause or contribute to flow alterations, streamflow conditions must be adequate to support existing and designated uses." (Rhode Island Department of Environmental Management Water Quality Regulations (2010) Rule 8(D)(1)(h)).

Although the narrative examples in Table 1 may be useful tools to help states make informed decisions about their water resources, they do not explicitly describe the specific components of the natural flow regime (that is, magnitude, duration, frequency, rate of change, and timing) to be maintained to protect aquatic life uses. The framework presented in Section 6 can help guide a state through a process to determine which of these components are most important to protect the designated use. Box C describes the physical and biological importance of considering the specific components of the natural flow regime in the development of environmental flow targets rather than relying on a more general minimum flow magnitude to protect aquatic life.

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Box C. Addressing Flow Regime Components

It is critically important to maintain extremes (floods and droughts) within the bounds of the natural flow regime to support the ecological structure and function of streams and rivers. However, alterations in low or high flows that are human-induced, affect and can control many ecosystem patterns, such as habitat extent and condition, water quality, connectivity, and material and energy exchange. These patterns can in turn affect many ecosystem processes, including biological composition, distribution, recruitment of biota, and ecosystem production (Rolls and others, 2012).

Although low flows serve a critical role in ecosystem function, current scientific research indicates that flow criteria ideally should support the natural flow regime as a whole, and that criteria for minimum flow alone (that is, a single minimum discharge value or a minimum passing flow) are not sufficient for maintaining ecosystem integrity (Annear and others, 2004; Bunn and Arthington, 2002; Poff and others, 1997). Minimum flow criteria do not address the full range of seasonal and interannual variability of the natural flow regime in most rivers and streams.

The natural fluctuation of water volume and levels in rivers and streams is critical for maintaining aquatic ecosystems because aquatic biota have developed life-history strategies in response to these fluctuations (Hill and others, 1991; Lytle and Poff, 2004; Mims and Olden, 2012, 2013; Postel and Richter, 2003; Stalnaker, 1990). Comprehensive flow criteria not only identify flow needs (that is, magnitude) but may also address the rate, frequency, timing, and duration of streamflow required to support ecosystem health (Poff and others, 2010). The Instream Flow Council (a non-profit organization working to improve the effectiveness of instream flow programs and activities: http://www.instreamflowcouncil.org/) recommends developing criteria that incorporate natural patterns of intra- and interannual variability in a manner that maintains and (or) restores riverine form and function to effectively maintain ecological integrity (Annear and others, 2004). Therefore, narrative hydrologic criteria and their implementation ideally should address several flow-regime components

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(frequency, duration, timing, rate of change) in addition to flow magnitude. The components necessary are determined on a case-by-case basis, depending on which values are most ecologically relevant.

Minimum flow statistics such as the 7Q10 design flow (the minimum 7-day average flow likely to occur in a 10-year period) are recommended by the U.S. Environmental Protection Agency for the derivation of water quality-based effluent limits in the National Pollutant Discharge Elimination System permitting program, but, although they include magnitude, duration, and frequency components, they were not derived to support the hydrologic requirements of aquatic ecosystems (Annear and others, 2004). The main purpose of these design flows is to determine pollutant discharge values (or limits) rather than to support the flow requirements of aquatic ecosystems (see U.S. Environmental Protection Agency, 1991).

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6 Framework for Quantifying Flow Targets to Protect Aquatic Life

The adoption of narrative flow criteria in WQS is a mechanism to address the effect of flow alteration on aquatic life. Narrative criteria are qualitative statements that describe the desired water quality condition needed to protect a specified designated use (for example, aquatic life uses). The adoption of explicit narrative flow criteria allows for a clear link between the natural flow regime and the protection of designated uses. Moreover, the adoption of narrative flow criteria ensures that flow conditions are considered under various other CWA programs (for example, CWA Section 401 certifications, monitoring and assessment, and permitting under CWA Sections 402 and 404).

The effectiveness of narrative flow criteria depends, in part, on the establishment of scientifically defensible methods to quantitatively translate and implement the narrative. Quantitative translation of narrative flow criteria requires an understanding of the principles of the natural flow regime, hydrologic alteration, and ecological responses to altered flows (Knight and others, 2012; Knight and others, 2014). (The term "quantitative translation" encompasses the qualitative approaches described further in this section.)

A fundamental goal of any effort to translate narrative flow criteria is to establish scientifically sound, quantitative flow targets that are readily implemented in State water quality management programs. This section describes a framework (illustrated in Figure 10) for developing quantitative flow targets for protection of aquatic life uses that incorporates elements of the EPA Guidelines for Ecological Risk Assessment (ERA) (U.S. Environmental Protection Agency, 1998), recent environmental flow literature (Arthington, 2012; Kendy and others, 2012; Poff and others, 2010), and procedures outlined in EPA guidance documents (U.S. Environmental Protection Agency 2000a, 2000b, 2001, 2008, 2010b). The framework is intended to be flexible; decisions regarding whether and how each step is applied depend on project-specific goals and resources.

The framework presented in this section is organized into eight discrete steps that integrate science and policy (Figure 10). Steps 1 through 4 correspond to the "problem formulation phase" of the EPA ERA framework;

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Steps 5 through 7 represent the "analysis phase"; and Step 8 incorporates concepts from the "risk characterization" phase as an "effects characterization". Throughout the process, opportunities for public and stakeholder involvement should be considered. Certain steps within this framework are particularly well suited for public participation (see discussion of Steps 1 and 8). The benefits of public involvement are two-fold. First, public input can help strengthen the study design by incorporating suggested methods or addressing deficiencies identified in proposed approaches. Second, public involvement can foster a sense of support and ownership in the resulting flow targets, leading to streamlined implementation (Annear and others, 2004; Locke and others, 2008).

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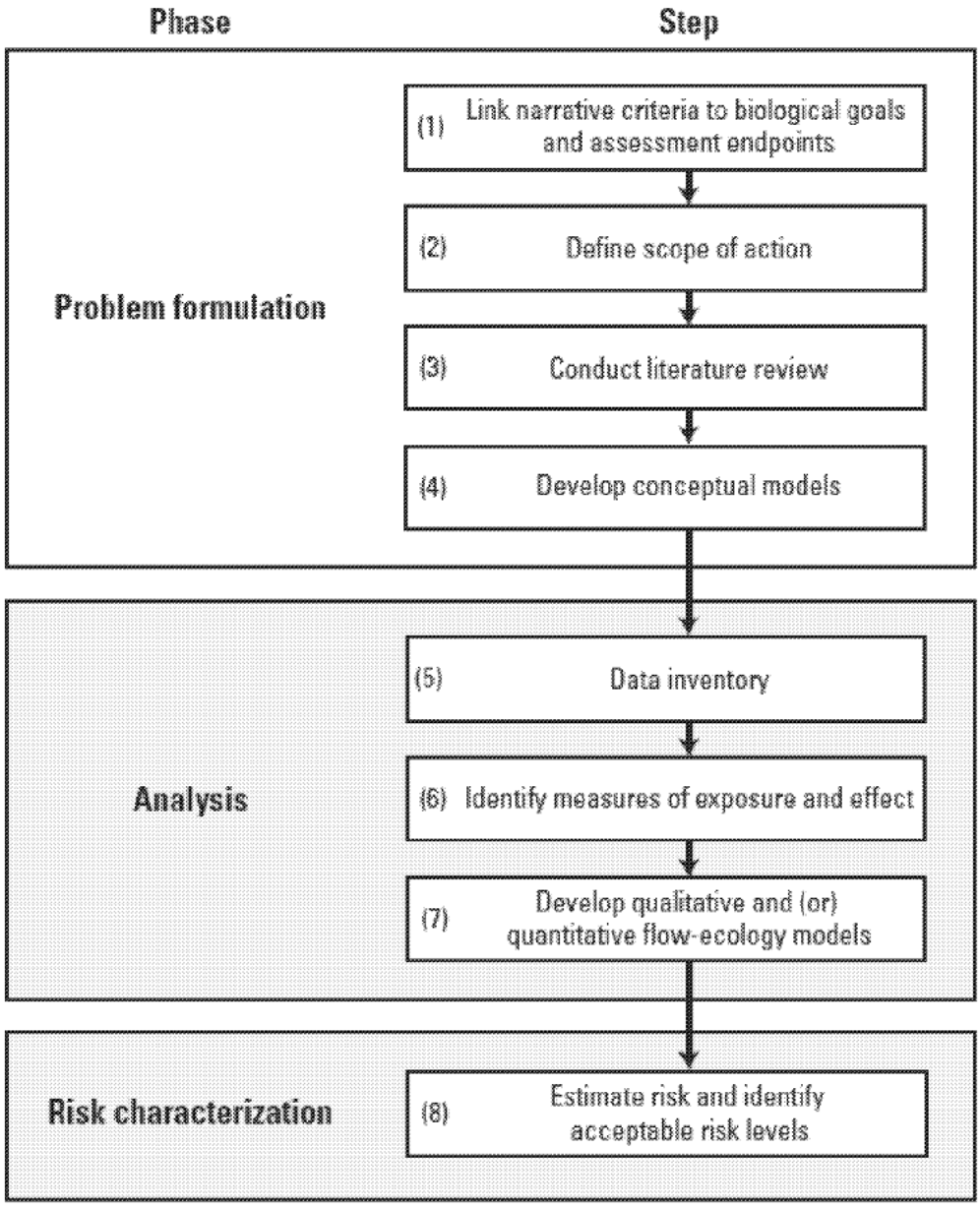

Figure 10. Flow diagram illustrating a framework for quantifying flow targets to protect aquatic life. (Adapted from EPA Guidelines for Ecological Risk Assessment; http://www.epa.gov/sites/production/files/2014-11/documents/eco_risk_assessment1998.pdf)

6.1 Link Narrative Criteria to Biological Goals and Assessment Endpoints

As described in Section 4, narrative flow criteria (see Table 1) are generally composed of (1) a description of the resource to be protected and the protection goal, and (2) statements describing the flow condition needed to be maintained to achieve the protection goal.

The first step in the framework for quantifying flow targets is to link narrative flow criteria to biological goals and assessment endpoints for the purpose of directing subsequent steps. A biological goal is a specific type of management goal that focuses on the biological characteristics of an aquatic system, such as fish or macroinvertebrate populations. Biological goals clearly state the desired condition of biological attributes relevant to flow target development (for example, "restore and maintain cold-water fisheries"). In most cases, a narrative flow criterion will already provide or suggest biological goals for a particular community or species that are tied to aquatic life designated uses. For narrative criteria worded in general terms, biological goals are derived through interpretation of narrative statements or are based on existing biological criteria to protect aquatic life designated uses. Examples of linking narrative flow criteria to biological goals are provided in Section 6.9.

Assessment endpoints are "explicit expressions of the actual environmental value that is to be protected" (U.S. Environmental Protection Agency, 1998). Whereas biological goals describe the desired condition of aquatic biota and communities, assessment endpoints specify which biological attributes are used to evaluate whether goals are met. If, for example, a biological goal was to "maintain a cold-water fishery," assessment endpoints could include spawning success rate and adult abundance for one or more cold-water fish species. Assessment endpoints use "neutral phrasing" in that they do not call for any desired level of achievement. The EPA document "Guidelines for Ecological Risk Assessment" (U.S. Environmental Protection Agency, 1998) outlines three main criteria for selecting assessment endpoints: (1) ecological relevance; (2) susceptibility to known or potential stressors; and (3) relevance to management goals. Selection of assessment endpoints can

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take into consideration available methods for measuring biological conditions, although endpoints without standard measurement protocols may be selected. Additional discussion of biological measures for quantitative analysis is provided in Section 6.6, and example endpoints are listed in Table 2.

Biological goals and assessment endpoints defined during this step may be shared with the public for comment. Soliciting feedback at this step can improve public awareness of a state's intent to quantitatively translate narrative flow criteria and promote transparency at the onset of the process, both of which are crucial to the successful development and implementation of flow targets.

6.2 Identify Target Streams

Flow targets are quantified for a single stream, all streams within a geographic area (for example, a catchment or a state), or a subset of streams that satisfy a set of selection criteria. The second step in the framework for quantifying flow targets is to clearly define the spatial extent of the project and the target stream population.

When multiple streams over a large area are the subject of study, it is advantageous to classify target streams according to their natural flow, geomorphic properties, temperature regimes, and other attributes. The purpose of stream classification is to identify groups of streams with similar characteristics so that data for each group are aggregated and extrapolated (Archfield and others, 2013; Arthington and others, 2006; Olden and others, 2011; Poff and others, 2010; Wagener and others, 2007). It is a key step described in EPA's "Biological assessment program review" (U.S. Environmental Protection Agency, 2013a), the EPA technical guidance for developing numeric nutrient criteria for streams (U.S. Environmental Protection Agency, 2000a) and the Ecological Limits of Hydrologic Alteration (ELOHA) framework for developing regional flow standards outlined in Poff and others (2010). Stream classification based on flow, geomorphology, or other attributes should not be confused with the definition of stream condition classes that may serve as the basis of tiered biological thresholds or effects levels [see Section 6.8]. Additionally, although stream classification offers

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several benefits (Box D), it is not a requirement for successful development of quantitative flow targets (Kendy and others, 2012).

Box D. Fundamentals of Stream Classification

Stream classification is the grouping of multiple streams into a smaller number of classes on the basis of shared hydrologic, physical, chemical, and (or) biological attributes. Stream classification is a valuable tool for quantifying flow targets because (1) data from multiple streams are pooled for analysis, and (2) conclusions drawn for a given class are reasonably applied to all streams in that class. A general goal of stream classification is to systematically arrange streams of the study area into groups that are unique in key attributes for environmental flow research and management (for example, catchment size and temperature regime, as in example Scenario A described in Section 6.9). The process requires compiling observed and modeled data for the streams of interest, identifying metrics to serve as the basis of classification, and determining appropriate breakpoints for these metrics. Statistical methods such as correlation analysis, principal component analysis, regression, and cluster analysis are used to select metrics for classification and determine stream groupings. Important considerations include the types of data and attributes such as the number of classes, analytical methods, approaches to data gaps and uncertainty, and methods for evaluating results. As an example, a simple classification scheme may reflect the dependence of flow characteristics on catchment size and would require a database of stream drainage areas and the definition of drainage-area breakpoints for stream-size classes (for example—small, less than 50 square miles [mi^2]; medium, 50–100 mi^2; large, greater than 100 mi^2). A comprehensive review of stream classification to support environmental flow management is provided in Olden and others (2011) and Melles and others (2012). Example approaches are found in Seelbach and others (2006), Kennard and others (2010b), Kennen and others (2007), Reidy Liermann and others (2012), Melles and others (2012), and Archfield and others (2013).

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6.3 Conduct Literature Review

A review of existing literature provides a foundation for understanding how the natural flow regime supports aquatic life and the biological effects of flow alteration in target streams. The literature review can include any published or unpublished journal articles, reports, presentations, and other documents that are relevant to the target streams. The literature review ideally should identify the most important aspects of flow regimes that are vital to support aquatic life and include both direct and indirect connections between flow variables and ecological response (Richter and others, 2006). Studies that characterize natural flow and biological conditions are valuable even if they do not specifically address flow alteration (Mims and Olden, 2012; McMullen and Lytle, 2012; Rolls and others, 2012). For example, studies of the historical and current biological condition of target streams, the physical and chemical conditions that support aquatic life, and the life-history strategies of aquatic species are all relevant for subsequent analysis steps. Literature reviews are aided by existing databases of flow-ecology literature for the region of interest (for example, McManamay and others, 2013, Southeast Aquatic Resources Partnership—Flow-ecology literature compilation, and The Nature Conservancy, 2015, ELOHA bibliography). Global-scale literature reviews, such as Bunn and Arthington (2002) or Poff and Zimmerman (2010), may also help to identify candidate sources of flow alteration, and the relevance of these potential effects are evaluated on the basis of local information.

The literature review can help to identify data gaps that could be filled through subsequent studies. It can provide a set of references for characterizing the types and sources of flow alteration in target streams. Past studies may provide detailed descriptions of observed flow modifications below dams and diversions or in urbanized catchments. Studies of observed and projected climate change may be reviewed, particularly those conducted at the state or regional scale. Information on climate-mediated changes in flow will be most valuable for subsequent steps; however, historical and projected trends in climate variables (precipitation, temperature, etc.) may be used to model flow regime changes for a state.

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6.4 Develop Conceptual Models

The literature review is used to guide the development of one or more conceptual models that depict hypothesized relations between biological conditions and flow alteration in target streams. A conceptual model consists of a diagram and accompanying narrative describing hypothesized cause-and-effect relations. Poff and others (2010) recommend that these hypotheses focus on process-based relations between a particular flow-regime component and ecological change. The conceptual models, therefore, ideally depict how a specific change in a flow-regime component is believed to drive one or more biological responses. The pathways leading to indirect biological responses to flow alteration (that is, those mediated by habitat or water-quality change) are clearly depicted. Conceptual models developed as part of this process are therefore much more detailed than the general model presented in Section 4 (Figure 2).

The EPA Causal Analysis/Diagnosis Decision Information System (CADDIS) Web site includes a conceptual diagram of potential biological responses to several types of flow alteration (Figure 11) that may serve as a useful starting point for conceptual model development; other existing conceptual diagrams can be considered. Although this example does not include climate change as a source of flow alteration, climate effects on flow and biota can be conceptualized to more accurately reflect climate as a dynamic component of the ecosystem. Relations among climate, flow, and aquatic life might already be apparent from past studies, particularly if a state has undertaken a climate-change vulnerability assessment. (See Appendix B for additional discussion and examples of climate-change vulnerability and assessments.) Where information on climate change effects does not already exist, available climate, hydrologic, and biological literature may be synthesized to infer potential types of flow alteration and potential biological responses.

The conceptual models resulting from this step of the framework are used to guide subsequent analysis of flow targets, including the selection of biological and flow variables and analysis methods. In general, conceptual models created for flow target development contain a similar structure, but focus on stressors and

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responses specific to the streams of study. Biological responses to flow-mediated changes in water chemistry and temperature can be included which are not explicitly depicted in Figure 11. A detailed conceptual model may also identify alternative pathways (that is, other than flow alteration) to a given biological response. This approach also facilitates identification of potential confounding variables for consideration in flow-ecology modeling. The topic of confounding variables is discussed further in Section 6.6.

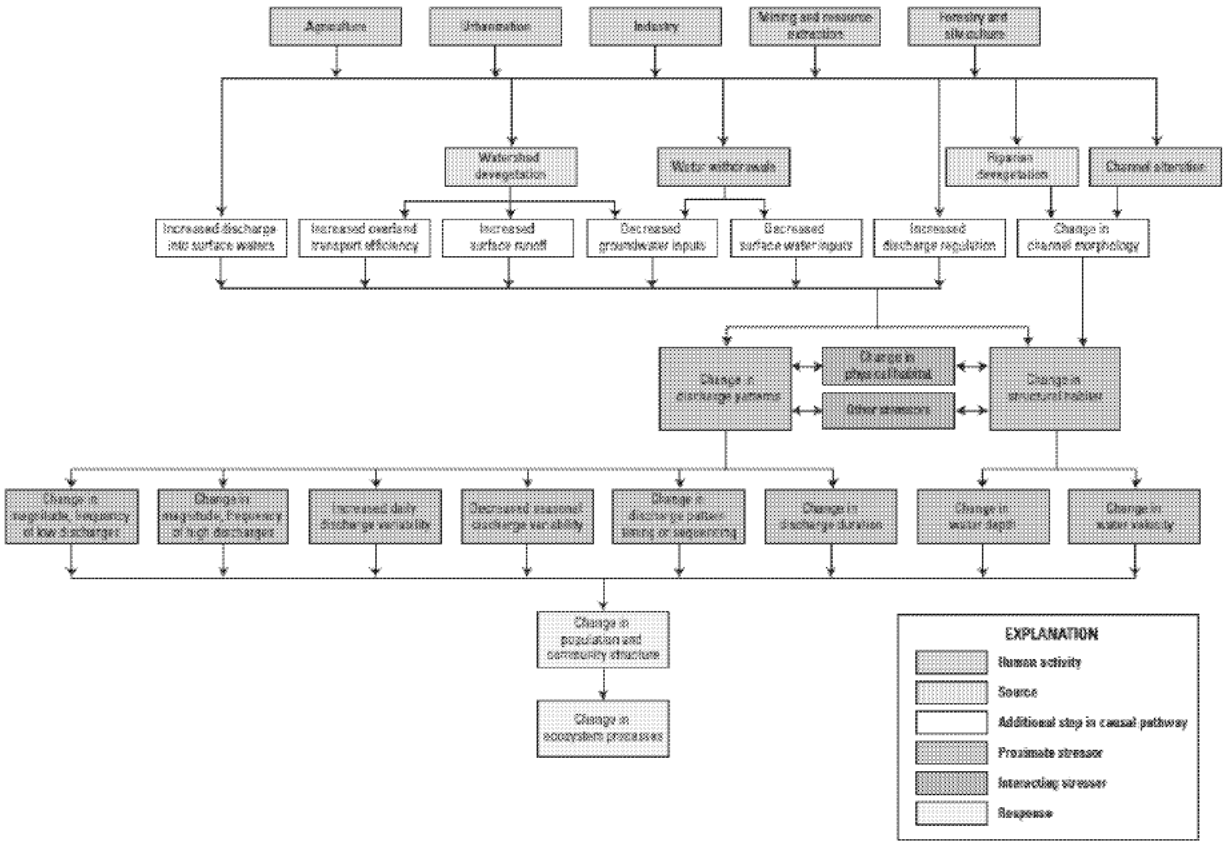

Figure 11. Example conceptual diagram illustrating the ecological effects of human-induced flow alteration from the U.S. Environmental Protection Agency Causal Analysis/Diagnosis Decision Information System (CADDIS).

(Modified from CADDIS Volume 2: Sources, Stressors and Responses, http://www3.epa.gov/caddis/ssr_flow4s.html).

6.5 Perform Data Inventory

Existing streamflow and ecological data from target streams ideally are compiled, inventoried, and reviewed for use in quantifying flow targets. Data quality objectives are determined and the data inventory may reveal that more data needs to be collected before proceeding. A common source of streamflow data is the USGS National Water Information System database (http://waterdata.usgs.gov/nwis), in which catchment attributes for many streams monitored by the USGS have been compiled in geographic information system (GIS) datasets (Falcone and others, 2010; Falcone, 2011). Existing mechanistic or statistical models of streamflow can provide continuous flow estimates, estimates of historical summary statistics, or estimates of flow under projected future climate scenarios (for example, Archfield and others, 2010; Holtschlag, 2009; Stuckey and others, 2012).

Potential sources of biological data include the EPA Wadeable Streams Assessment program (http://water.epa.gov/type/rsl/monitoring/streamsurvey/web_data.cfm), the USGS BioData retrieval system (https://aquatic.biodata.usgs.gov/landing.action), and databases maintained by the U.S. Forest Service, the Bureau of Land Management, the National Fish Habitat Partnership[5], or state agencies. Sampling methods, including the attributes measured, timing, equipment used, habitat type sampled, and taxonomic classification, are reviewed for each biological dataset. These and other sampling protocols are important for evaluating whether and how data from multiple sources are synthesized. A thorough discussion of potential data compatibility issues is provided in Cao and Hawkins (2011) and Maas-Hebner and others (2015).

The literature and data review will likely reveal information gaps that hinder the quantification of flow targets. Common issues include a lack of biological data for streams with long-term flow data or a lack of reference

[5] The National Fish Habitat Partnership data are available at http://www.tandfonline.com/doi/full/10.1080/03632415.2011.607075#.VPc9VGjF-4I. The fish data are available at .

biological or flow data with which to evaluate alteration. Depending on the scope of the effort, additional monitoring or modeling may be required to fill such gaps.

6.6 Identify Flow and Biological Indicators

Streamflow and biological indicators are specific measures that are used to analyze the relations between flow alteration and biological response (termed "flow-ecology" relations). Flow indicators correspond to "measures of exposure" in the EPA ERA framework, whereas biological indicators correspond to "measures of effect." Biological indicators reflect narrative flow criteria and can include various measures of the diversity, abundance, or specific life-history traits of fish, macroinvertebrates, mollusks and aquatic vegetation. Many flow indicators have been proposed to characterize the flow regime; these indicators describe the magnitude, timing, frequency, duration, and rate of change of various flow conditions. They are calculated from long-term daily flow datasets, and software tools are available to automate this process (for example, Henriksen and others, 2006; The Nature Conservancy, 2009; and the USGS EflowStats "R" package, which is available at https://github.com/USGS-R/EflowStats. Example flow and biological indicators that have been used in past studies of flow-ecology relations are listed in Table 2. These examples are only a small subset of the full universe of indicators that could be considered for a target-setting effort.

The biological indicators selected for analysis ideally are consistent with narrative flow criteria and the biological goals and assessment endpoints developed under Step 1 of this framework. Ideally, the biological indicators selected directly reflect the biological attributes of concern described by assessment endpoints (for example, fish diversity). In cases where assessment endpoints cannot be directly measured or have limited observational data for flow-ecology modeling, surrogate biological indicators are linked to assessment endpoints through additional analysis. For example, if an assessment endpoint involves a rare fish species with few monitoring records, a surrogate biological indicator is selected by identifying a data-rich species with

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similar life-history traits. (See Merritt and others [2010] or Mims and Olden [2012, 2013] for examples of methods for grouping biota by life-history strategies.)

The flow and biological indicators selected for analysis should be consistent with the conceptual models developed as part of Step 4 of this framework. Biological indicators (that is, measures of effect) may include measurements along the scales of ecological organization, but they should be quantitatively related to survival, reproduction, or growth, as indicated in the general conceptual model presented in Figure 2. In most cases, the ability to analyze each and every hypothesized relation will be prohibited by data limitations and the project schedule and resources. Moreover, multiple flow indicators may be relevant to a particular relation. For example, analysis of a hypothesized relation between peak flow magnitude and fish-species diversity could use one of several peak-flow indicators (peak daily flow, peak 7-day flow, etc.). It may therefore be beneficial to establish a set of guidelines for flow indicator selection. Guidelines proposed in Apse and others (2008) include the use of flow indicators that are readily calculated, replicated, and communicated. Also recommended by Apse and others (2008) is the use of nonredundant flow indicators (that is, those that are not strongly correlated with one another). Olden and Poff (2003) and Gao and others (2009) describe the use of principal component analysis to identify nonredundant indicators and Archfield and others (2013) used a subset of fundamental daily streamflow statistics to capture the stochastic properties of the streamflow signal while minimizing the potential for redundancy. Other studies have addressed redundancy by investigating the correlation between pairs of potential flow indicators and discarding one indicator from highly correlated pairs (U.S. Army Corps of Engineers and others, 2013). The uncertainty associated with potential flow indicators and attempt to select indicators with low measurement uncertainty can be considered (Kennard and others, 2010a). Finally, identification of flow indicators that are most sensitive to sources of flow alteration can be attempted. For example, if climate change is considered to be an important source of flow alteration, available climate-vulnerability information to identify flow indicators that are

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sensitive to observed and projected climate trends and that are amenable to management changes can be evaluated (See Appendix B for additional discussion of climate-change vulnerability).

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Table 2. Example flow and biological indicators used to evaluate relations between streamflow characteristics and aquatic assemblage response.

Flow component	Flow indicators (measures of exposure)	Biological component	Biological indicators (measures of effect)	Reference
Magnitude	Mean June–July flow; Mean August flow	Fish	Fish density; Fish abundance	Peterson and Kwak (1999); Zorn and others (2008)
Magnitude	Spring maximum flow; Summer median flow	Fish	Fish abundance; Fish-assemblage composition	Freeman and others (2001)
Magnitude	Magnitude of 10-year low-flow event	Fish	Fish Index of Biotic Integrity; Fish-species richness	Freeman and Marcinek (2006)
Magnitude	Mean annual flow; Base-flow index	Macroinvertebrates	Macroinvertebrate abundance; Macroinvertebrate assemblage; composition	Kennen and others (2014); Castella and others (1995)
Magnitude	Maximum flow; Ratio of maximum to minimum flow	Macroinvertebrates	Macroinvertebrate Index of Biotic Integrity; Macroinvertebrate species richness	Morley and Karr (2002)
Magnitude	Magnitude of 1-, 2-, 5-, 10-, and 20-year flood events	Macroinvertebrates	Macroinvertebrate O/E (ratio between the observed and expected) scores; Macroinvertebrate-assemblage	Nichols and others (2006)

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Flow component	Flow indicators (measures of exposure)	Biological component	Biological indicators (measures of effect)	Reference
			composition	
Magnitude	Summer diversion magnitude	Macroinvertebrates	Macroinvertebrate abundance	Wills and others (2006)
Timing	Date of annual maximum flow; Date of annual minimum flow	Fish	Fish abundance; Fish-assemblage composition	Koel and Sparks (2002)
Frequency	Number of days above mean annual flow; Number of events above 75% exceedance flow value	Macroinvertebrates	Macroinvertebrate Index of Biotic Integrity; Macroinvertebrate richness	Booth and others (2004); Kennen and others (2010)
Frequency	Number of flood events; Number of low-flow events	Riparian vegetation	Riparian tree abundance	Lytle and Merritt (2004)
Duration	Duration of high-flow events; Duration of low-flow events	Fish	Fish abundance; Fish-assemblage composition	Koel and Sparks (2002)
Rate of change	Mean rise rate; Mean fall rate	Fish	Fish abundance; Fish-assemblage composition	Koel and Sparks (2002)

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6.7 Develop Qualitative or Quantitative Flow-Ecology Models

A flow-ecology model is a specific type of stressor-response model that describes the relation between a flow indicator and a biological indicator in absolute terms (for example, fish diversity as a function of annual peak flow magnitude) or relative to reference conditions (for example, the percent change in fish diversity as a function of the percent change in annual peak flow magnitude).

Guided by the conceptual model, quantitative flow-ecology models are developed by using statistical methods and used to predict the value of a biological indicator under a variety of flow conditions (Figure 12). Quantitative flow-ecology models take the form of linear or nonlinear regression equations, but other approaches, such as regression tree analysis or change point analysis, also are available. Their development is guided by a variety of exploratory data analysis techniques to characterize individual indicator datasets (their range, average, distribution, etc.), evaluate potential relations, and determine appropriate modeling methods. A thorough review of statistical methods to employ for stressor-response modeling is provided in the report "Using stressor-response relations to derive numeric nutrient criteria" (U.S. Environmental Protection Agency, 2010b). An example approach to flow-target development using quantitative modeling is described in Section 6.9 (see Table 3 and Figure 13).

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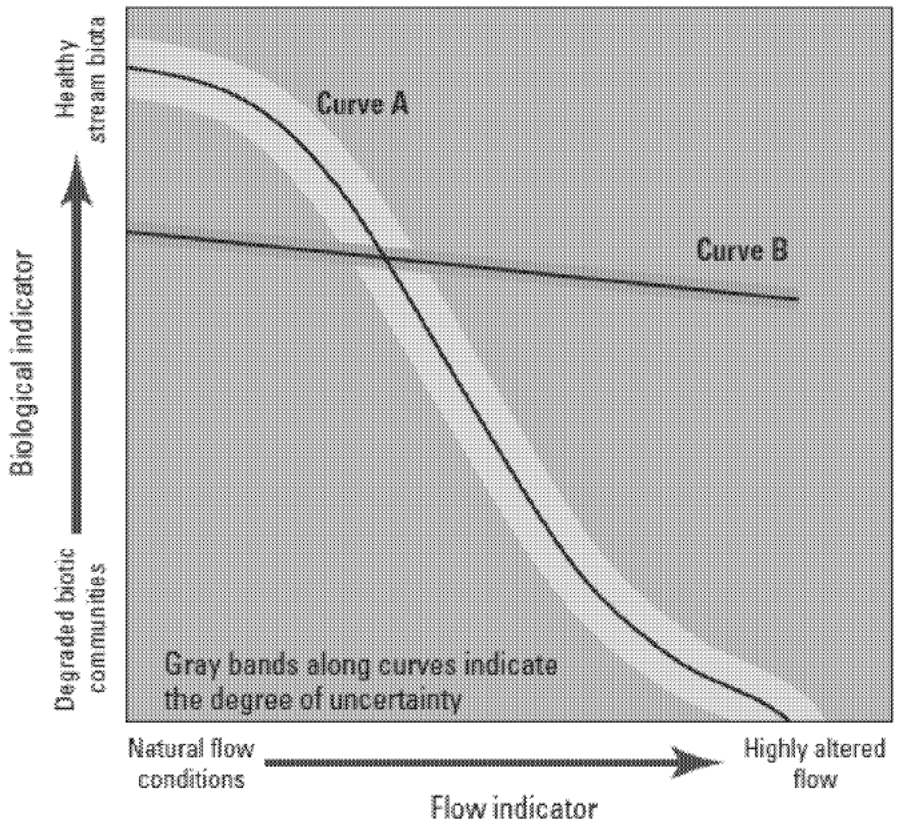

Figure 12. Example flow-ecology curves illustrating quantitative relations between flow and biological indicators.

(Quantitative models provide continuous predictions of biological responses to flow alteration. Curve A depicts a flow-ecology relation with higher sensitivity but greater uncertainty than those associated with Curve B.)

As introduced in Section 4.5, confounding variables are associated with alternative stressors and pathways (that is, other than flow alteration) to a given biological response. The presence of confounding variables at biological monitoring sites can limit the strength of causal inferences about the association between altered streamflow and biological indicators (U.S. Environmental Protection Agency, 2010b). Where feasible, confounding variables should be factored into the development of quantitative flow-ecology models. In practice, researchers have dealt with this issue by explicitly including possible confounding variables in

preliminary models (for example, Carlisle and others,. 2010), by using modeling approaches that implicitly assume the presence of other confounding factors (for example, Konrad and others, 2008; Kennen and others, 2010), or, at a minimum, acknowledging that potential confounding factors were not included in modeling efforts, but that other evidence indicates that their influence likely was minimal (for example, Merritt and Poff, 2010).

Available data may be insufficient to support quantitative flow-ecology modeling, or that data or analytical limitations result in quantitative relations with a low level of statistical significance. In such cases, qualitative flow-ecology modeling is a practical alternative. Qualitative modeling does not attempt to uncover precise numerical relations between flow and biological indicators. Rather, the objective is to describe relations between variables based on hypothesized cause-effect associations using any available evidence. Qualitative modeling can help identify the direction of flow-ecology relations, and possible thresholds for degraded conditions, in data-limited environments.

The conceptual models discussed in Sections 4.1 and 6.4 are examples of qualitative models; however, it may be useful to reformulate conceptual models in terms of the flow and biological indicators selected for analysis. Qualitative models can incorporate numerical flow alteration and biological response thresholds reported in relevant literature, and (or) available data on reference flow and biological conditions. Such models are sometimes referred to as semiquantitative because they include numeric values but, unlike quantitative models, do not allow for precise predictions across the full spectrum of flow alteration. Qualitative modeling can incorporate a set of decision rules for combining and weighting conclusions from existing studies that used inconsistent study designs and data (Webb and others, 2013). An example approach to flow-target development using qualitative modeling is described in Section 6.9 (see Table 3 and Figure 14).

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6.8 Estimate Effects and Identify Acceptable Levels

After modeling flow-ecology relations, dividing lines between acceptable and unacceptable flow alteration to select numeric flow targets can be determined. Effects estimation can guide this process. In general, effects estimation involves estimating effects levels that correspond to increasing magnitudes of a stressor. Effects estimation can define the likelihood that biological goals will not be achieved given a certain magnitude of flow alteration. Effects estimates are categorical (low, medium, high) or numeric (the probability of not meeting a certain biological condition). Effects estimation integrates quantitative or qualitative flow-ecology models, biological goals, and other available evidence.

In cases where quantitative flow-ecology models are available, effects estimation may be centered on the numerical relations between flow and biological indicators and their uncertainty. For example, descriptive effects levels are assigned to incremental flow-indicator values on the basis of predicted effects on stream biota and the degree of uncertainty associated with those predictions (for example, narrative effects statements based on the Biological Condition Gradient [Davies and Jackson, 2006] may provide useful examples). When quantitative models are not available, effects estimates are generated from qualitative flow-ecology models, results of past observational studies, information on current and expected levels of flow alteration, and any other lines of evidence. For more detailed information on characterization and estimation, see, "Guidelines for Ecological Risk Assessment" (U.S. Environmental Protection Agency, 1998) and "Risk Characterization Handbook" (U.S. Environmental Protection Agency, 2000c).

Effects estimation can be guided by threshold values or range of biological indicators, concentration of the stressor magnitude response, etc. that correspond to attainment or non-attainment of biological goals. For some biological indicators, point thresholds may be readily apparent from past studies or known reference conditions, or may be defined by existing biological criteria (for example, Index of Biotic Integrity = 90).

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Alternatively, available evidence may point to a range of biological-indicator values as a suitable threshold (for example, Index of Biotic Integrity between 80 and 90).

After generating effects estimates, numeric flow targets are determined by identifying acceptable levels toward attainment of biological goals. For example, if flow-indicator values are divided into high, medium, or low effects ranges, the decision to set the flow target to the high-medium effects breakpoint, the low-medium breakpoint, or some alternative level is made. The process of identifying acceptable effects levels offers an opportunity to further incorporate uncertainty (for example, uncertainty caused by natural temporal and spatial variability of biological and hydrologic processes, sampling, etc.) in flow-ecology models and is helpful for soliciting and incorporating feedback from stakeholders and the public. The utility of feedback received at this step will likely be maximized if stakeholders have been kept informed and involved throughout the completion of prior steps. Decisions on whether and how to act on suggested modifications to acceptable effects levels and proposed numeric flow targets are weighed according to the strength of scientific support for the change and implications for meeting biological goals.

After acceptable effects levels have been identified and flow targets have been quantified, planning for implementation is enhanced by several key activities. Peer review can be used to evaluate the strength of flow-target values and highlight areas for improvement. Targeted monitoring or modeling can support validation of the ability of flow targets to achieve desired goals. Finally, an adaptive management approach allows flow targets to be periodically evaluated and adjusted to ensure that the desired goals are achieved. The adaptive management approach is continually informed and updated by results of monitoring, research, and experimentation to address specific uncertainties. (See Richter and others [2003] and Konrad and others [2011] for specific examples.)

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6.9 Example Applications of the Flow-Target Framework

Two hypothetical efforts to quantify flow targets to protect aquatic life (referred to as Scenario A and Scenario B) are described in Table 3. Each scenario represents one potential application of the framework discussed in this section to quantitatively translate the following narrative flow criterion: Changes to the natural flow regime shall not impair the ability of a stream to support characteristic fish populations. The two scenarios differ in their approach to several framework steps. These scenarios are not intended to convey recommended methods, but rather describe example approaches for each step and demonstrate the adaptability of the framework to project-specific goals and available resources.

Scenario A is a case in which a state incorporates existing numeric biological condition criteria and an ample hydrologic and biological dataset for quantitative flow-ecology modeling, in which the resulting flow-ecology curves are used as a focal point for estimating effects, identifying acceptable effects levels, and selecting numeric flow targets. In Step 1, biological goals and assessment endpoints are selected from state WQS, which define minimum acceptable values of fish Index of Biotic Integrity (IBI) scores for attaining designated uses. In Step 2, statewide stream classification is undertaken to assign stream segments to one of 10 classes on the basis of catchment size and temperature regime (cold headwater, warm large river, etc.). In Step 3, the literature review uncovers extensive evidence for the effect of summer base-flow depletion on fish diversity and abundance. Conceptual models are developed in Step 4 to demonstrate pathways between anthropogenic sources of summer base-flow depletion and effects on fish populations. Data compiled in Step 5 include fish-survey results, flow-monitoring records, and modeled streamflow data for ungaged stream segments. In Step 6, fish IBI score and the percent reduction in August median flow are determined to be appropriate indicators for flow-ecology modeling because they reflect biological goals and sufficient data are available for analysis. Regression modeling is undertaken in Step 7 by using paired biological and flow data to generate response curves that quantify relations between fish IBI score and reduced August median flow.

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Separate response curves are developed for each of the 10 stream classes defined for the project so that selected targets are transferable between stream segments within each class. In Step 8, fish response curves are used to guide discussions with stakeholders to identify appropriate targets for August median flow that are consistent with meeting the IBI scores for attaining designated uses identified in Step 1.

In Scenario B, qualitative flow-ecology models are generated and integrated with other lines of evidence to identify a set of flow indicators that, if altered, present an unacceptable effect to aquatic communities. In Step 1, the state's WQS do not include biological criteria that establish assessment endpoints defining biological goals, so the state takes appropriate actions, and includes stakeholder input, to identify specific biological goals that are consistent with its designated aquatic life uses. This effort identifies specific fish species and functional groups that are key to ensuring attainment of the state's designated aquatic life uses and, in turn, establishes the goals for interpreting the state's narrative flow criteria. In Step 2, the decision is made to include all streams in the state in the effort and opt not to address stream classification until after the literature review of flow-ecology relations is complete. Literature reviewed in Step 3 demonstrates clear links between fish health and a broad range of flow components. Because documented relations are consistent across stream size and ecoregion, stream classification is not pursued. The conceptual models developed in Step 4 summarize known and hypothesized flow needs of fish, organized by fish species/functional group, season, and flow characteristic. Data compiled in Step 5 focus on streamflow, with long-term records used to calculate reference and affected values of more than 50 flow metrics to evaluate the sensitivity of each metric to anthropogenic sources of flow alteration. On the basis of this analysis and evidence for biological sensitivity, a subset of flow metrics is selected in Step 6. A lack of biological data is determined to prohibit quantitative flow-ecology modeling; therefore, qualitative modeling is undertaken in Step 7 to reframe conceptual models in terms of the subset of flow indicators identified during Step 6. In Step 8, participating agencies review available evidence to estimate effects associated with increasing levels of hydrologic change and, with public

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input, use effects estimates to set targets that express the maximum allowable deviation from reference conditions for each flow indicator.

Although the examples in Scenarios A and B are largely hypothetical, components were drawn from real-world examples. Table 3 below provides an example where one indicator of many biological indicators and flow attributes is used to illustrate the potential relationship between stream flow processes and ecological response. Many more case studies of flow-target quantification can be found in Colorado Division of Water Resources and Colorado Water Conservation Board (2009), Cummins and others (2010), DePhilip and Moberg (2010), Kendy and others (2012), Kennen and others (2013), Richardson (2005), and Zorn and others (2008).

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Table 3. Example applications of the framework to quantitatively translate the following narrative flow criterion: "Changes to the natural flow regime shall not impair the ability of a stream to support characteristic fish populations."

Framework Step	Scenario A: Quantitative Example	Scenario B: Qualitative Example
(1) Link narrative criteria to biological goals and assessment endpoints	Numeric biological goals are defined from existing biological condition criteria, expressed as minimum acceptable values of fish Index of Biotic Integrity (IBI) scores.	Narrative biological goals that are consistent with the designated aquatic life use are defined through interpretation of the narrative flow criterion with stakeholder input. Each biological goal identifies a specific fish species or functional group to protect. Example biological goal: to maintain the abundance of riffle obligate species.
(2) Define scope of action: identify target streams	Statewide stream classification is undertaken that builds on prior stream mapping and fish-ecology research. Individual stream segments are assigned to one of 10 stream classes according to catchment size and water-temperature regime, characteristics known to affect fish distributions. Example stream class: cold headwater.	All streams in the state are included in the effort to develop flow targets. As a result of data and resource constraints, the need for stream classification following the literature review is evaluated.
(3) Conduct literature review	Literature is reviewed to identify flow-regime changes that most affect the condition of fish communities. Relevant literature points to summer base-flow depletion as a factor in reduced fish diversity and abundance throughout the state.	Literature is reviewed to highlight flow-dependent life history and habitat traits of fish species/functional groups referenced in Step 1. Relevant literature demonstrates the importance of a wide range of flow conditions on the health of fish communities in the state, with consistent relations identified across stream size and ecoregion. On the basis of these findings, a systematic stream classification is not needed.

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Framework Step	Scenario A: Quantitative Example	Scenario B: Qualitative Example
(4) Develop conceptual models	Conceptual models depict pathways between anthropogenic sources of summer base-flow depletion and effects on fish populations. Important relations include reduced food availability for both benthic and water-column taxa as a result of reduced wetted-channel perimeter and water depth.	Conceptual models summarize known and hypothesized flow needs of fish, organized by fish species/functional group, season, and flow characteristic.
(5) Conduct data inventory	A database of existing flow and fish-survey records is prepared. Observed data are augmented with predictions from previous hydrologic modeling efforts. Modeled data include reference and present-day values of median monthly streamflow for every stream segment in the state.	Long-term daily flow records, land-use information, and water-use data are compiled. Reference streams (those with minimal flow alteration) and affected streams are identified. Flow records for these sites are used to calculate reference and affected values of 50 or more flow metrics. The sensitivity of each flow metric to anthropogenic sources flow alteration is quantified by comparing reference and affected values.
(6) Identify flow and biological indicators to serve as measures of exposure and effect	Steps 6 and 7 are iterated to examine relationships between potential indicators and flow responses identified in Steps 3-5. Two indicators are selected for quantitative flow-ecology modeling: fish IBI score and the percent reduction in August median flow (relative to reference conditions).	A subset of the flow metrics quantified in Step 5 is selected for flow-target development. Metrics are evaluated according to their sensitivity to anthropogenic sources flow alteration and evidence of biological relevance. Flow indicators describe magnitude and frequency characteristics of high/flood flows, seasonal/average flows, and low/drought flows.
(7) Develop flow-ecology models	Regression modeling is undertaken by using monitoring and modeling data from sites with paired flow and biological data. Final models	Qualitative flow-ecology models are developed by reframing conceptual models in terms of the flow indicators selected in Step 6 (Figure 14).

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Framework Step	Scenario A: Quantitative Example	Scenario B: Qualitative Example
	(termed "fish response curves"; see Figure 13) quantify the relation between fish IBI scores and reduced August median flow. Fish response curves are generated for each of the 10 stream classes defined in Step 2.	
(8) Estimate effects and identify acceptable levels	Fish response curves are shared with stakeholders to guide discussion of acceptable flow targets for each stream class that are consistent with meeting the fish IBI scores. Targets are expressed as a maximum allowable percentage reduction in August median flow by stream type.	Participating agencies review available evidence to estimate effects associated with increasing levels of hydrologic change. For some flow indicators, past studies indicate the likelihood of high effect of biological degradation under any magnitude of flow change. For others, healthy biotic communities are observed under moderate flow change and are determined to pose a lower effect if altered. This information is shared with stakeholders to further refine effects estimates and levels of flow alteration presenting unacceptable effects to stream biota. The outcome of these discussions is a set of targets expressing the maximum allowable deviation from reference conditions for each flow indicator that will protect the aquatic life use.
Follow-up and adaptive management	Participating agencies continue to collect flow and fish-community data. A plan is developed to assess flow targets every 5 years by analyzing new and historic data for evidence of their effectiveness.	Participating agencies continue to collect flow and fish-community data. A plan is developed to assess flow targets every 5 years by analyzing new and historic data for evidence of their effectiveness.

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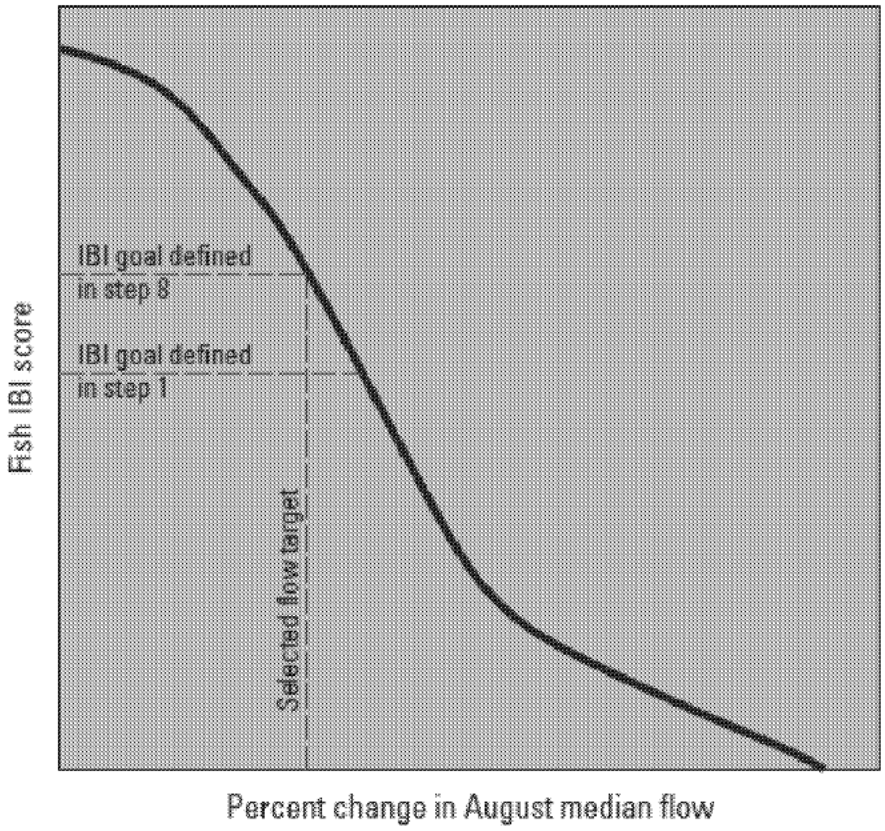

Figure 13. Example fish response curve from Scenario A generated through regression modeling.

(In this scenario, fish response curves depict the relation between altered August median flow and fish-community condition; IBI, Index of Biotic Integrity)

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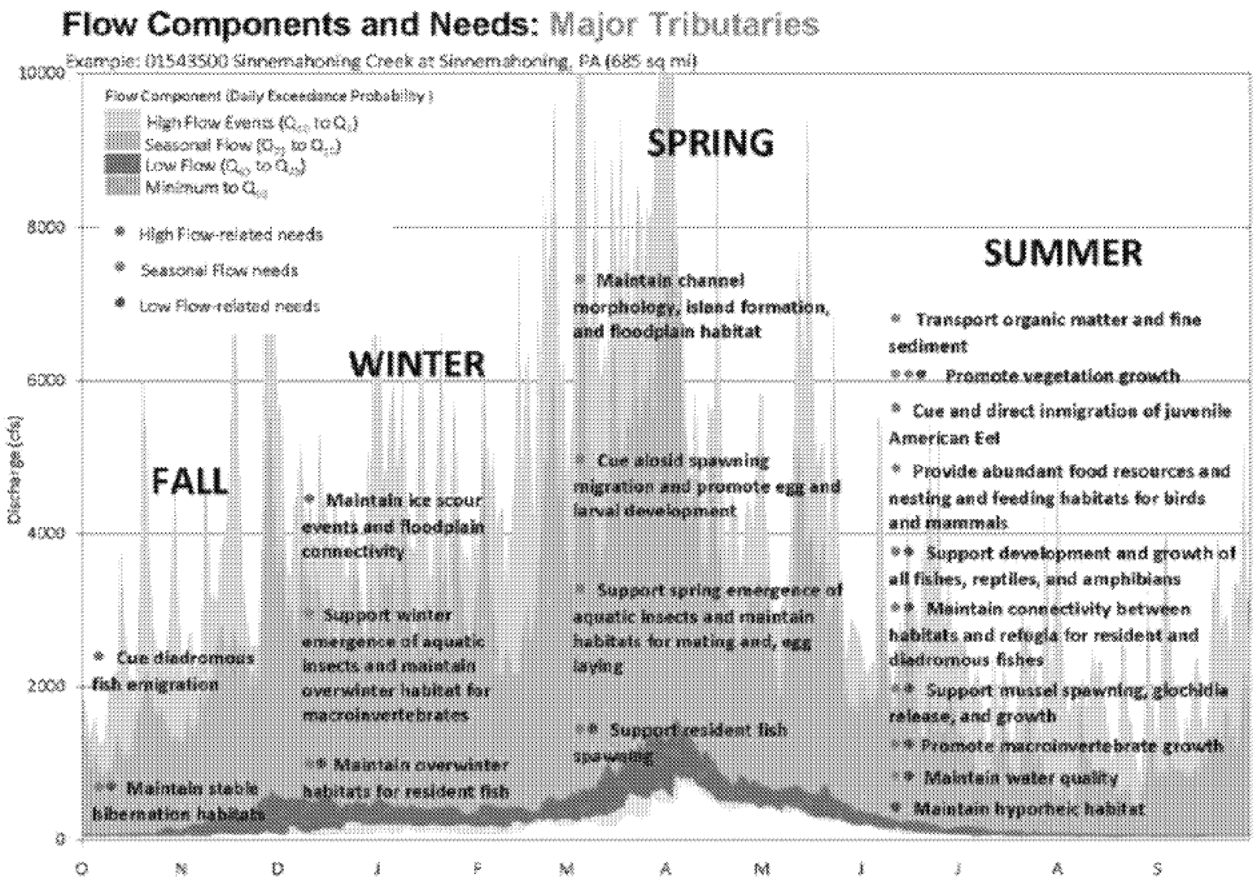

Figure 14. Conceptual diagram illustrating hypothesized flow needs of fish and other aquatic biota by season in major tributaries of the Susquehanna River Basin, northeastern United States.

(Example hydrograph shown is from U.S. Geological Survey station 01543500, Sinnemahoning Creek at Sinnemahoning, Pennsylvania [drainage basin 685 square miles]; as described in Scenario B, conceptual diagrams are used in conjunction with information on natural flow variability, flow alteration, and biological response thresholds to quantify candidate flow targets.) (From DePhilip and Moberg, 2010)

7 Conclusions

The flow regime plays a central role in supporting healthy aquatic ecosystems and the ecological services they provide to society. A stream's natural flow regime is determined by climate and other catchment- and reach-scale properties that affect hydrologic processes such as infiltration, groundwater recharge, or channel storage. Human activities can alter the flow regime by modifying streamflow-generation processes (for example, infiltration, overland flow, etc.), altering the physical properties of stream channels (for example, channelization), or through direct manipulation of surface water and groundwater (dams or water withdrawals). Climate change effects on patterns of water and energy inputs to streams may further exacerbate these effects of flow alteration on aquatic ecosystems.

Alterations to the natural flow regime can contribute to the degradation of biological communities by reducing habitat quality, extent, and connectivity and by failing to provide cues needed for aquatic species to complete their life cycles. Flow alteration can prevent water bodies from supporting aquatic life designated uses defined by state water-quality standards. This report was cooperatively developed to serve as a source of information for states, Tribes, and territories that may want to proactively protect aquatic life from the adverse effects of flow alteration. To that end, the report provides background information on the natural flow regime and potential effects of flow alteration on aquatic life, examples of states and Tribes with narrative criteria, a flexible, nonprescriptive framework to quantify targets for flow regime components that are protective of aquatic life, and Appendix A, which provides illustrative examples of CWA tools that states and Tribes have used to protect aquatic life from altered flow.

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Appendix A. Examples where States and Tribes have applied Clean Water Act (CWA) Tools to Protect Aquatic Life from Altered Flows or that Account for Variations in the Flow Regime

A.1 Monitoring, Assessing, and Identifying Waters Impaired as a Result of Flow Alteration

States ensure Water Quality Standards (WQS) are met through implementation of technology and water quality-based controls, monitoring to assess use attainment status, reporting on use attainment and identifying impaired waters, and implementing appropriate restoration measures where waters are impaired. Waters are classified and states report on their condition to support use attainment decisions under Sections 303(d) and 305(b). States use their monitoring and assessment programs to identify and report to the public those waters that have impairments from pollution, defined under the CWA as "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water" (Section 502(19)), including the effects of altered flow regimes or hydromodification (U.S. Environmental Protection Agency, 1997, 2003, 2005, 2016). Attainment of designated uses is evaluated through monitoring and assessment of indicators that reflect state WQS, including narrative or numeric criteria, or evaluating other data or information (U.S. Environmental Protection Agency, 1991). Accurately identifying the impairment status of these waters allows states to engage stakeholders on appropriate restoration strategies. The state of the science for restoring waters impaired by hydrologic alteration has evolved considerably, including, for instance, dam re-operation and improved methods for surface- or groundwater withdrawals.

States can record and evaluate flow information even when routine monitoring cannot occur as a result of extreme (high or low) flow conditions. This evaluation could include analytical hydrologic tools such as the USGS StreamStats (a Web application that provides users with access to stream network tools for water-resources planning purposes: http://water.usgs.gov/osw/streamstats/) or qualitative visual observations of streams. Such data or information could be used for making attainment decisions. For instance, the absence of

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water from a perennial stream could demonstrate that the aquatic life designated use is not being attained, and a state may conclude that the designated use is impaired. Texas provides an example: for each visit to nontidally influenced freshwater streams or rivers, the Texas Commission on Environmental Quality (TCEQ) monitoring procedures require that a "flow-severity" field (with a value of no flow, low flow, normal flow, flood flow, high flow, or dry) be recorded, even if it is not possible to quantitatively measure flow or conduct sampling during a visit (see Box E).

Box E. Procedures for Capturing Flow Information in the State of Texas

The publication "Surface water quality monitoring procedures, Volume 1: Physical and chemical monitoring methods" (Texas Commission on Environmental Quality [TCEQ], 2012) describes how Texas monitors all flow conditions and captures flow information in its State database. Parameter codes for data uploads to the U.S. Environmental Protection Agency (EPA) Storage and Retrieval Data Warehouse (STORET), a repository for water monitoring data, are provided for each type of data collected. In addition to describing methods for capturing quantitative flow information, the document describes how to capture qualitative flow information with the "flow-severity" field:

- "Record a flow-severity value for each visit to freshwater streams or rivers (nontidally influenced) and report the value to the TCEQ central office. Do not report flow severity for reservoirs, lakes, bays, or tidal streams. It should be recorded even if it was not possible to measure flow on a specific sampling visit. See the Surface water quality monitoring data management reference guide for detailed information on data reporting." (Texas Commission on Environmental Quality, 2013)
- "No numerical guidelines are associated with flow severity, an observational measurement that is highly dependent on the water body and the knowledge of monitoring personnel. It is a simple but useful piece of information when assessing water quality data. For example, a bacteria value of 10,000 with a flow severity of 1 would represent something entirely different than the same value with a flow severity of 5."

Table 3.2 of Texas Commission on Environmental Quality (2012) provides photographs of each "flow-severity" category and the following descriptions, which can be found at https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg415/rg-415_chapter3.pdf (accessed February 4, 2016):

- "No Flow. When a flow severity of 1 is recorded for a sampling visit, record a flow value of 0 ft^3/s (using parameter code 00061) for that sampling visit. A flow severity of 1 describes situations where the stream has water visible in isolated pools. There should be no obvious shallow subsurface flow in sand or gravel beds between isolated pools. —No flow not only applies to streams with pools, but also to long reaches of streams that have water from bank to bank but no detectable flow."
- "Low Flow. When streamflow is considered low, record a flow-severity value of 2 for the visit, along with the corresponding flow measurement (parameter code 00061). In streams too shallow for a flow measurement where water movement is detected, record a value of < 0.10 ft3/s. In general, at low flow the stream would be characterized by flows that don't fill the normal stream channel. Water would not reach the base of both banks. Portions of the stream channel might be dry. Flow might be confined to one side of the stream channel."
- "Normal Flow. When streamflow is considered normal, record a flow severity value of 3 for the visit, along with the corresponding flow measurement (parameter code 00061). What is normal is highly dependent on the stream. Normality is characterized by flow that stays within the confines of the normal stream channel. Water generally reaches the base of each bank."
- "Flood Flow. Flow-severity values for high and flood flows have long been established by the EPA and are not sequential. Flood flow is reported as a flow severity of 4. Flood flows are those that leave the confines of the normal stream channel and move out onto the floodplain (either side of the stream)."

- "High Flow. High flows are reported as a flow severity of 5. High flow would be characterized by flows that leave the normal stream channel but stay within the stream banks."
- "Dry. When the stream is dry, record a flow-severity value of 6 for the sampling visit. In this case the flow (parameter code 00061) is not reported, indicating that the stream is completely dry with no visible pools."

An example of a reporting option that helps clearly delineate and address waters impaired as a result of streamflow alteration is described in Box F, which illustrates the use of Category 4F in Vermont.

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Box F. Vermont Addresses Hydrologically Altered Waters

Vermont first adopted narrative criteria into its water quality standards (WQS) for Clean Water Act purposes for flow or hydrologic condition in 1973 (for full text, see http://www2.epa.gov/sites/production/files/2014-12/documents/vtwqs.pdf [accessed February 4, 2016] or Vt. Code R. 12 004 052, http://www.vtwaterquality.org/wrprules/wsmd_wqs.pdf [accessed February 4, 2016]). Although hydrologic alteration is listed under integrated reporting guidance as Category 4c (impairments due to pollution not requiring a Total Maximum Daily Load), Vermont does address flow-related exceedance of the WQS through the Vermont Priority Waters List. This list includes waters assessed as "altered" using the state's assessment methodology (Vermont Department of Environmental Conservation, 2014: http://www.vtwaterquality.org/mapp/docs/mp_assessmethod.pdf [accessed February 4, 2016]). Part F of the Priority Waters List is water bodies that do not support one or more designated uses as a result of alteration by flow regulation (primarily from hydroelectric facilities, other dam operations, or industrial, municipal, or snowmaking water withdrawals). This list includes a description of the problem, current status or control activity, and the projected year the water-body segment will come into compliance with WQS. Creating a new category for hydrologic alteration helps separate it from other causes of pollution effects that would be reported in Category 4.

A.2. Development of Total Maximum Daily Loads

A total maximum daily load (TMDL) is a calculation of the maximum amount of a pollutant that a water body can receive and still meet WQS, and an allocation of that load among the various sources of those pollutants. Quantity of flow and variation in flow regimes are important factors in the fate and transport of pollutants (for example, sediment, pathogens, and metals), and therefore flow is considered when calculating TMDLs. A common source of streamflow data is the USGS National Water Information System. Several EPA TMDL technical documents discuss the role of flow in the context of methods and models to develop loadings and

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load and waste-load allocations. These include the EPA document on developing TMDLs based on the load-duration curve approach (U.S. Environmental Protection Agency, 2007) and the EPA protocol for developing sediment TMDLs (U.S. Environmental Protection Agency, 1999).

A.3 Consideration of Flow Alteration in Issuing 401 Certifications

Under CWA Section 401 states and authorized Tribes have the authority to grant, condition, or deny certification for a Federal permit or license (see CWA Section 401(a)(1)) to conduct any activity that may result in any discharge into navigable waters. Before issuing a CWA Section 401 certification, a state or Tribe would ensure that any discharge to navigable waters from the activity to be permitted or licensed will be consistent with, among other things, the state's WQS and any other appropriate requirement of state law (see CWA Section 401(d)).

Box G. 401 Certifications, Sufficient Flow, and Water Quality Standards

South Carolina Board of Health and Environmental Control Negotiates New Commitments for Recertification

In 2009, South Carolina denied a 401 certification of a hydroelectric project license renewal (involving 11 dams), stating, "[t]he Board finds that the WQ Certification does not provide sufficient flow to protect classified uses, the endangered shortnose sturgeon and adequate downstream flow….to provide reasonable assurance….that WQS will be met." As a result of that action, negotiations were held that resulted in an agreement in 2014 and granting of the 401 certification. The agreement conditions committed the energy company to operating its dams to improve conditions for the sturgeon, protect flow conditions during spawning periods, and provide periodic flood-plain inundation mimicking ecologically important natural floods and recessions.

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A.4 Consideration of Flow Alteration in Issuing 404 Permits

CWA Section 404 regulates[6] discharge of dredged or fill material into waters of the United States, and some proposed projects may result in loss of the conditions necessary for survival of aquatic life, including, for example, lotic species (species that depend on flowing water for survival).

Examples of projects involving discharge of dredged or fill material that affect hydrology include the construction of new water withdrawal or storage systems (for example, reservoirs); valley fills and waste disposal areas for resource extraction; expansion of existing withdrawal or storage systems; diversions and construction of projects such as drinking-water or flood-control reservoirs, impoundments for energy generation, and fishing reservoirs or amenity ponds (an impoundment developed for recreation and (or) aesthetic purposes). Impoundments alter streamflows, and operation of dams to manage releases largely determines how closely downstream flows resemble the natural hydrograph.

Activities proposed for Section 404 permits (issued by the U.S. Army Corps of Engineers) are reviewed by resource agencies (Federal and state) and are subject to Section 401 certification. Permits issued by a state that has assumed the Section 404 program (as of 2015, only Michigan and New Jersey have approved Section 404 programs), or issued by a state or Tribe implementing a programmatic general permit issued by the U.S. Army Corps of Engineers, consider the potential effects of a project on attainment of WQS, including antidegradation requirements.

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[6] The responsibility for administering and enforcing CWA Section 404 is shared by the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency. For more information on these responsibilities, see http://www.epa.gov/cwa-404/laws-regulations-executive-orders and http://www.epa.gov/cwa-404/policy-and-guidance

A.5 Consideration of Flow Alteration in Issuing National Pollutant Discharge Elimination System (402) Permits

National Pollutant Discharge Elimination System (NPDES) permits are generally required for point-source discharges of pollutants. Many NPDES permits depend on streamflow data for pollutant discharge limit calculations. Permits issued under CWA Section 402 use critical low-flow values such as the 7Q10 (7-day, 10-year annual low-flow statistic) or regulated low flows to calculate a permittee's discharge limits so that permitted values will be protective of aquatic life under the most critical conditions. Many rivers and streams across the United States have experienced trends in low flows since the 1940s–with increases generally in the Northeast and Midwest, and decreases (streams carrying less water) in the Southeast and the Pacific Northwest (Figure 7). Permit writers use the most up-to-date critical low-flow information for the receiving water and, where historical flow data are no longer representative, use current low-flow data to calculate effluent permit limits to protect for the new critical low flow (see the EPA Water Quality Standards Handbook [U.S. Environmental Protection Agency, 1994, Chapter 5.2]).

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Box H. Stormwater and West Virginia Department of Environmental Protection Municipal Separate Storm Sewer Systems (MS4) Permit Language

The West Virginia Department of Environmental Protection issued a small MS4 permit including the language below for new and redevelopment projects to reduce effects from stormwater runoff at permitted sites:

"Performance Standards. The permittee must implement and enforce via ordinance and/or other enforceable mechanism(s) the following requirements for new and redevelopment: [....]"

"Site design standards for all new and redevelopment that require, in combination or alone, management measures that keep and manage on site the first one inch of rainfall from a 24-hour storm preceded by 48 hours of no measurable precipitation. Runoff volume reduction is achieved by canopy interception, soil amendments, evaporation, rainfall harvesting, engineered infiltration, extended filtration, and/or evapotranspiration and any combination of the aforementioned practices. This first one inch of rainfall must be 100% managed with no discharge to surface waters."

For a full compendium of this and other examples, see U.S. Environmental Protection Agency (2014c).

For additional examples of stormwater-related permits and their analysis, see U.S. Environmental Protection Agency (2012b).

A.6 Further Considerations

The discussion above is not meant to be a comprehensive assessment of all CWA tools that may address flow and the protection of aquatic life uses. In addition to the approaches mentioned above, other non-CWA mechanisms exist that may protect aquatic ecosystems from alteration of flow. Although many of these programs may provide a method to specifically address these altered-flow effects, others may lack specified frameworks and (or) established methods to quantify targets to address the impacts of flow on aquatic life

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uses, allowing room for supplemental considerations or the application of methods considered the “best available science.”

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Appendix B. Climate-Change Vulnerability and the Flow Regime

Climate change is one category of stressors among many (see Section 4.3) that increase the vulnerability of rivers and streams to flow alteration and affect the ecosystem services they provide. Changes in global temperature and shifts in precipitation are superimposed on local stressors such as water contamination, habitat degradation, exotic species, and flow modification (Dudgeon and others, 2006). Given the challenges posed by climate change, many natural-resource management agencies likely will find protecting and restoring the health of aquatic ecosystems increasingly challenging. For example, projected changes in temperature and precipitation due to climate change are expected to increase the departures from historic conditions. This means that using the past envelope of variability as a guide for the future is no longer a reliable assumption in water-resources management (Milly and others, 2008). Observed streamflow trends since about 1940 indicate regional changes in low flows, high flows, and timing of winter/spring runoff (U.S. Environmental Protection Agency, 2014b). However, there is much uncertainty about the future effect of climatically driven changes on streamflow. Even though knowledge of national and regional climate-change effects are useful at a coarse scale, water scientists need to move from generalizations of climate-change effects to more regional and (or) place-based effects to develop approaches relevant to the scale of management (Palmer and others, 2009). Global, national, and regional effects are described comprehensively elsewhere (Intergovernmental Panel on Climate Change, 2007; Field and others, 2014; Georgakakos and others, 2014; Karl and others, 2009).

Resilience is the ability of a system to recover after disturbance and the capacity of that system to maintain its functions in spite of the disturbance (Turner and others, 2003; Walker and others, 2004). Restoring or maintaining a natural flow regime can increase system resilience to climate-change effects and help avoid or reduce intensification of historical stresses (Beechie and others, 2013; Palmer and others, 2008, 2009; Pittock

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and Finlayson, 2011; Poff and others, 2012). Therefore, defining and protecting environmental flows is not only a way to protect and restore rivers and streams from anthropogenic stressors, but it may also be a means of adapting to climate-change.

Not all rivers and streams are equally vulnerable to the effects of climate change. An assessment of climate-change vulnerability can help identify locations and hydrologic and ecological attributes that are most vulnerable to altered climate conditions. A climate-change vulnerability assessment, at a minimum, will supply specific information on the type of climate change expected across the assessed area. Depending on the scope of the effort, a climate-change vulnerability assessment may also translate projected changes in climate into effects on flow and (or) aquatic biota. This information is valuable for planning and implementation of Clean Water Act program strategies to support the resilience of aquatic life to a changing climate. Furthermore, flow and biological projections are incorporated into efforts to quantify flow targets that are protective of aquatic life under both historic and projected future climate conditions.

Approaches for assessing climate-change vulnerability are evolving and becoming more robust (Dawson and others, 2011). This appendix describes the components of vulnerability (Box I) and presents two examples from studies in California (Box J) and the Pacific Northwest (Box K) that illustrate the ways in which regional climate-change effects are being incorporated into vulnerability studies of the flow regime and the potential resulting effects on aquatic life (Box J).

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Box I. Components of Climate-Change Vulnerability

The paragraphs that follow briefly describe the primary components of climate-change vulnerability that may be included in climate vulnerability assessments: exposure, sensitivity, and adaptive capacity. An in-depth discussion of these components is available in Glick and others (2011) and Poff and others (2012). Generalized case examples available in Glick and others (2011) demonstrate assessment approaches for climate vulnerability assessments across various ecosystems and species, both aquatic and terrestrial. Examples that focus on watershed vulnerability and aquatic resources are included in Furniss and others (2013). An additional resource (U.S. Environmental Protection Agency, 2014a) is a workbook for organizations managing environmental resources that provides a two-part process to carry out vulnerability assessments and develop effects-based adaptation plans for strategic climate-change plans.

Exposure: Exposure generally refers to the character, magnitude, and rate of climatic changes (Glick and others, 2011). Results of climate model simulations such as regional climate projections or downscaled climate projections, though accompanied by uncertainty, can help to estimate the range and location of potential climate change. Identifying sources of increased past variability may also be helpful (for example, paleoclimate records of tree-rings). Those changes that are ecologically significant (for example, those that affect an assessment endpoint) are considered as exposure metrics (for example, snowpack vulnerability, winter water temperature, aridity index, monthly precipitation, winter peak flows, freeze and thaw days, etc.) Additional examples of exposure metrics used in case studies are given in Furniss and others (2013).

Sensitivity: Climate sensitivity is the degree to which a system, habitat, or species is (or is likely to be) altered by or responsive to a given amount of climate change (in this case, climate-induced hydrologic changes in particular) (Glick and others, 2011). Sensitivity factors can include intrinsic attributes of a watershed, aquatic ecosystem, or organism, as well as the existing condition owing to anthropogenic factors. For example, the hydrology in a snowmelt-dominated watershed (and the ecosystem that is adapted to this hydrologic regime)

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may be more sensitive to climate changes that reduce the proportion of precipitation from snow than that in a rainfall-dominated watershed (see the Beechie and others [2013] example in Box K). Many of the intrinsic attributes at the landscape level (for example, geology, soil, topography) affect the sensitivity of the aquatic ecosystem to any stressor. For example, the rate at which shifts in stream temperature can occur is driven by variables such as stream slope and interannual variability—so the rate at which temperature gradients shift are variable, even within a given basin, and statistically significant signals may not be detected for decades (Isaak and Reiman, 2013). The intrinsic factors that affect sensitivity at the population scale may include environmental tolerance range (for example, thermal tolerances), mobility, genetic adaptation, and range or population size.

Adaptive Capacity: Adaptive capacity is the ability of a species or system to cope with or adjust to climate-change effects with minimal disruption (Glick and others, 2011). It is also a subset of system resilience and can help managers assess vulnerability for use in decision making. Ecosystems and aquatic organisms can cope with climate change in different ways; for example, they may migrate, shift to more suitable microhabitats, or persist in place (for example, phenotypic plasticity) (Dawson and others, 2011). On a landscape scale, some vulnerability assessment approaches include landscape/river connectivity under this component. Many adaptive capacity factors may be those pre-existing conditions that future management conditions can address (for example, reducing fragmentation of a water body, thereby preventing mobility to more suitable conditions, such as cooler temperatures) (Glick and others, 2011). The Pacific Northwest salmon restoration case study (Box K) provides some examples of restoration practices Beechie and others (2013) identified as adaptive activities that may ameliorate some of the expected climate changes and increase habitat diversity and salmon population resilience.

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Box J. California's Climate-Change Vulnerability Index

The goal of the California Integrated Assessment of Watershed Health (U.S. Environmental Protection Agency, 2013b) was to identify and better protect healthy watersheds by integrating data and making them available to planning agencies for improved coordination of monitoring and prioritization of protection efforts. The primary partners included the U.S. Environmental Protection Agency (EPA) and the Healthy Streams Partnership (HSP), an interagency workgroup of the California Water Monitoring Council. The assessment partners identified and integrated 23 indicators of watershed health, stream condition, and watershed vulnerability to characterize relative watershed health and vulnerability across California. The indicators used in this assessment reflect the reality that multiple ecological attributes and anthropogenic effects play a role in watershed and stream health, and need to be considered together.

The integrated watershed vulnerability index used in the assessment of watershed health is a composite of four vulnerability indices that may change from 2010 to 2050 (land cover, wildfire severity, water use, and climate change). The composite climate-change vulnerability index, in turn, is composed of seven component metrics of estimated climate-change parameters using projections from Cal-Adapt, a collaboration of several institutions that modeled downscaled hydrologic response across California by using temperature and precipitation projections produced from global general circulation models (GCMs). The interagency partners used the modeled outputs to evaluate the relative response of watersheds in California to future climate change, but the models did not explicitly simulate effects on ecosystem health or watershed processes (although they are certainly related to the modeled inputs), nor was the sensitivity of those watersheds to such changes a focus of this screening-level assessment. Rather, the vulnerability index is meant to be assessed with the composite indices of stream health and watershed condition to help prioritize protection opportunities.

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The HSP used annual precipitation, mean base flow, mean surface runoff, and snowpack (as snow water equivalent) as the hydrologic responses to projected climate change because they were identified as the primary indicators affecting stream hydrology. It also identified annual temperature maximum, minimum, and mean as climate variables that may affect future watershed vulnerability. The interagency partners calculated the percent difference between projected values of these indicators (that is, component metrics of exposure) from 2050 and 2010.

The composite results of the vulnerability assessment (Figure B-1) illustrate the climate exposure primarily in terms of its effects on temperature and hydrology-related parameters in this example. Overall, the climate vulnerability component of this assessment identified the greatest vulnerability for northern California as a result of a combination of expected temperature increases and changes in snowpack, surface runoff, and base flow.

This screening-level assessment is an instructive example that may help inform the protection of healthy watersheds based on climate-change vulnerability. However, the assessment combined other vulnerability indices—land cover, water use, and fire-regime class (which can affect surface erosion, sediment deposition, and stream temperature)—with climate change as characteristics that could modify (exacerbate or ameliorate) overall vulnerability. Additionally, this assessment not only sought to develop priorities based on ecosystem vulnerability, but also a comprehensive understanding of the overall status of the aquatic ecosystem. For the entire assessment, stream condition, watershed health, and vulnerability were considered.

For more information, see U.S. Environmental Protection Agency (2013b) (http://www.epa.gov/sites/production/files/2015-11/documents/ca_hw_report_111213_0.pdf).

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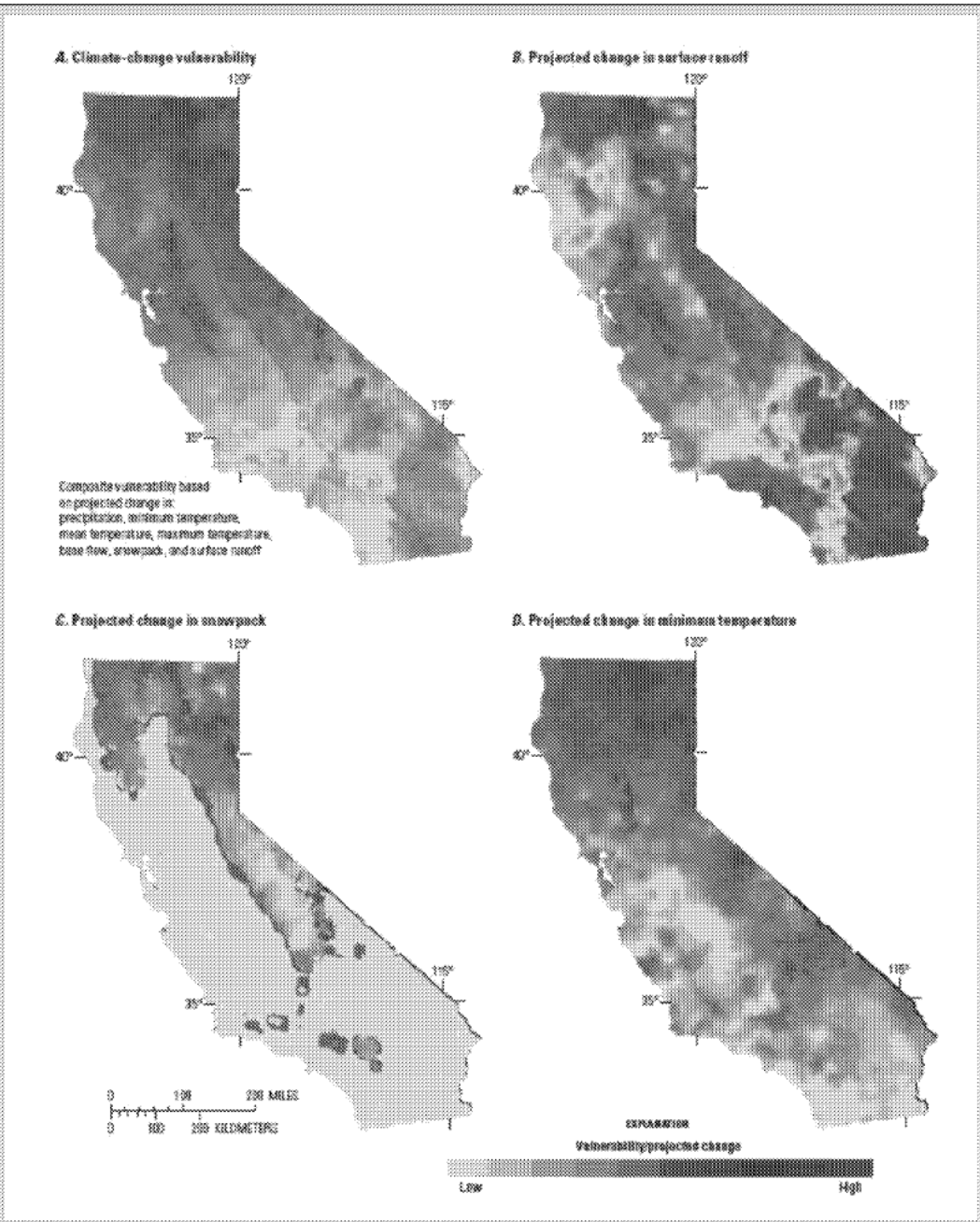

Figure B-1. (a) Composite results of the vulnerability assessment illustrating the combined changes in the seven component metrics of projected climate-change parameters, three of which are shown: (b) surface runoff, (c) minimum temperature, and (d) snowpack. (Additional component metrics including projected change in precipitation, mean temperature, maximum temperature, and base flow are shown in U.S. Environmental Protection Agency [2013b], available at http://water.epa.gov/polwaste/nps/watershed/integrative_assessments.cfm.)

Box K. Addressing Regional Climate-Change Effects on Salmon Habitat in the Pacific Northwest: Examples for Prioritizing Restoration Activities

Salmon habitat restoration is a prominent issue in the Pacific Northwest; however, a need exists to better understand whether current restoration activities and priorities will be effective under future climate conditions. Beechie and others (2013) sought to address this issue by providing insight into ways in which a restoration plan might be altered under various climate-change scenarios.

The authors developed a decision support system to adapt salmon recovery plans to address climate-mediated stream temperature and flow changes in order to both ameliorate climate effects and increase salmon resilience. To guide the effort, the researchers mapped scenarios of future stream temperature and flow and performed a literature review of current restoration practices.

The authors modeled stream temperature and flow from a multimodel average of daily gridded precipitation and air temperature. By using the variable infiltration capacity (VIC) model, the inputs were used to predict daily runoff, runoff routing, and stream temperature and flow. (Additional information on the specifics of the development of these parameters is found in Beechie and others [2013].) The scenario mapping exercise compared historical baseline (1970–99) water temperature and flow conditions to those projected for the periods 2000–29, 2030–69, and 2070–99. The researchers modeled mean monthly flows, calculating the change in magnitude and timing of maximum monthly flows between the future period and the historical baseline for each stream cell. They modeled and mapped stream temperature directly. The results indicated lower summer flows (35–75 percent lower), higher monthly maximum flows (10–60 percent higher), and higher air and stream temperatures (maximum weekly mean temperature 2–6 ºC [degrees Celsius] higher). Snowmelt-dominated hydrologic regimes across the region almost entirely disappeared by the 2070–99 time period, and transitional (rain-snow mix) hydrologic regimes contracted substantially as well. By the final 2070–

99 time period, most of the region was characterized by a rainfall-dominated hydrologic regime. The authors compared the projected stream-temperature changes to the known thermal thresholds and seasonal flows needed during different salmonid life stages (Figure B-2).

Beechie and others (2013) carried out a literature review to identify restoration practices that could ameliorate expected changes in streamflow (base-flow decrease and peak-flow increase) and stream temperature, and increase habitat diversity and population resilience. The primary activities most likely to do so include restoring flood-plain connectivity, restoring streamflow regimes, and reaggrading incised stream channels.

This Pacific Northwest salmonid restoration example combines projected climate-exposure information and known ecological sensitivities of salmonid species to improve understanding of potential vulnerability to climate change. This knowledge can help inform management plans to prioritize restoration practices that are more likely to be effective under projected climate scenarios.

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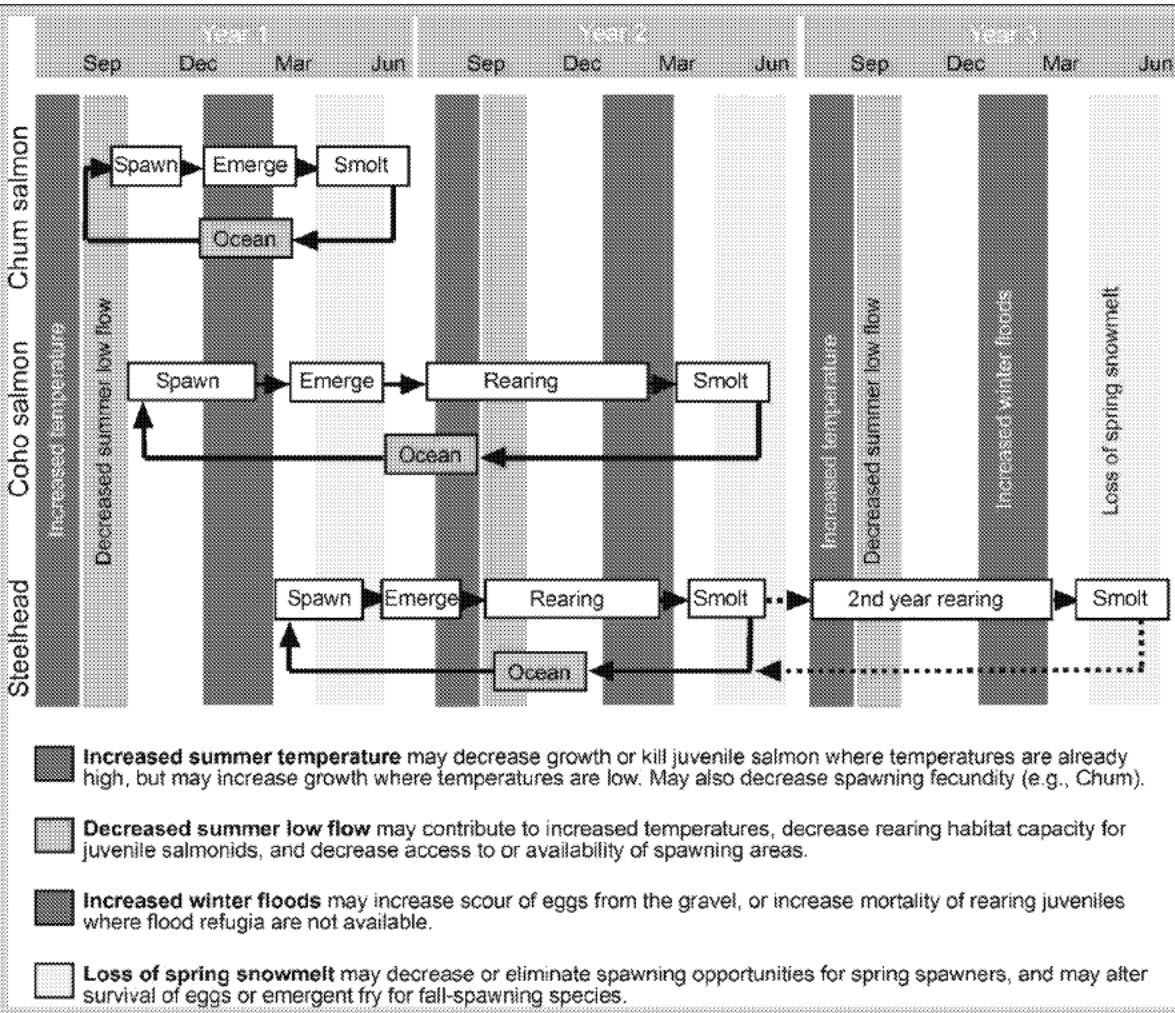

Figure B- 2. Diagram showing effect of climate change on life stages of salmonids through time, by season. (Modified from Beechie and others, 2013; white rectangles represent the freshwater life-history stage of salmonids, gray boxes represent the ocean stage, and stippled lines indicate an alternate life-history)

The science of incorporating climate change into environmental flow assessments is young and complex. Considerations for incorporating climate change into the framework for developing flow targets to protect aquatic life discussed in Section 6 and illustrated in Figure 10 are presented above. This information can help identify which ecologically significant flow indicators may be most affected by climate change (as determined from the observed trends and projections). These examples can help elucidate relative climate effects (that is, vulnerability) related to flow targets and the aquatic life uses they are designed to protect. States and Tribes

can more effectively prioritize limited resources and identify new management actions more strategically to increase aquatic-ecosystem resilience. This framework is meant to be a qualitative assessment to rank relative effects, which may help in identifying and ranking adaptive management actions in later steps. In a resource-constrained environment, managers also need to evaluate the importance of projected climate change on key hydrologic variables compared to that of hydrologic alteration from other anthropogenic sources. The ranking of effects below can assist in this process to optimize management of limited resources.

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Table B1. Incorporating climate-change considerations into the framework for quantifying flow targets.

Framework component	Potential climate-change considerations
(1) Formally link narrative criteria to biological goals	May not be applicable to Step 1 unless climate changes affect biological expectations.
(2) Identify target streams	Consider which elements, if any, in the classification of target streams are climate dependent.
(3) Conduct literature review	Consider all potential climate-change-related effects that could eventually threaten the target streams. Identify available climate-change reports relevant to the region or state water resources. Identify potential changes in ecologically relevant flow components from both observed trends and projected changes. It may be helpful to create broad categories of effects and list specific stressors by type for consideration in conceptual model development.
(4) Develop conceptual models	Include climate change in development of conceptual models. Consider how climate-related stressors can affect biological goals from various pathways, building on the findings obtained from the literature review. The level of detail should be commensurate with the level of detail for planning or screening.
(5) Inventory data	Identify which of the available observed hydrologic, climatic, and biological data may be affected by climate-related stress identified in preceding steps. Consider observed data/projected information to identify the already or potentially affected biological indicators and (or) flow indicators/flow-regime components. Rate them considering the following qualitative categories: **consequences (low, medium, high); likelihood (low, medium, high); spatial extent (site, watershed, region); time until problem begins (decades, within next 15 to 30 years, already occurring/likely occurring**). Consider sensitivity: Do some characteristics of the catchment increase or decrease sensitivity to these climate stressors (for example, north-facing aspect or high elevations may reduce sensitivity of snowmelt or water temperature to increased air temperature, whereas south-facing aspect or low elevations may increase sensitivity).

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Framework component	Potential climate-change considerations
(6) Identify biological and flow indicators	Identify which biological and flow indicators may be most affected by climate change. Rate them by considering the qualitative categories previously mentioned (consequence, likelihood, spatial extent, time until problem begins).
(7) Develop qualitative or quantitative flow-ecology models	Climate change considerations may not be applicable to Step 7.
(8) Identify acceptable biological condition goals/effects levels	Compare range of potential likely climate changes to the potential flow targets.
(9) Select candidate flow targets	Compare range of potential likely changes to the actual selected flow target. Identify management adaptation actions and determine which of them are most appropriate given the likely effect to flow targets/biological goals.
(10) Monitor, evaluate, and periodically refine flow targets	Assess observed climate and hydrologic data for any emerging climate-change related trends in variability of magnitude, frequency, duration, timing, and rate of change of flow. Identify and assess new or updated climate-change projections. Are the updated projections consistent with observed trends and (or) other existing projected information? How are the updated projections ecologically significant? Do the updated climate change projections merit reassessment of acceptable effects levels and the ability to meet environmental flow targets under current management practices?

As discussed in this appendix, climate change may challenge the management of aquatic resources because past variability is no longer a reliable assumption for the future. However, protection of environmental flows can serve as an adaptation tool, increasing resilience so that a system is more likely to recover from the effects

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of climate change. Climate-change vulnerability assessments can help managers strategically address water-resource protection in spite of uncertainty. Climate-change vulnerability assessment approaches are highly diverse; the two presented here illustrate only two of the many possible approaches. The California example (Box J) describes a screening-level assessment in which climate-change exposure is the focus, whereas the Pacific Northwest example (Box K) additionally accounts for potential effects of climate exposure on assessment endpoints, in large part on the basis of the sensitivity of the biota and their life stages. The information developed during a climate-change vulnerability assessment can help managers identify differential effects to aquatic resources and understand the reasons that their resources are at risk so they can set priorities and develop appropriate management responses.

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Message

From: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Sent: 3/9/2017 4:28:21 PM
To: Brown, Byron [brown.byron@epa.gov]; Jackson, Ryan [jackson.ryan@epa.gov]
Subject: FW: Send-off for Randy Deitz - March 29th Please forward to others that may be interested
Attachments: removed.txt

FYI – I plan to attend.

Message

From: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Sent: 3/8/2017 9:34:40 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: Summary of EPW oversight over WOTUS Rule
Attachments: Summary of EPW oversight over WOTUS Rule.docx

Byron,

Attached is a summary of oversight conducted by the EPW Committee relating to the WOTUS Rule. Please let me know if you are interested in any of the underlying materials that are referenced.

Susan

Susan Parker Bodine
Chief Counsel
U .S. Senate Environment & Public Works Committee
410 Dirksen Senate Office Building
Washington, DC 20510
202-224-6176

I. Background[1]

A. History of Water Pollution Legislation

The Rivers and Harbors Act of 1899 addresses navigable waters. Section 13 of that Act (known as the Refuse Act) (33 U.S.C. 407) also applied to tributaries of navigable waters. That section (now superseded) made it unlawful to discharge refuse "into any navigable water of the United States, or into any tributary of any navigable water from which the same shall float or be washed into such navigable water."[2]

The Water Pollution Control Act of 1948, Pub. L. No. 80-845, 62 Stat. 1155 (June 30, 1948) addressed interstate waters and tributaries thereof. Renamed the Federal Water Pollution Control Act (FWPCA) in 1956, (Pub. L. No. 84-660, 70 Stat. 498) it was amended again in 1961 to address interstate or navigable waters (Pub. L. No. 87-88; 75 Stat. 208). In 1965, Congress further amended the FWPCA to authorize states to establish water quality standards applicable to interstate waters. FWPCA, section 10(c) (added by section 5 of the 1965 Amendments, Pub. L. 234; 79 Stat. 907-909). Based on the language of the 1965 Act, EPA interpreted the water quality standards program to apply to only to navigable waters that carry goods across state lines, excluding wholly intrastate navigable waters. U.S. EPA, Office of General Counsel, A Collection of Legal Opinions, Vol. 1, at 406-07 (General Counsel Opinion, "Definition of Navigable Waters," Dec. 9, 1971).

In 1972 Congress adopted a definition of "navigable waters" as follows: "The term ''navigable waters'' means the waters of the United States, including the territorial seas."[3]

In the Conference Report for the 1972 Amendments and in floor statements during consideration of the Conference Report members of the Conference Committee made the following statement: "The conferees fully intend that the term navigable waters be given the broadest possible

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[1] A fuller legislative history, including the 1977 amendments to the Federal Water Pollution Control Act, is provided in the Appendix.

[2] Section 13 of the Refuse Act excluded liquid refuse from streets or sewers but included material placed "on the bank of any navigable water, or on the bank of any tributary of any navigable water, where the same shall be liable to be washed into such navigable water, either by ordinary or high tides, or by storms or floods, or otherwise, whereby navigation shall or may be impeded or obstructed." This section was superseded by section 402 of the Federal Water Pollution Control Act. 33 U.S.C. 1342(a)(1)(4).

[3] CWA Section 502(7); 33 U.S.C. 1362(7).

constitutional interpretation unencumbered by agency determinations which have been made or may be made for administrative purposes."[4]

On the Senate floor, Senator Muskie explained that, in contrast to the narrower EPA interpretation of the water quality standards program under 1965 Amendments, the term "waters of the United States" adopted in the 1972 amendments encompasses waters that "by uniting with other waters or other systems of transportation, such as highways or railroads" are part of an interstate transportation system "over which commerce is or may be carried on with other States or with foreign countries in the customary means of trade and travel in which commerce is conducted today" because "the commerce on such waters would have a substantial economic effect on interstate commerce."[5]

A statement submitted to the Congressional Record by Congressman Dingell made the same point.

> Although most interstate commerce 150 years ago was accomplished on water ways, there is no requirement in the Constitution that the waterway must cross a State boundary in order to be within the interstate commerce power of the Federal Government. Rather, it is enough that the waterway serves as a link in the chain of commerce among the States as it flows in the various channels of transportation —highways, rail roads, air traffic, radio and postal communication, waterways, et cetera. The "gist of the Federal test" is the waterway's use "as a highway," not whether it is "part of a navigable interstate or international commercial highway." *Utah v. United States,* 403 U.S. 9, 11 (1971); *U.S. v. Underwood,* 4 ERC 1305, 1309 (D.C., Md., Fla., Tampa Div., June 8, 1972).[6]

Congressman Dingell concluded: "Thus, this new definition clearly encompasses all water bodies, including main streams and their tributaries for water quality purposes."

Nowhere in the legislative history of any the water pollution control legislation does Congress state an intent to regulate animal habitat or to control water flows. In fact, the legislative history of the Act discusses water flow management activities in the context of the nonpoint source program only. In discussing section 304(f), the House Committee Report specifically mentioned

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[4] Conference Report to accompany S. 2770, S. Rept. 92-1236 (92nd Cong., 2d Sess.), at 144; Committee Print, A Legislative History of the Water Pollution Control Act Amendments of 1972 (93d Cong., 1st Sess.) (hereinafter 1972 Act Leg. Hist.) v. 1, at 327 (emphasis added).

[5] 118 Cong. Rec. 33699 (1972); 1972 Act Leg. Hist, v. 1, at 178. (Muskie statement).

[6] 118 Cong. Rec. 33756-57 (1972); 1972 Act Leg. Hist., v. 1, at 250 (Dingell statement) (emphasis added).

water flow management as an area where EPA would provide technical guidance to States for their nonpoint source programs, rather than an area to be regulated under section 402.

> This section and the information on such nonpoint sources is among the most important in the 1972 Amendments. * * * The Committee, therefore, expects the Administrator to be most diligent in gathering and distribution of the guidelines for the identification of nonpoint sources and the information on processes, procedures, and methods for control of pollution from such nonpoint sources as * * * *natural and manmade changes in the normal flow of surface and ground waters.*

H.R. Rep. No. 92–911, at 109 (1972) (emphasis added).

B. Regulatory History.

In January 1972, EPA proposed regulations to implement section 402 of the FWPCA that defined navigable waters by mirroring the statutory definition. 38 Fed. Reg. 1362 (Jan. 11, 1973). In the final rule, issued in May of the same year, EPA defined navigable waters as:

> (1) All navigable waters of the United States;
>
> (2) Tributaries of navigable waters of the United States;
>
> (3) Interstate waters:
>
> (4) Intrastate lakes, rivers, and streams which are utilized by interstate travelers for recreational or other purposes;
>
> (5) Intrastate lakes, rivers, and streams from which fish or shellfish are taken and sold in interstate commerce; and
>
> (6) Intrastate lakes, rivers, and streams which are utilized for industrial purposes by industries in interstate commerce.[7]

In 1974, the Corps of Engineers issued regulations defining "waters of the United States" for the purpose of implementing section 404 of the FWPCA, as well as sections 9, 10, 11, 13 and 13 of the River and Harbor Act of 1899, that reaffirmed the Corps' view that its dredge and fill jurisdiction under section 404 was the same as its traditional jurisdiction under the Rivers and Harbors Act of 1899.[8]

The Natural Resources Defense Council and the National Wildlife Federation challenged the Corps' 1974 regulation in the District Court for the District of Columbia based on the concern that the Corps' definition of navigable waters did not include tributaries or coastal marshes above

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[7] 40 C.F.R. 125.1 (1973); 38 Fed. Reg. 13,528, 13,529 (May 22, 1973).

[8] 33 C.F.R. 209.120, promulgated at 39 Fed. Reg. 12,115, 12,119 (Apr. 3, 1974) (referencing 33 C.F.R. 209.260 (1972), promulgated at 37 Fed. Reg. 18,289, 18,290 (Sept. 9, 1972)).

the mean high tide mark or wetlands above the ordinary high water mark. These groups also expressed concern about lakes, isolated wetlands, and potholes.[9] In a 389-word order, the District Court held that the term "navigable waters" is not limited to the traditional tests of navigability and ordered the Corps to revoke its definition and publish a new definition "clearly recognizing the full regulatory mandate of the Water Act."[10] Although the plaintiffs invited the court to opine on what constitutes that "full regulatory mandate," the court merely said that because Congress asserted "federal jurisdiction over the nation's waters to the maximum extent permissible under the Commerce Clause of the Constitution" "[a]ccordingly, as used in the Water Act, the term is not limited to the traditional tests of navigability."

In response to this district court decision, in 1975 the Corps issued interim regulations that defined the term "navigable waters" to include periodically inundated coastal wetlands contiguous with or adjacent to navigable waters, periodically inundated freshwater wetlands contiguous with or adjacent to navigable waters, and, like EPA's 1973 regulations, certain intrastate waters based on non-transportation impacts on interstate commerce.[11] In a press release accompanying its proposed rule, the Corps noted that under the proposal "practically all lakes, streams, rivers, and wetlands in the United States" would be regulated and "[u]nder some of the proposed regulations, Federal permits may be required for a rancher who wants to enlarge his stock pond or the farmer who wants to deepen and irrigation ditch or plow a field, or the mountaineer who wants to protect his land against stream erosion."[12]

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[9] *See* the discussion of this litigation in the preamble to the Corps' 1977 regulations. 42 Fed. Reg. 37,123-124 (July 19, 1977).

[10] *Natural Resources Defense Council, Inc. v. Callaway,* 392 F. Supp. 685 (D.D.C. 1975).

[11] These were: intrastate lakes, rivers and streams landward to their ordinary high water mark and up to their headwaters that are utilized: (a) by interstate travelers for water-related recreational purposes; (b) for the removal of fish that are sold in interstate commerce; (c) for industrial purposes by industries in interstate commerce; or (d) in the production of agricultural commodities sold or transported in interstate commerce. 42 Fed. Reg. at 37,127.

[12] Press release. May 6, 1975. Department of the Army, Office of the Chief of Engineers, reprinted in "Section 404 of the Federal Water Pollution Control Act Amendments of 1972," Hearings before the Committee on Public Works, United States Senate, 94th Cong., 2d Sess., July 27 and 28, 1976, Serial No. 94-H49, at 517-520 (Section 404 hearings), available at http://www.epw.senate.gov/public/_cache/files/7ce6eb89-dc88-47cf-b7ec-01823fb5b02e/sec404amend1972hrg.pdf

The backlash in Congress was quick.[13] Ultimately, Congress amended the FWPCA in 1977 to add section 404(f), to exempt certain activities from permits, including the activities outlined in the Corps' press release.[14]

In 1977, the Corps issued final regulations and included "other waters" such as isolated lakes and wetlands, intermittent streams, prairie potholes and any other waters the degradation or destruction of which "could affect interstate commerce."[15]

C. Supreme Court Review of FWPCA Jurisdiction.

1. Riverside Bayview.

In 1977, the Supreme Court upheld the part of the Corps' 1975 regulations that asserted jurisdiction over wetlands above the high tide line and beyond the ordinary high water mark, finding that the inclusion of adjacent wetlands in the Corps' definition of "navigable waters" was a reasonable interpretation of the statute because:

> In determining the limits of its power to regulate discharges under the Act, the Corps must necessarily choose some point at which water ends and land begins. Our common experience tells us that this is often no easy task: the transition from water to solid ground is not necessarily or even typically an abrupt one. Rather, between open waters and dry land may lie shallows, marshes, mudflats, swamps, bogs--in short, a huge array of areas that are not wholly aquatic but nevertheless fall far short of being dry land. Where on this continuum to find the limit of "waters" is far from obvious.[16]

The Court also found that Congress had "acquiesced in the Corps' definition of waters as including adjacent wetlands" because Congress did not amend the statute to overturn those regulations in the 1977 Amendments to the Federal Water Pollution Control Act.[17] However, the Court did not express any opinion regarding "the authority of the Corps to regulate discharges of fill material that are not adjacent to bodies of open water" citing 33 CFR 323.2(a)(2) and (3). 474 U.S. at 131 n.8.

2. SWANCC

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[13] Section 404 Hearings, *supra* note 10.
[14] *See* P.L. 95-216, sec. 67 (adding section 404(f) to the CWA).
[15] 33 C.F.R. 323.2(1977); 42 Fed. Reg. at 37,127, 37,144 (July 19, 1977).
[16] *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 132 (1985).
[17] *Id.* at 138. The same regulations that Congress allegedly acquiesced to also exempted ponds smaller than 5 acres and streams with flow less than 5 cubic meters per second.

In 1985, the EPA General Counsel issued a memorandum stating that waters that are used or would be used by migratory birds or endangered species are regulated under the FWPCA.[18] In 1986, the Corps reorganized its regulations and in the preamble claimed that it could presume jurisdiction under the Commerce Clause over intrastate waters:

> a. Which are or would be used as habitat by birds protected by Migratory Bird Treaties; or
> b. Which are or would be used as habitat by other migratory birds which cross state lines; or
> c. Which are or would be used as habitat for endangered species; or
> d. Used to irrigate crops sold in interstate commerce.[19]

Under this theory, the Corps could claim jurisdiction over any isolated wetland, puddle, or pond based on its potential use by a migratory bird. As such, it became known as the "migratory bird rule" or the "Glancing Goose" test.[20]

In 2001, the Supreme Court rejected that expansive interpretation of federal authority. The Court found no evidence that Congress acquiesced to "the Corps' claim of jurisdiction over nonnavigable, isolated, intrastate waters," and declined to hold "that isolated ponds, some only seasonal, wholly located within two Illinois counties, fall under § 404(a)'s definition of 'navigable waters' because they serve as habitat for migratory birds."[21] The Court also noted that there is no evidence that the Corps' 1974 interpretation of section 404 jurisdiction was incorrect.[22]

After *SWANCC*, the scope of jurisdiction asserted by Corps districts continued to evolve.[23] This evolution also included evolving interpretations of the exemptions that Congress enacted in

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[18] Memorandum from Francis S. Blake, EPA General Counsel, to Richard E. Samderson, Acting Assistant Administrator, EPA Office of External Affairs (Sept. 12, 1985).
[19] 51 Fed. Reg. 41,206, 41,217 (Nov. 13, 1986).
[20] *See* January 16, 2001 Wall Street Journal, available at http://www.wsj.com/articles/SB979603030985179200
[21] *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC),* 531 U.S. 159, 171-72 (2001).
[22] *Id.* at 168.
[23] *See* "Waters and Wetlands: Corps of Engineers Needs to Evaluate Its District Office Practices in Determining Jurisdiction," GAO Report, February 2004, available at: http://www.gao.gov/new.items/d04297.pdf.

1977.[24] One judge called the agencies' interpretation of these exemptions "a virtual administrative repeal."[25]

In 2003, EPA and the Corps issued an advanced notice of proposed rulemaking seeking comment on how to respond to the *SWANCC* decision. 68 Fed. Reg. 1991 (Jan. 15, 2003). The agencies did not proceed with that rulemaking.

3. Rapanos

Concern that the agencies were exceeding their statutory authority reached the Supreme Court again in 2006. In that case, *Rapanos v. United States*, 547 U.S. 715 (2006), four members of the Court rejected the Corps' claim of jurisdiction over wetlands next to a ditch in Michigan based on its interpretation of the term "tributary,"[26] holding that there must be a relatively permanent hydrologic connection to navigable water before FWPCA jurisdiction could be invoked.[27] Justice Kennedy agreed that the Corps failed to demonstrate jurisdiction over the wetland and ditch in question, but articulated a different test. According to Justice Kennedy, a mere hydrologic connection may not be sufficient and instead there must be a "significant nexus" to navigable waters.[28]

D. Development of the WOTUS Rule.

The agencies issued guidance interpreting the *Rapanos* decision.[29] Under that guidance, Corps districts need approval from Corps Headquarters to assert jurisdiction over isolated waters.

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[24] *See generally* Benjamin H. Grumbles, "Section 404(f) of the Clean Water Act: Trench Warfare over Maintenance of Agricultural Drainage Ditches," William Mitchell Law Review, Vol. 14, issue 4 (1991).
[25] *See* Memorandum and Order, United States v. County of Steams, Civ. 3-89-616 (D. Minn. March 15, 1990), at 18.
[26] The 1986 definition of WOTUS at issue in *Rapanos* did not define the term "tributary" but the Corps implemented it in the same way that was codified in the WOTUS rule. *Rapanos,* 547 U.S. at 781 ("As noted earlier, the Corps deems a water a tributary if it feeds into a traditional navigable water (or a tributary thereof) and possesses an ordinary high-water mark, defined as 'a line on the shore established by the fluctuations of water and indicated by [certain] physical characteristics,' §328.3(e)") (Justice Kennedy, concurring).
[27] *Rapanos*, 547 U.S. at 733.
[28] *Id.* at 781-82.
[29] EPA and U.S. Army Corps of Engineers, Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States* and *Carabell v. United States* (Dec. 2, 2008).

Since the *SWANCC* decision, the Corps has not asserted jurisdiction over any isolated waters. Other federal agencies also recognize the absence of federal jurisdiction over such water.[30]

In 2009, the agencies took the position that the *Rapanos* case severely limited their jurisdiction and encouraged Congress to act.[31] Some members of Congress introduced legislation to remove the term "navigable" from the FWPCA.[32] After that legislation failed to advance over the course of two Congresses, in 2011 the agencies developed a draft guidance to reinterpret both the FWPCA and Justice Kennedy's opinion.[33] A guidance is not subject to the same degree of deference afforded a rule and stakeholders objected to regulatory changes that had not gone through notice and comment rulemaking. In response to these concerns, the agencies withdrew the draft guidance and instead issued the same reinterpretations the Act and the *Rapanos* case as a proposed rule and compiled scientific studies on connections between bodies of water to support those interpretations.[34]

On June 29, 2015, EPA and the Army published the final WOTUS Rule.[35] Stakeholders as well as federal, state, and local officials raised concerns regarding the final rule. The final rule included definitions that were not in the proposed rule. In internal memoranda, Corps of Engineers officials contradicted claims in the WOTUS Rule preamble and technical support document that the rule was supported by their expertise and experience.[36] Corps officials told

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[30] The U.S. Fish and Wildlife Service acknowledges that 88% of prairie potholes are isolated and therefore not regulated so they work with farmers throughout the upper Midwest on cooperative conservation measures to address habitat. *See* Dahl, T.E. 2014. Status and trends of prairie wetlands in the United States 1997 to 2009. U.S. Department of the Interior; Fish and Wildlife Service, Ecological Services, Washington, D.C., at 48.

[31] *See* May 20, 2009, letter from CEQ Chairman Nancy Sutley, EPA Administrator Jackson, Acting Assistant Secretary of the Army Rock Salt, Agriculture Secretary Tom Vilsack, and Interior Secretary Ken Salazar to Senator Boxer.

[32] The Clean Water Restoration Act (HR 2421 and SB 1870 110th Congress; S. 787 111th Congress).

[33] EPA and Army Corps of Engineers Guidance Regarding Identification of Waters Protected by the Clean Water Act," 76 Fed. Reg. 24,479 (May 2, 2011).

[34] Proposed WOTUS Rule, 79 Fed. Reg. 22,188 (Apr. 21, 2014); U.S. Environmental Protection Agency, Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence, (Washington, D.C.: U.S. Environmental Protection Agency, Draft 2013).

[35] 80 Fed. Reg. 37,054 (June 29, 2015).

[36] These memoranda are part of the hearing record for a September 9, 2015 oversight hearing conducted by the Senate Committee on Environment and Public Works Subcommittee on Fisheries, Water and Wildlife, and are

the House Committee on Oversight and Government Reform that definitions in the WOTUS Rule were politically, not empirically, driven.[37] On December 14, 2015, the General Counsel of the Government Accountability Office found that during the public comment period on the WOTUS Rule, EPA engaged in prohibited lobbying and propaganda activities and as such, violated appropriations law and the Anti-Deficiency Act.[38] Some stakeholders have asserted that such propaganda and lobbying tainted the notice and comment procedures under the Administrative Procedure Act. Many persons, including 32 states and state organizations, sued the agencies in multiple courts around the country seeking to modify or vacate the final rule.

On August 27, 2015, the District Court of North Dakota enjoined the applicability of the WOTUS rule in the thirteen states suing in that court. The District Court found that that the States are likely to succeed on the merits of their claim that the EPA has violated its grant of authority in its promulgation of the Rule in part because the rule allows EPA regulation of "vast numbers of waters that are unlikely to have a nexus to navigable waters within any reasonable understanding of the term."[39]

On October 9, 2015, the Sixth Circuit Court of Appeals issued a nationwide stay of the implementation of the final WOTUS rule, finding that there is a strong likelihood that it exceeded EPA's and the Corps' authority under the FWPCA.[40] As a result, the WOTUS rule is not in effect anywhere in the country.

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available here: https://www.epw.senate.gov/public/_cache/files/1e2d7e1f-05d6-4d03-949f-842f5f4735c3/07.17.15-army-corps-darcy-with-7-attachments-responses-to-07.16.15.pdf

[37] House Report on "Politicization of the Waters of the United States Rulemaking," Oct. 27, 2016, at 32-33, available at https://oversight.house.gov/wp-content/uploads/2016/10/WOTUS-OGR-Report-final-for-release-1814-Logo-1.pdf (last visited November 7, 2016).

[38] Letter dated December 14, 2015 from Susan A. Poling, General Counsel, Government Accountability Office, to James M. Inhofe, Chairman, Committee on Environment and Public Works, U.S. Senate, regarding "Environmental Protection Agency – Application of Publicity or Propaganda and Anti-Lobbying Provisions."

[39] Memorandum Opinion and Order Granting Plaintiffs' Motion for Preliminary Injunction, *State of North Dakota, et al. v. U.S. Environmental Protection Agency,* Case No. 3:15-cv-59 (Aug. 27, 2015).

[40] Order of Stay, *In re: Environmental Protection Agency and Department of Defense Final Rule; Clean Water Rule Definition of Waters pf the United States, 80 Fed. Reg. 37,054 (June 29, 2015)*, Case No. 15-3799 and consolidated cases (18 petitioner states then; currently 32) (Oct. 9, 2015).

Even though the rule is not in effect, the Corps of Engineers is making jurisdictional determinations based on the "significant nexus" test that the rule seeks to codify.[41] On May 31, 2016, in *U.S. Army Corps of Engineers v. Hawkes*, No. 15-290 (S. Ct.), Justice Kennedy cast doubt on whether that test is consistent with his *Rapanos* opinion. While Justice Kennedy concurred in the unanimous opinion of the Court that Corps jurisdictional determinations are judicially reviewable, he filed a concurring opinion "to point out that, based on the Government's representations in this case, the reach and systemic consequences of the Clean Water Act remain a cause for concern." Justice Kennedy called the reach of the Act "ominous" and said "[t]he Act… continues to raise troubling questions the Government's power to cast doubt on the full use and enjoyment of private property throughout the Nation."

On January 24, 2017, following the Court's remand, the District Court for the District of Minnesota found that the record relied on by the Corps to assert jurisdiction in *Hawkes* continued to fail to demonstrate that a peat farm located more than 90 miles from the nearest navigable water was a water of the United States. In that record, the Corps' relied on the same type of connections that would establish jurisdiction under the WOTUS rule (the functions of wetlands in providing floodwater storage and holding nutrients and sediments, functions of streams and rivers and transport of nutrients and chemicals downstream). The court said that the Corps' reliance on these connections, in the absence of any data on the frequency, volume, and type of actual flow from the peat farm to the river, to claim a "significant" nexus was "arbitrary and capricious." *Hawkes Co., Inc., et al. v. U.S. Army Corps of Engineers*, D. Minn., Civil No. 13-107 Memorandum Opinion and Order, January 24, 2017.

On January 13, 2017, the Supreme Court granted a petition for certiorari to review whether the Sixth Circuit has jurisdiction to hear a challenge to the WOTUS rule (as opposed to district courts). If the Supreme Court decides that only district courts have jurisdiction to hear challenges to regulations promulgated under the FWPCA, the litigation over the WOTUS rule will not be resolved for a long time, continuing the current uncertainty regarding the scope of federal regulation under the FWPCA.

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[41] See September 20, 2016, report released by Senate Environment and Public Works Committee Majority Staff, available here: https://www.epw.senate.gov/public/_cache/files/99dc0f4b-50a8-4b9e-a604-cb720e7f19bc/wotus-committee-report-final1.pdf

II. Case for Withdrawal.

Two courts have found that the WOTUS rule likely exceeds the authority granted by the FWPCA. Justice Kennedy recently criticized the agency's current case-by-case implementation the same jurisdictional approach that the WOTUS rule claims is a codification of Justice Kennedy's *Rapanos* "significant nexus" test. A district court also recently rejected the theories of jurisdiction that the WOTUS rule seeks to codify. Given these developments, it appears likely that the WOTUS rule will not withstand judicial review. Accordingly, to remove uncertainty and to allow the agencies and the public to move forward and develop, following notice and an opportunity for comment, a new regulation that will faithfully implement the Act, the agencies should propose to withdraw the final WOTUS rule and separately begin a rulemaking to replace it.

As discussed below, withdrawal is warranted by the absence of support in the record for the final rule, the absence of support in the legislative history of the Act for the rule's interpretation of the statute, and the agencies' failure to provide adequate notice and an opportunity for comment on information relied upon by the agencies to develop the final rule.

A. Absence of Record Support for the WOTUS Rule.

1. Agency experience and expertise.

When granting the nationwide stay of the rule, the Sixth Circuit Court of Appeals noted that general references to the agencies' own experience do not support claims of federal jurisdiction. Stay Ruling, at 5 ("[The argument that 'brightline tests are a fact of regulatory life' and that they used 'their technical expertise to promulgate a practical rule' is undoubtedly true, but not sufficient.").

When enjoining the implementation of the rule, the District Court of North Dakota found that: "As noted in the internal memoranda and confirmed by a close review of the Economic Analysis

document and Technical Support Document, the Agencies' internal documents reflect the absence of any information about how the EPA obtained its presented results."

The preamble to the final WOTUS rule claims over 50 times that the rule is based on the agencies' experience and technical expertise. The Technical Support Document accompanying the final rule also claims reliance on Corps' expertise. However, as noted by the Sixth Circuit Court of Appeals, there is no information in the docket to support those claims. In fact, as found by the District Court of North Dakota, these claims are contradicted by memoranda prepared by the Corps of Engineers, the agency that performs on the ground jurisdictional determinations.

The internal memoranda referred to by the District Court of North Dakota are memoranda prepared by staff of the Army Corps of Engineers for Major General John Peabody, Deputy Commanding General for Civil and Emergency Operations, U.S. Army Corps of Engineers, just a few weeks before the EPA Administrator and the Assistant Secretary of the Army (Civil Works) signed the WOTUS rule. These memoranda expressed the concern that the rule is lacking factual and technical support. According to these memoranda:

> "The TSD [Technical Support Document] emphasizes that the agencies undertook a very thorough analysis of the complex interactions between upstream waters and wetlands and the downstream rivers to reach the significant nexus conclusions underlying the provisions of the draft final rule… [T]he Corps was not part of any type of analysis to reach the conclusions described; therefore, it is inaccurate to reflect that 'the agencies' did this work or that is reflective of Corps experience or expertise." May 15, 2015 Memorandum from Moyer to Peabody.
>
> "The TSD states that the 4,000-foot distance threshold limit for (a)(8) waters 'will protect the type of waters that in practice have been determined to have a significant nexus on a case-specific basis.' This statement is unfounded. The isolated JDs [Jurisdictional Determinations] reviewed for the Economic Analysis by EPA to estimate the change in jurisdiction were originally considered under the 2003 SWANCC guidance; therefore, jurisdiction was determined based on whether there was an interstate/foreign commerce connection; the jurisdiction was not analyzed through a SND [significant nexus determination]." May 15, 2015 Memorandum from Moyer to Peabody.
>
> "Neither the Rapanos Guidance nor the form used to implement that guidance (which is used by the Corps to document AJDs) requires the Corps to indicated the distance that an adjacent wetland is located from the nearest jurisdictional tributary's OHWM [ordinary

high water mark] or HTL [high tide line] when evaluating whether a significant nexus exists, and in making a jurisdictional determination concerning such waters. Rather, the Guidebook that accompanies the Raponos Guidance indicates that consideration will be given to the distance between the tributary and traditionally navigable water (TNW) such that the effect of the tributary on the TNW is not speculative or insubstantial. The Guidebook further states that, 'it is not appropriate to determine the significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW).'" April 24, 2015 Memorandum from Moyer to Peabody.

"Approved JDs are not required to indicate the distance from the aquatic resource to the nearest tributary OHWM." May 15, 2015 Memorandum from Moyer to Peabody.

"It is inaccurate to reflect that the Corps experience and expertise is reflected in the conclusions drawn within the document." May 15, 2015 Memorandum from Moyer to Peabody.

"The Corps also had no role in performing the analysis or drafting the TSD." May 15, 2015 Memorandum from Moyer to Peabody.

"The TSD does not provide support for the determination of how 'significance' will be measured in the SND or what is 'more than speculative or insubstantial?'" May 15, 2015 Memorandum from Moyer to Peabody.

"None of the isolated JDs resulted in a positive determination of jurisdiction." May 15, 2015 Memorandum from Moyer to Peabody.

After the Corps labeled "unfounded" the statement in the Technical Support Document that the 4,000-foot distance threshold limit for (a)(8) waters "will protect the type of waters that in practice have been determined to have a significant nexus on a case-specific basis,"' EPA conducted a *post hoc* analysis of 199 Corps jurisdictional determinations. EPA found that only 2 positive jurisdictional determinations would change to negative under the 4,000 foot distance threshold in the WOTUS rule, affecting approximately 1 acre of wetlands. *See* "Jurisdictional Determination Review Memorandum," Docket ID:EPA-HQ-OW-2011-0880-20877 (this document was posted to the docket on November 15, 2015, over four months after the final rule was promulgated).

EPA conducted this analysis to support the claim that the WOTUS Rule is based on agency experience and expertise. However, this analysis contradicts, rather than confirms, this claim. Of the 199 jurisdictional determinations evaluated, 57 were negative. In 47 of those 57 negative jurisdictional determinations, the Corps concluded that federal jurisdiction did not exist because the water or wetland evaluated had no hydrologic connection to navigable water. However, under the WOTUS Rule, a water body or wetland no longer needs a hydrologic connection to be regulated. Accordingly, 87% of the negative jurisdictional determinations evaluated by EPA could become positive jurisdictional determinations under the WOTUS Rule.[42] As a result, the expansion in federal jurisdiction under the WOTUS rule cannot be said to be based on the experience and expertise of the agencies.

Because the record includes no information to support claims of reliance on agency experience and expertise and because such claims are contradicted by the Corps of Engineers, the agency tasked with making jurisdictional determinations, as well as EPA's *post hoc* evaluation of jurisdictional determinations, the agencies should now concede that the WOTUS rule is not supported by agency experience and expertise.

2. *Scientific support.*

The preamble to the WOTUS rule claims the rule also is based on an analysis of peer reviewed scientific studies demonstrating connections between navigable waters and other water by EPA's Office of Research and Development. "Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence" (Connectivity Report). Unsurprisingly, the studies reviewed in the Connectivity Report demonstrate that all water is connected. However, this demonstration cannot be used to support claims of federal jurisdiction under the FWPCA, because the FWPCA does not regulate all water. *Riverside Bayview*, 474 U.S. at 132-33; *Rapanos*, 547 U.S. at 768 (Kennedy, J., concurring).

First, the Connectivity Report fails to address the question raised in the plurality opinion in *Rapanos*: what is a body of water? The legislative history of the Act, discussed above, discusses

[42] An additional 7 negative jurisdictional determinations would remain negative because of the exclusions in the WOTUS rule, and the disposition of 3 jurisdictional determination are unclear.

federal regulation over bodies of water. To define when channelized water becomes a "body of water" that is potentially regulated, the plurality decision in *Rapanos* uses the concept of "relatively permanent water." Nothing in the Connectivity Report addresses this issue or attempts to identify the scientific basis for distinguishing between a geomorphological feature and a body of water.

Instead, the preamble and technical support document for the WOTUS Rule cite the Connectivity Report as support for the premise that the FWPCA authorizes the regulation of all water that has a "significant nexus" to navigable water, citing Justice Kennedy's concurring opinion in *Rapanos*. However, even if Justice Kennedy's opinion correctly describes the scope of federal jurisdiction, the report fails to support that premise.

In his concurring opinion in *Rapanos*, Justice Kennedy stated that the Corps could "[t]hrough regulations or adjudication, … identify categories of tributaries that, due to their volume of flow (either annually or on average), their proximity to navigable waters, or other relevant considerations, are significant enough that wetlands adjacent to them are likely, in the majority of cases, to perform important functions for an aquatic system incorporating navigable waters." *Rapanos,* 547 U.S. at 780-81. Instead of addressing Justice Kennedy's concerns, the administrative record does not include any documents that address the volume of flow or proximity to navigable water.

Further, also without providing any analysis of the volume or duration of flow, the agencies assume that any channel that has a bed, bank, and ordinary high water mark provides the functions identified in the Connectivity Report and that such functions impact a navigable-in-fact body of water. The preamble to the final rule states: "The science also supports the conclusion that sufficient volume, duration, and frequency of flow are required to create a bed and banks and ordinary high water mark." 80 Fed. Reg. at 37066. However, there is no document in the record to support that assertion. The Technical Support Document states: "The physical indicators of bed and banks and ordinary high water mark (OHWM) demonstrate that there is sufficient volume, frequency, and flow in tributaries to a traditional navigable water, interstate

water, or the territorial seas to establish a significant nexus." Technical Support Document (TSD), at 234. That statement, too, is completely unsupported.

The agencies also assume that any wetland that is adjacent to a channel with a bed, bank, and ordinary high water mark has a significant impact on downstream navigable waters. The agencies make this assumption even though Justice Kennedy already rejected it, stating that "the breadth of this standard ...precludes its adoption as the determinative measure of whether adjacent wetlands are likely to play an important role in the integrity of an aquatic system comprising navigable waters as traditionally understood." 547 U.S. at 781-82.

The preamble to the WOTUS rule also claims that the geographic limits in the definition of "neighboring" are based on the scientific studies in the Connectivity Report. 80 Fed. Reg. at 37,058. This assertion also is not accurate. Most of the studies in that report do not address distance to navigable waters.

Instead of analyzing significance to navigable water, the Connectivity Report defaults to an assumption that all "connections" to "downstream" water are relevant, even though few of the studies in the Connectivity Report address waters that are navigable-in-fact. In fact, while the report acknowledges that there is a gradient of connectivity, the report provides no analysis of the significance of various connections to navigable waters or specific distances at which a connection becomes significant.

Finally, many of scientific articles that are reviewed in the Connectivity Study examined "connections" that are not relevant to jurisdiction under the FWPCA. For example, the studies reviewed include studies on the use of isolated water as habitat even though *SWANCC* bars the agencies from relying on habitat uses to establish federal jurisdiction. 531 U.S. at 171-72.[43]

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[43] The preamble to the WOTUS Rule and the support documents do not provide any support for the theory that the Act regulates habitat; instead they claim that "science" (found in the Connectivity Report) supports expanding their jurisdiction. This Report includes nearly 50 studies that document biological connections used by the Agencies to justify the scope of jurisdiction claimed in the WOTUS rule. The studies include: Figuerola, J., A. J. Green, and T. C. Michot, "Invertebrate eggs can fly: Evidence of waterfowl mediated gene flow in aquatic invertebrates," The American Naturalist 165:274-280 (2005); Frisch, D., A. J. Green, and J. Figuerola, "High dispersal capacity of a broad spectrum of aquatic invertebrates via waterbirds," Aquatic Sciences 69:568-574 (2007); and Roscher, J. P., "Alga dispersal by muskrat intestinal contents," Transactions of the American Microscopical Society 86:497-498 (1967). Connectivity Report at 1-9, 4-31, 4-32, 4-34, B-64. However, the record

Similarly, some the studies reviewed look at flood control and water retention, even though the FWPCA is a water quality protection act that does not give EPA authority over flood control or water supply.[44]

Most of the studies cited in the Connectivity Report to justify jurisdiction over ephemeral flows over land examine the role such flows play in recharging groundwater, not in conveying pollutants to navigable waters. *See* Connectivity Report, at Appendix B, section B.5. The WOTUS Rule relies on these studies even though in 2015 the Corps' Assistant Secretary of the Army (Civil Works), Jo-Ellen Darcy, responded to written congressional questions stating that: "The Corps has never interpreted groundwater to be jurisdictional water *or a hydrologic connection* because *the* [Federal Water Pollution Control Act] *does not provide such authority.*"[45]

The agencies should concede that the Connectivity Study and other scientific studies in the administrative record do not support the rule's definition of "tributary" or "neighboring" and cannot be used to assert FWPCA jurisdiction over isolated bodies of water and ephemeral flows.

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for the rule cites no legislative history to support the assertion that excretions of birds or the content of a muskrat's intestines was on Congress' mind when it enacted the 1972 Amendments to the Federal Water Pollution Control Act.

[44] The claim of jurisdiction based on flow is barred by section 101(g). Congress added Section 101(g) in 1977 in response to an attempt by federal agencies to use the Act to regulate surface flows and groundwater. *See* 42 Fed. Reg. 36,787, 36,793 (July 15, 1977) (option paper discussing potential use of federal water quality statutes to regulate both surface water diversions and groundwater pumping). According to its sponsor: "This amendment came immediately after the release of the Issue and Option Papers for the Water Resource Policy Study now being conducted by the Water Resources Council. ... This 'State's jurisdiction' amendment reaffirms that it is the policy of Congress that this act is to be used for *water quality purposes only.*" 123 Cong. Rec. 39, 211-12 (1977) (floor statement of Senator Wallop) (emphasis added). Further, the structure of the Act undermines the theory that water storage, runoff, or groundwater recharge creates jurisdiction. In Section 102 of the Act, Congress gave EPA authority to influence the flow of water only by making recommendations to Congress on whether storage for water quality control should be added as a project purpose when reservoirs are authorized or constructed by other federal agencies. 33 U.S.C. § 1252(b)(3). The Corps of Engineers does have flood control authority, but that authority is found in various Flood Control Acts, and Water Resources Development Acts, not the FWPCA.

[45] *See* Response to Follow-Up Questions for Written Submission to Jo-Ellen Darcy, Assistant Secretary of the Army (Civil Works) (June 2, 2015) (emphasis added), available at http://www.epw.senate.gov/public/_cache/files/bd664535-f1a2-4a60-a0ab-7c6112e91f50/darcy-senate-qfr-responses-on-wotus-hearing-02.04.2015.pdf (last visited November 7, 2016).

As a result, the agencies should concede that the final rule lacks a record basis and, accordingly, should be withdrawn. [46]

B. Legal Rationale for WOTUS Rule.

Past regulatory definitions of the term "waters of the United States" claimed jurisdiction over any "other" water that Congress could regulate under the Commerce Clause of the U.S. Constitution. 40 C.F.R. § 125.1 (1973), promulgated at 38 Fed. Reg. 13,528, 13,529 (May 22, 1973) (EPA regulations) and 33 C.F.R. § 323.2 (1977), promulgated at 42 Fed. Reg. at 37,127, 37,144 (July 19, 1977) (Corps regulations).

In 2001, the Supreme Court held that the agencies were not entitled to disregard congressional intent to base jurisdiction under the Federal Water Pollution Control Act on Congress's traditional jurisdiction over navigable water. *SWANCC,* 531 U.S. at 172 ("The term 'navigable' has at least the import of showing us what Congress had in mind as its authority for enacting the [Federal Water Pollution Control Act]: its traditional jurisdiction over waters that were or had been navigable in fact or which could reasonably be so.") In the WOTUS Rule, the agencies concede, as they must after *SWANCC,* that FWPCA jurisdiction is not based on Congress' general Commerce Clause authority. Technical Support Document, at 78 [EPA-HQ-OW-2011-0880-20869].

Instead of relying on general Commerce Clause jurisdiction, the WOTUS rule instead claims jurisdiction over any water that has a "significant nexus" to navigable water, citing Justice Kennedy's *Rapanos* concurrence. However, the WOTUS rule also claims that a "significant nexus" to navigable water is identified through the Act's objective of restoring and maintaining the "chemical, physical, and biological integrity" of navigable waters (33 U.S.C. § 1251(a)).

Section 101(a) sets forth the objective of the Act, but the goals and policies identified are all related to protecting water from pollution. The authority Congress granted to the Agencies in the subsequent sections of the Act is even more limited than the objectives, goals, and policies in

[46] The Brief of the United States, filed on January 17, 2017, makes the same unsupported representations and also should be withdrawn.

Section 101(a). Despite this statutory language and structure, the WOTUS rule creates a novel theory that "retention and attenuation of flood waters," "runoff storage," "contribution of flow," "export of organic matter," "export of food resources," and "provision of life cycle dependent aquatic habitat" as "functions" that now create federal jurisdiction over non-navigable intrastate waters and wetlands. 33 C.F.R. § 328.3(c)(5) (2015). To implement this theory, the rule redefines "physical" integrity to mean the volume of water (as opposed to the impact on water from physical pollutants, like heat) and "biological" integrity to mean habitat (as opposed to the impact on water from biological pollutants), even though every other place where these terms appear in the Act these terms are used these terms refer to *water quality* criteria.[47]

As the Supreme Court has stated, "it frustrates rather than effectuates legislative intent simplistically to assume that whatever furthers the statute's primary objective must be the law." Rodriguez v. United States, 480 U.S. 522, 526 (1987). The *Rapanos* plurality made this point as well, expressly rejecting the claim of jurisdiction that the Agencies now assert in the WOTUS rule:

> This is the familiar tactic of substituting the purpose of the statute for its text, freeing the Court to write a different statute that achieves the same purpose. … It would have been an easy matter for Congress to give the Corps jurisdiction over all wetlands (or, for that matter, all dry lands) that "significantly affect the chemical, physical, and biological integrity of" waters of the United States. It did not do that, but instead explicitly limited jurisdiction to "waters of the United States."
> *Rapanos v. United States*, 547 U.S. 715, 755-56 (2006) (Scalia, J., plurality).

Even if the objective of the FWPCA is a statement of jurisdiction, that statement cannot expand the scope of the FWPCA beyond the protection of water quality. The FWPCA is a "long-extant statute" but the legal underpinning of the WOTUS rule is new. As such, courts are likely to greet with skepticism the Rule's claim that "connections" to navigable water such as "contribution of flow" or "provision of life cycle dependent aquatic habitat," independent of impact on water quality, are bases for federal jurisdiction. *See Utility Air Regulatory Grp. v. EPA*, 134 S. Ct. 2427, 2444 (2014) (quoting *FDA v. Brown & Williamson Tobacco Corp.,* 120 S. Ct. 1291, 1315

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[47] *See* 33 U.S.C. § 1362(11), § 1362(15), § 1362(19), § 1314(a)(1)(B), § 1314(b)(1)(A), § 1254(b), and § 1255(d)(3).

(2000))("[w]hen an agency claims to discover in a long-extant statute an unheralded power to regulate … we typically greet its announcement with a measure of skepticism.").

Finally, the United States has already admitted that a "significant nexus" theory of jurisdiction, when applied on a case-by-case basis, could regulate "almost all waters across the country."[48] But for the addition of a few exclusions and a geographic limitation that the Economic Analysis for the WOTUS rule admits is inconsequential, the WOTUS Rule would have the same reach.[49] As noted above, the FWPCA does not cover all waters. Accordingly, FWPCA jurisdiction based on a "significant nexus," as defined by the agencies, is overly broad.

The agencies should concede that the interpretation of the FWPCA that is the legal underpinning of the WOTUS rule, is not defensible, and the rule should be withdrawn on that basis.[50]

C. Opportunity to comment on documents relied upon in rulemaking.

The agencies developed and published a proposed rule in April 2014, before the Draft Connectivity Report had been reviewed by EPA's Science Advisory Board. In fact, that review was not completed until October 17, 2014, and the Final Connectivity Report was not completed until January 15, 2015, over two months after the comment period had ended on the proposed rule.

EPA's "Jurisdictional Determination Review Memorandum," Docket ID:EPA-HQ-OW-2011-0880, was posted to the docket on November 15, 2015, over four months after the final rule was promulgated.

Under the APA's notice and comment requirements, technical studies and data upon which an agency relies must be made available for public evaluation. *Am. Radio Relay League, Inc. v.*

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[48] Brief of the United States, filed on January 17, 2017, at 31.

[49] See Economic Analysis of the EPA-Army Clean Water Rule (May 2015), U.S. Environmental Protection Agency, at 11 ("The agencies have determined that the *vast majority of the nation's water features* are located within 4,000 feet of a covered tributary, traditional navigable water, interstate water, or territorial sea.") (emphasis added).

[50] The Brief of the United States, filed on January 17, 2017, makes the same legal arguments that are unsupported by the language, structure, or legislative history of the FWPCA. By separate action, the agencies should request the consent of the Court to withdraw that brief.

FCC, 524 F.3d 227, 236 (D.C. Cir. 2008). However, these two documents were not made available.

The APA also requires general notice of what an agency is proposing. Title 5 United States Code 551 et seq. The agencies did not propose any measurement of proximity to navigable water or tributaries that would create or cut off jurisdiction. However, such measures are included in the final rule. The public had no opportunity to comment on these measures of distance, which have the important effect of creating or limiting jurisdiction.

Accordingly, the agencies should concede that the WOTUS rule did not comply with the notice and opportunity for comment requirements of the APA and should be withdrawn on that basis as well.[51]

III. Questions that Should Shape a New Rule.

The agencies should seek input on two significant questions.

First, what is a body of water? This question pertains to distinguishing between runoff of rainwater or snowmelt and a stream, distinguishing between a puddle and a pond or wetland, and the definition of wetland. For wetlands, this question requires a review of the Corps' revision of the regulatory definition of wetland without going through notice and comment rulemaking, by issuing regional supplements to the 1987 Wetlands Delineation Manual

Second, for features that meet the definition of "body of water," what subset of these are "waters of the United States" under the FWPCA? More specifically, which bodies of water should fall under federal regulation to protect navigable water from pollution?

For streams, this question requires an evaluation of the volume and frequency of flow and whether or not such flow can carry pollutants to navigable water. In its 1975 regulations, which were upheld by the Supreme Court in Riverside Bayview, the Corps of Engineers adopted a bright line test requiring regulated streams to have 5 cubic meters per second of flow.

[51] The Brief of the United States, filed on January 17, 2017, argues that the promulgation of the final rule did not violate the APA. The agencies should request the consent of the Court to withdraw that brief.

For wetlands, this question requires an evaluation of which wetlands form the outer boundary of a regulated body of water. In accordance with *Riverside Bayview*, this would include wetlands that continue above a high water mark or high tide line.

For ponds, this question requires an evaluation of whether a pond is part of a channel of commerce. In its 1975 regulations, the Corps adopted a bright line test requiring regulated ponds to be more than 5 acres in size.

This question also requires a determination of whether man-made conveyances are bodies of water. Before the 2015 WOTUS Rule, federal regulations did not expressly include man-made features. In fact, the Corps' 1977 regulations expressly excluded man-made nontidal ditches and irrigation ditches in rule language, defining waters of the United States to include:

> (3) Tributaries to navigable waters of the United States, including adjacent wetlands (manmade nontidal drainage and irrigation ditches excavated on dry land are not considered waters of the United States under this definition).[52]

IV. Related Federal and State Authorities.

It is important to note that the WOTUS rule addresses CWA jurisdiction only. Other Federal or State laws and programs also apply to water or wetlands whether or not subject to federal control under the CWA. The Federal government protects wetlands through the Food Security Act's Swampbuster requirements and Federal agricultural program benefits and restoration through such Federal programs as the Wetlands Reserve Program (administered by the U.S. Department of Agriculture), grant making programs such as Partners in Wildlife (administered by the Fish and Wildlife Service), the Coastal Wetlands Restoration Program (administered by the National Marine Fisheries Service), the State Grant, Five Star Restoration, and National Estuary Programs W(administered by EPA), and the Migratory Bird Conservation Commission (composed of the Secretaries of Interior and Agriculture, the Administrator of EPA and Members of Congress). States law also address waters that are not federally regulated.

V. Executive Order and Statutory Reviews

A. Federalism

[52] 33 C.F.R. 323.2 (1977); 42 Fed. Reg. 37114 (July 19, 1977).

In the WOTUS rule, the agencies also certified that Executive Order 13121 (Federalism) did not apply because: "This action will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government."[53] Commenters disagreed with that conclusion. Under the Executive Order, federalism implications include "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government." If there are federalism implications, agencies must fully comply with the "Fundamental Federalism Principles" of section 2 of the Order, which requires the agencies to "act only with the greatest caution where State or local governments have identified uncertainties regarding the constitutional or statutory authority of the national government." Many states identified these uncertainties in the proposed rule.[54] The agencies also must comply with the "Federalism Policymaking Criteria" of section 3, which requires agencies to strictly adhere to constitutional principles and statutory authority, to provide states with maximum administrative discretion, and to rely on state policies to the maximum extent practicable. Finally, before issuing a proposal, the agencies must develop and provide "a federalism summary impact statement, which consists of a description of the extent of the agency's prior consultation with State and local officials, a summary of the nature of their concerns and the agency's position supporting the need to issue the regulation, and a statement of the extent to which the concerns of State and local officials have been met."

The agencies should comply with Executive Order 13132 of August 10, 1999, when conducting any rulemaking to revise the definition of WOTUS.

B. Regulatory Flexibility Act

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[53] 79 Fed. Reg. at 22,220.

[54] *See, e.g.,* October 23, 2014 comments filed by Kansas Governor Sam Brownback; October 8, 2014 comments filed by Pennsylvania's Department of Environmental Protection, Deputy Secretary for Water Management, Kelly Heffner; October 8, 2014 comments filed by the Attorneys General of West Virginia, Nebraska, Oklahoma, Alabama, Alaska, Georgia, Kansas, Louisiana, North Dakota, South Carolina, and South Dakota and the Governors of Iowa, Kansas, Mississippi, Nebraska, North Carolina, and South Carolina.

On October 1, 2014, Dr. Winslow Sargeant, Small Business Administration, Chief Counsel for Advocacy, filed comments on the proposed rule asserting that the agencies failed to comply with the Regulatory Flexibility Act, which requires consideration of small business impacts. In the proposed rule, the agencies certified that the rule would not have a significant impact on small businesses. The SBA Office of Advocacy disagreed, saying: "Advocacy believes that the agencies have improperly certified this rule," noting significant direct impacts on small businesses. Accordingly, the SBA Office of Advocacy urges EPA to withdraw the proposed rule and comply with the Regulatory Flexibility Act." The comments filed by the U.S. Conference of Mayors, the National League of Cities, the National Association of Counties, the National Association of Regional Councils, the National Association of County Engineers, the American Public Works Association, and the National Association of Flood and Storm Water Management Agencies make the same point with respect to impacts on small governmental entities, saying "based on analysis by our cities and counties, the proposed rule will have a significant impact on all local governments, but on small communities particularly."

Before publishing a proposed rule the Secretary and the Administrator should to take the actions specified in sections 603, 604 and 609 of the Regulatory Flexibility Act.

Appendix

Background:

In 1972, with the enactment of the 1972 Amendments to the Federal Water Pollution Control Act (Clean Water Act or CWA), Congress gave EPA and the Secretary of the Army (acting through the Chief of the Corps of Engineers) (Corps) the authority to regulate the discharge of pollutants or the discharge of dredged or fill material into navigable waters, which Congress defined as "waters of the United States." EPA and the Corps of Engineers (the agencies) promulgated several regulatory definitions of "waters of the United States," most recently by the Corps in 1986 and by EPA in 1993, before the promulgation of the WOTUS rule in 2015.

Legislative History

Pre-1972

Before the 1972 amendments to the Clean Water Act, Congress enacted several laws addressing water pollution.

The Rivers and Harbors Act of 1899 addresses navigable waters. Section 13 of that Act (known as the Refuse Act) (33 U.S.C. 407) also applies to tributaries of navigable waters. Under this Act, it is unlawful to discharge refuse "into any navigable water of the United States, or into any tributary of any navigable water from which the same shall float or be washed into such navigable water." [55]

The 1948 Federal Water Pollution Control Act (FWPCA) declared the pollution of interstate waters and tributaries thereof to be a public nuisance where the pollution endangers health or welfare of persons in a State other than that in which the pollution originated.[56] The Act defined

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[55] Section 13 states:

> It shall not be lawful to throw, discharge, or deposit, or cause, suffer, or procure to be thrown, discharged, or deposited either from or out of any ship, barge, or other floating craft of any kind, or from the shore, wharf, manufacturing establishment, or mill of any kind, any refuse matter of any kind or description whatever other than that flowing from streets and sewers and passing therefrom in a liquid state, into any navigable water of the United States, or into any tributary of any navigable water from which the same shall float or be washed into such navigable water; and it shall not be lawful to deposit, or cause, suffer, or procure to be deposited material of any kind in any place on the bank of any navigable water, or on the bank of any tributary of any navigable water, where the same shall be liable to be washed into such navigable water, either by ordinary or high tides, or by storms or floods, or otherwise, whereby navigation shall or may be impeded or obstructed: Provided, That nothing herein contained shall extend to, apply to, or prohibit the operations in connection with the improvement of navigable waters or construction of public works, considered necessary and proper by the United States officers supervising such improvement or public work: And provided further, That the Secretary of the Army, whenever in the judgment of the Chief of Engineers anchorage and navigation will not be injured thereby, may permit the deposit of any material above mentioned in navigable waters, within limits to be defined and under conditions to be prescribed by him, provided application is made to him prior to depositing such material; and whenever any permit is so granted the conditions thereof shall be strictly complied with, and any violation thereof shall be unlawful. (33 U.S.C. 407).

[56] Federal Water Pollution Control Act of 1948, See Pub. L. No. 80-845, 62 Stat. 1155 (June 30, 1948), at section (2)(d)(1).

interstate waters as all rivers, lakes, and other waters that flow across, or form a part of, State boundaries.[57]

In 1956, Congress rewrote the Federal Water Pollution Control Act. While the jurisdictional reach of the Act remained interstate waters and tributaries thereof, Congress amended the definition of "interstate waters" to read as follows: "The term "interstate waters" means all rivers, lakes, and other waters that flow across, or form a part of, the boundaries between two or more states."[58] This change had the effect of eliminating the application of the Act to coastal and international boundary waters.[59]

In 1961, Congress expanded the jurisdiction of that Act to abate pollution of interstate or navigable waters "in or adjacent to any State or States," whether the pollution is discharged directly into such waters or reaches such waters after discharge into a tributary.[60] Congress also amended the definition of interstate waters to include coastal waters.[61]

In 1965, Congress did not change the jurisdictional scope of the authority under the Act to abate water pollution. However, Congress added a new section authorizing States to establish federally enforceable water quality standards, applicable only to interstate waters "or portions thereof" within the State.[62]

The limited reach of water quality standards under the Federal Water Pollution Control Act and the cumbersome enforcement mechanisms of that Act led some to rely instead on the Refuse Act to address water pollution. As noted above, this Act prohibits discharges of pollution into navigable waters and, if the pollution can reach navigable water, into tributaries thereof. The Act also authorizes the Secretary of the Army to issue permits authorizing discharges.

In 1966, the Supreme Court held that the Refuse Act prohibits pollution whether or not the pollution obstructs navigation.[63] However, the Corps permits to authorize discharges under section 13 were limited to navigable waters and applied only to discharges that obstructed navigation.[64] Prosecutors filed lawsuits to stop industrial liquid discharges into both navigable waters and their tributaries.[65] Discharges into tributaries could not be permitted, leaving many industrial dischargers vulnerable to these suits.

To address this issue, on December 23, 1970, President Nixon issued an executive order directing implementation of a new permit program under section 13 that included permits for

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[57] Id. at section 10(e).
[58] Water Pollution Control Act of 1956, P.L. 84-660, sec. 11(e).
[59] Barry, The Evolution of the Enforcement Provisions of the Federal Water Pollution Control Act: A Study of the Difficulty in Developing Effective Legislation, Michigan Law Review, Vol. 68, No. 6 (May, 1970), 1103, 1109-1110.
[60] Federal Water Pollution Control Act Amendments, P.L. 87-88, sec. 8(a).
[61] Id. at 11(e).
[62] Water Quality Act of 1965, P.L. 89-234, at sec. 10(c)(1).
[63] *United States v. Standard Oil Co.*, 384 U.S. 224, 228-30 (1966).
[64] 33 CFR § 209.395 (1967). See also 33 F.R. 18,670 December 18, 1968.
[65] Rodgers, *Industrial Water Pollution and the Refuse Act: A Second Chance for Water Quality,* 119 U. Pa. L. Rev. 761, 767 (1971) ("Recently, the Refuse Act has become a *cause celebre* for the environmental movement.").

both navigable waters and tributaries.[66] However, in 1971, the District Court for the District of Columbia held that while discharges of refuse into tributaries were prohibited under the Refuse Act, the authority of the Corps of Engineers to issue permits authorizing discharges was limited to discharges into navigable waters.[67] The court also held that permits under the Refuse Act must comply with the recently enacted National Environmental Policy Act, effectively halting the permitting program, while leaving in place the moratorium on discharges of pollution.

1972 Amendments

The Corps inability to issue permits for discharges put pressure on Congress to step in, resulting in the enactment of the 1972 Federal Water Pollution Control Act Amendments. While considering what action to take, Congress was presented with competing views of federal water pollution abatement: the approach of the Water Quality Act of 1965, under which pollution was allowed unless controls were necessary to allow water to meet its designated uses, and the approach of the Refuse Act, under which pollution was prohibited unless authorized by a permit.[68]

The 1972 Amendments embraced both approaches. The amendments prohibited discharges unless authorized by a permit and established a goal of eliminating pollution by 1985. But, the amendments also included a new permitting program that relies on both technology-based and water quality-based effluent limitations.[69]

The jurisdictional reach of the statute did not receive much attention during consideration of the 1972 Amendments. The definition of navigable waters that Congress adopted in October 1972 states: "The term 'navigable waters' means the waters of the United States, including the territorial seas."[70]

According to the conference report for the 1972 amendments: "The conferees fully intend that the term navigable waters be given the broadest possible constitutional interpretation unencumbered by agency determinations which have been made or may be made for administrative purposes."

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[66] See E.O. 11574 December 23, 1970; 33 C.F.R. 209.131 (1971); 33 Fed. Reg. 6564 (1971; The Refuse Act Permit Program, EPA 905-F-73-022, available at http://nepis.epa.gov.

[67] *Kalur v. Resor*, 335 F. Supp. 1 (D.D.C. 1971).

[68] *See generally*, Hopper, "Federal Water Pollution Legislation: Current Proposals to Achieve More Effective Enforcement," 13 Boston College Law Review 749 (Mar. 1, 1972); A Legislative History of the Water Pollution Control Act Amendments of 1972, vols. 1 and 2,Committee Print 93rd Cong., 1st Sess. (hereinafter "1972 Act Leg. Hist.").

[69] CWA, sec. 101(a); 402(a)(4), (5).

[70] Federal Water Pollution Control Act, sec. 502. The term "navigable waters" alone appears in the Act 73 times. The term "navigable waters of the United States" appears in the Act 9 times (primarily in section 311). The term "waters of the United States" without the term "navigable" appears 5 times (not including the definition). Finally, the term "nation's waters" appears twice, once in the goal statement and once in section 508, pertaining to procurement.

To understand what constitutional interpretation of the term "navigable waters" is contemplated and what "agency determinations" for "administrative purposes" were being disavowed, it is important to place the 1972 Amendments in context.

The broadest possible constitutional interpretation of the term "navigable waters" subject to federal jurisdiction under the Commerce Clause was the interpretation put forth in *United States v. Appalachian Electric Power Co.*, 331 U.S. 377 (1940). Under that decision, the Supreme Court held that the term "navigable waters" included water that could be made navigable for use as a highway of commerce with reasonable improvements.[71] The Supreme Court also had upheld federal regulation of non-navigable tributaries of navigable waters to preserve navigable capacity as well as regulation of pollution of navigable waters that does not impact navigable capacity.[72]

Administratively, EPA and the Corps of Engineers adopted the a definition of navigable waters that conformed to the broad reach of *Appalachian Electric Power Co.*[73] However, both EPA and the Corps also administratively adopted a distinction between "navigable waters of the United States" and "navigable waters of a state." According to a May 1972, EPA's Office of General Counsel "Primer on the Law, Evidence, and Management of Federal Water Pollution Control Cases," "navigable waters" are waters that are navigable in fact or waters that have been or could be made to be navigable in fact while "waters of the United States" are waters that could be used as a highway for interstate commerce.[74] Under EPA's Primer "navigable waters of the United States" must meet this "two-pronged test."[75]

EPA's General Counsel also issued an opinion on the definition of navigable waters on December 9, 1971.[76] That opinion the General Counsel addressed the question of whether "navigable waters of the United States" included navigable State inland waters that were part of an interstate transportation system if rail or automotive links were considered. The General Counsel concluded, based on the Supreme Court opinion in *The Daniel Ball*, that "there must be a *water* connection between states, and Section 13 will not apply to inland lakes."[77]

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[71] United States v. Appalachian Electric Power Co., 331 U.S. 377, 407-410, 416 (1940).

[72] Oklahoma v. Guy F. Atkinson Co., 313 U.S. 508 (1941) (regulation of tributaries); *United States v. Standard Oil Co.*, 384 U.S. 224, 228-30 (1966) (regulation of oil discharges).

[73] 33 CFR § 209.260 (1968) (33 Fed. Reg. 18,670, 18,692, Dec. 18, 1968); EPA Legal Support Division, "A Primer on the Law, Evidence, and Management of Federal Water Pollution Control Cases," May 1972, at Appendix A (Navigable Waters, prepared November 8, 1971) (hereinafter EPA Primer). Available at www.nepis.epa.gov

[74] EPA Primer, at Appendix A. (citing cases including Utah v. United States, 403 U.S. 9 (1971) ("The lake was used as a highway and that is the gist of the federal test.").

[75] EPA Primer, at 7 and Appendix B at 5 (distinguishing between navigable waters of the United States and navigable waters of a state and noting that navigable waters of the United States must be both navigable and a highway for interstate commerce).

[76] U.S. EPA, Office of General Counsel, A Collection of Legal Opinions, Vol. 1, at 400 (General Counsel Opinion, "Definition of Navigable Waters," Dec. 9, 1971) (available at nepis.epa.gov).

[77] *Id.* at 400, 401, *citing The Daniel Ball*, 77 U.S. 557 (1870) ("[Rivers] constitute navigable waters of the United States within the meaning of acts of Congress, in contradistinction from the navigable waters of the States, when they form in their ordinary condition by themselves, or by uniting with other waters, a continued high way over which commerce is or may be carried on with other State or foreign countries in the customary modes in which such commerce is conducted by water.")

The Corps' 1968 definition of "navigable waters of the United States" adopted this position. Under this regulation, "navigable waters of the United States" did not include navigable waters of a state, which, although navigable, are *not* "by uniting with other waters, a continued highway over which commerce is or may be carried on with other states or foreign countries in the customary modes in which such commerce is conducted by *water*."[78]

Given the scope of jurisdiction of the Water Quality Act of 1965 (to include all navigable waters) some commentators viewed the agencies' view of their regulatory authority over navigable waters as overly narrow.[79]

Senate bill

The Senate report clearly states that the Senate bill to amend the Federal Water Pollution Control Act, S. 2770, is a response to implementation of both the Refuse Act and the Water Quality Act of 1965.

> In addition to redirecting the control program from ambient standards to direct effluent controls [in contrast to the Water Quality Act of 1965], the second most difficult policy and program issue which the Committee considered was the integration of the program under section 13 of the Refuse Act of 1899 initiated by the Administration pursuant to Executive Order in December of 1970.
>
> When implemented and applied to pollution, the Refuse Act permit program established a direct relationship between the Federal Government and each industrial source of discharge into the navigable waters of the United States. This relationship existed completely independent of the Federal-State program established under the 1965 Act and created a duality of control requirements that placed all parties under a cloud of uncertainty. In addition, to the problem of intergovernmental relations, the Refuse Act authority has significant gaps (particularly its exemption of municipal waste treatment works) that render it seriously inadequate as a means of implementation of a water pollution control program.
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> Because of the complexity of the Refuse Act permit program and its relationship to Section 402 a short discussion of the factors involved in development of the permit program is relevant.
>
> In 1899, the Congress enacted a statute which precisely prohibited the discharge of any "refuse"' (subsequently defined by the Courts to include everything except sewage from municipalities) without a permit from the Secretary of the Army (the Corps of Engineers). This prohibition can be enforced with both civil and criminal sanctions. This

[78] 33 Fed. Reg. at 18,692. On September 9, 1972, shortly before the enactment of the 1972 Amendments, the Corps revised its definition of "navigable waters of the United States" to include expressly water bodies wholly within one state when it physically connects with a generally acknowledged avenue of interstate commerce, such as the ocean or one of the Great Lakes." 33 C.F.R. 209.260 (1972); 37 Fed. Reg. 18,289, 18,290 (Sept. 9, 1972). This definition does not include tributaries.

[79] See Rogers, supra note 11, at 818 (decrying "EPA's reluctance to assume a general authority (under the Water Quality Act of 1965) to review-and to modify-conditions affecting discharges into intrastate navigable waters").

> authority was ignored until June 1, 1971. The Corps of Engineers, pursuant to an Executive Order of the President, issued December 23, 1970 (E.O. 11574), proposed regulations (December 31, 1970, 35 F.R. 20005 and January 21, 1971, F.R. 983) to exercise authority contained in the 1899 statute relating to discharges into the navigable waters. The regulations were finally promulgated on April 7, 1971. Supplementary regulations have been promulgated by E.P.A. and several supporting administrative interagency agreements have been published.[80]
>
> The Refuse Act **as now restated** in the Committee bill establishes that the discharge of pollutants into the navigable waters of the United States is prohibited. The Federal Government as the custodian of the navigable waters has the responsibility to control affirmatively any discharges of pollutants into the navigable waters and, under the Committee bill, seek to achieve elimination of the discharge of pollutants.[81]

Like the Refuse Act, S. 2770, defined navigable waters in section 502(h) to expressly include tributaries: "The term 'navigable waters' means the navigable waters of the United States, portions thereof, and the tributaries thereof, including the territorial seas and the Great Lakes."

The Senate Report explains the intent of this definition is to expand federal authority beyond interstate waters to include all navigable waters and their tributaries:

> The control strategy of the Act extends to navigable waters. The definition of this term means the navigable waters of the United States, portions thereof, tributaries thereof, and includes the territorial seas and the Great Lakes. **Through a narrow interpretation of the definition of interstate waters the implementation 1965 Act was severely limited. Water moves in hydrologic cycles and it is essential that discharge of pollutants be controlled at the source. Therefore, reference to the control requirements must be made to the navigable waters, portions thereof, and their tributaries.**
>
> The Committee has added definitions of the terms territorial seas, contiguous zone, and ocean to describe clearly the jurisdictional limits of the Act, and provide a basis for its relationship to other laws of the United States as well as to international law.[82]

House bill

The House moved its legislation to amend the Federal Water Pollution Control Act after the Senate passed S. 2770. The House bill, H.R. 11869, defined navigable waters in section 502(8) of the bill without referring to tributaries: "The term 'navigable waters' means the navigable waters of the United States, including the territorial seas."

The House report discusses the term "navigable waters" as follows:

> One term that the Committee was reluctant to define was the term "navigable waters." The reluctance was based on the fear that any interpretation would be read narrowly.

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[80] S. Rept. 92-414, 92nd Cong. 1st Sess. 70.

[81] S. Rept. 92-414, 92nd Cong. 1st Sess. 71 (emphasis added).

[82] S. Rept. 92-414, 92nd Cong. 1st Sess. 77 (emphasis added).

> However, this is not the Committee's intent. The Committee fully intends that the term "navigable waters" be given the broadest possible constitutional interpretation unencumbered by agency determinations which have been made or may be made for administrative purposes.[83]

Nothing in the House report suggests that the definition of the House bill is broader than the definition in the Senate bill or that the House definition was intended to encompass broader jurisdiction than the Refuse Act. In fact, during the floor debate on the House bill, members of Congress aligned with the environmental community expressed opposition to the House bill because they favored a continued reliance on section 13 of the Rivers and Harbors Act of 1899 to control water pollution.

According to Rep. Dingell:

> The present Federal Refuse Act permit program is far superior to the one included in the committee bill and I hope that, if a more workable solution cannot be reached on section 402 of the bill which provides greater Federal control over individual permits, section 402 will be deleted from the bill and that the present and very successful Refuse Act permit program established in December 1970 be retained.
>
> I am, however, particularly pleased that both the House and Senate versions of the bill have recognized that the Refuse Act of 1899 should be continued as an antipollution tool. I note with great pleasure that Mr. Roe said on page H2636 of the Congressional Record of March 28 that "The Refuse Act is continued without modification as a valuable enforcement, tool." I know that all environmentalists join with me and Representative Reuss in praising the committee for retaining this important statute.[84]

Much has been of language from the Conference Report and floor statements during consideration of the Conference Report that: "The conferees fully intend that the term navigable waters be given the broadest possible constitutional interpretation unencumbered by agency determinations which have been made or may be made for administrative purposes." However, this is the same language that was used in the House report, in reference to the definition of navigable waters in H.R. 11860 ("navigable waters of the United States, including the territorial seas").

Conference Report

A fuller explanation of the definition of "navigable waters" was made during floor consideration of the Conference Report in the Senate and in the House of Representatives.

On the Senate floor, Senator Muskie explained:

> It is intended that the term 'navigable waters' include all water bodies, such as lakes, streams, and rivers, regarded as public navigable waters in law which are navigable in fact. It is further intended that such waters shall be considered to be navigable in fact

[83] H. Rept. No. 92-911, 92nd Cong. 2d. Sess. xx
[84] Leg history v. 1, at 687 (Mar 29, 1972).

> when they form, in their ordinary condition by themselves **or by uniting with other waters or other systems of transportation, such as highways or railroads,** a continuing high way over which commerce is or may be carried on with other States or with foreign countries in the customary means of trade and travel in which commerce is conducted today. In such cases the commerce on such waters would have a substantial economic effect on interstate commerce."[85]

With this explanation, the definition of navigable waters encompasses navigable waters of a State as long as they are part of a highway of commerce by any means of transportation, repudiating the December 9, 1971, EPA General Counsel opinion and the 1968 Corps regulations, discussed above.[86]

On the House floor, Congressman Dingell provided a similar explanation and was careful to point out that the 1972 amendments, unlike the 1965 Act, regulates portions of waters that do not cross a state or international boundary. Congressman Dingell noted that the full extent of Commerce Clause jurisdiction can extend to intrastate waters if they are a link in a channel of transportation:

> [T]he conference bill defines the term "navigable waters" broadly for water quality purposes. It means all "the waters of the United States" in a geographical sense. It does not mean "navigable waters of the United States" in the technical sense as we sometimes see in some laws. The new and broader definition is in line with more recent judicial opinions which have substantially expanded that limited view of navigability —derived from the Daniel Ball case (77 U.S. 557, 563) — to include waterways which would be "susceptible of being used * * * with reasonable improvement," as well as those waterways which include sections presently obstructed by falls, rapids, sand bars, currents, floating debris, et cetera. United States v. Utah, 283 U.S. 64 (1931); United States v. Appalachian Electric Power Co., 331 U.S. 377, 407-410. 416 (1940); Wisconsin Public Service Corp. v. Federal Power Commission, 147 F. 2d 743 (CA 7, 1945); cert. den. 325 U.S. 880; Wisconsin v. Federal Power Commission, 214 F. 2d 334 (CA 7, 1954) cert. den. 348 U.S. 883 (1954); Namekagon Hydro Co. v. Federal Power Commission, 216 F. 2d 509 (CA 7, 1954) ; Puente de Reynosa, S.A. v. City of McAllen, 357 F. 2d 43, 50-51 (CA 5, 1966) ; Rochester Gas and Electric Corp. v. Federal Power Commission, 344 F. 2d 594 (CA 2, 1965); The Montello, 37 U.S. (20 Wall.) 430, 441-42 (1874) ; Economy Light & Power Co. v. United States, 256 U.S. 113.
>
> The U.S. Constitution contains no mention of navigable waters. The authority of Congress over navigable waters is based on the Constitution's grant to Congress of "Power * * * To regulate commerce with Foreign Nations and among the several States * * *" (art. I, sec. 8, clause 3). Gibbons v. Ogden, 22 U.S. (9 Wheat.) 1 (1824). Although most interstate commerce 150 years ago was accomplished on water ways, **there is no requirement in the Constitution that the waterway must cross a State boundary in order to be within the interstate commerce power of the Federal Government. Rather, it is enough that the waterway serves as a link in the chain of commerce**

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[85] 118 Cong. Rec. 33699 (1972) (Muskie Statement), Leg. Hist, at 178. (Emphasis added.)

[86] Check for reference in hearings.

> **among the States as it flows in the various channels of transportation —highways, rail roads, air traffic, radio and postal communication, waterways, et cetera**. **The "gist of the Federal test" is the waterway's use "as a highway,"** not whether it is "part of a navigable interstate or international commercial highway." Utah v. United States, 403 U.S. 9, 11 (1971); U.S. v. Underwood, 4 ERC 1305, 1309 (D.C., Md., Fla., Tampa Div., June 8, 1972).
>
> Thus, this new definition clearly encompasses all water bodies, including main streams and their tributaries for **water quality** purposes.[87]

In context, "all water bodies," that Congressman Dingell is referring to are waterways that are used as a highway and thus serve as a link in the chain of commerce, as well as their tributaries. Like Senator Muskie, Congressman Dingell is directly repudiating EPA's 1971 General Counsel opinion and the Corps' 1968 regulations and is asserting jurisdiction over intrastate navigable waters used in interstate commerce, as well as jurisdiction over tributaries, to protect the water quality of those navigable waters.

In summary, these floor statements clarify that Congress viewed the "broadest possible constitutional interpretation unencumbered by agency determinations which have been made or may be made for administrative purposes" of the term "waters of the United States" encompasses waters that "by uniting with other waters or other systems of transportation" are part of an interstate transportation system, as well as tributaries of such waters.

This definition relies on Congress' Commerce Clause authority over transportation. As explained by EPA in 1972, federal jurisdiction would not extend to a pond that is used for duck hunting, because duck hunting is not use as a highway of commerce.[88]

Based on the legislative history, it appears that Congress intended to protect waters that are highways of commerce by also protecting tributaries of those waters.[89] However, nothing in the legislative history of the 1972 Amendments suggests that the House or Senate intended the term "navigable water" to encompass wetlands and waters that are geographically isolated from navigable water or ephemeral flows that don't carry pollutants to navigable water. In fact, these issues did not come up for discussion at all.[90]

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[87] 118 Cong. Rec. 33756-57 (1972) (Dingell statement) (emphasis added).

[88] EPA Primer at Appendix B at 10 ("Notwithstanding navigability, a waterway cannot be a navigable water of the United States if it was not, is not, or could not be used as a highway for commerce. A body of water which attracts nothing but duck hunters is not commerce for navigational jurisdiction purposes. *Pitship Duck Club v. Town of Secuim*, 315 F. Supp. 309, 310 (W.D. Wash. 1970).").

[89] Although the legislative history does not cite Supreme Court precedent on this issue, jurisdiction over tributaries falls within the broad constitutional reach of jurisdiction. *See Oklahoma v. Guy F. Atkinson Co.,* 313 U.S. 508 (1941).

[90] The term wetland is used just twice in the legislative history of the 1972 Amendments. Leg. Hist., v. 1, at 198, 202. The word is used by Senators Buckley and Jackson in oral and written remarks regarding section 511(c) of the Conference Report (the Clean Water Act NEPA waiver). Senator Buckley asks Senator Muskie if the Atomic Energy Commission, when licensing a nuclear power plant, could require conditions beyond Clean Water Act effluent limitations. "I would like to ask the Senator from Maine if I am correct in my understanding that environmentalists

Agency Implementation

On February 6, 1973, the EPA General Counsel issued an opinion interpreting the definition of "navigable waters" in the 1972 amendments.[91] According EPA: "The statement of managers in the Conference Report indicates that the new definition of 'navigable waters' is to 'be given the broadest possible constitutional interpretation unencumbered by agency determinations which have been made or may be made for administrative purposes.' S. Rept. No. 92-1236 at 144." Relying on this statement, the EPA General Counsel determined that by defining "navigable waters" as "waters of the United States" Congress gave EPA the authority to regulate any water that was a "water of the United States," which, in a departure from its November 1971 analysis, discussed above, EPA now interpreted as any water "capable of affecting interstate commerce."[92] With this interpretation, EPA reversed its 1972 interpretation, ignored Senator Muskie's and Congressman Dingell's statements about water as a "highway" and read the word "navigable" out of the Act.

Implementing its claim to broad jurisdiction, in 1973, EPA issued regulations for implementing section 402 of the Act that defined navigable waters as:

> (1) All navigable waters of the United States;
> (2) Tributaries of navigable waters of the United States;
> (3) Interstate waters:
> (4) Intrastate lakes, rivers, and streams which are utilized by interstate travelers for recreational or other purposes;
> (5) Intrastate lakes, rivers, and streams from which fish or shellfish are taken and sold in interstate commerce; and
> (6) Intrastate lakes, rivers, and streams which are utilized for industrial purposes by industries in interstate commerce.[93]

In 1974, the Corps of Engineers issued regulations defining "waters of the United States" for the purpose of implementing section 404 of the Clean Water Act, as well as sections 9, 10, 11, 13 and 13 of the River and Harbor Act of 1899, as follows:

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will be barred from intervening in AEC licensing procedures in order to obtain tougher effluent limitations — *perhaps to protect wetlands*, wildlife refuges, and so forth —than the limitations prescribed by the standards of the EPA-run water quality program?" Id. at 198 (emphasis added). Senator Muskie responded by agreeing that the AEC would have no such authority under the 1972 Amendments. "I think I have answered the question. Yes; that is correct." Id. at 199.

[91] U.S. EPA, Office of General Counsel, A Collection of Legal Opinions, Vol. 1, at 295-96 (General Counsel Opinion, "Meaning of the Term Navigable Waters," Feb. 6, 1973) (available at nepis.epa.gov).

[92] As noted above, Appendix A of the 1972 EPA Primer is a memorandum entitled "Navigable Waters," dated November 8, 1971. In that memorandum, EPA noted that navigability alone was not sufficient for water to be a water of the United States, citing Johnson v. Marathon, 227 F. Supp. 135 (D. Ore. 1964). This case held that the "Lake of the Woods" was not a navigable water of the United States even though it was fifty feet deep and one mile wide because the points of ingress and egress were non-navigable creeks that were dry half of the year and strewn with boulders, and overgrown with trees and shrubs and so was missing evidence of capacity for use in commerce.

[93] 40 C.F.R. 125.1 (1973); 38 Fed. Reg. 13,528, 13,529 (May 22, 1973). EPA did not propose this definition. The definition in the proposed rule merely copied the statutory definition. 38 Fed. Reg. 1362 (Jan. 11, 1973).

> The term "navigable waters of the United States" and "navigable waters" as used herein mean those waters of the United States which are subject to the ebb and flow of the tide, and/or are presently, or have been in the past, or may be in the future susceptible for use for purposes of interstate or foreign commerce (See 33 CFR 209.260 for a more complete definition of these terms).[94]

With this regulation, the Corps reaffirmed its September 1972 definition promulgated under the 1899 Act, consistent with its traditional authority over waters that are navigable in fact.[95]

The Corps' view of the scope of its jurisdiction under section 404 was consistent with the views of the congressionally chartered National Water Commission, which in its 1973 report to the President and Congress identified jurisdiction over intrastate, non-navigable water as a gap in federal regulation:

> There are, however, many activities which affect waters important to fish and wildlife but which are beyond the reach of the Coordination Act and NEPA. Among these are non-Federal activities with respect to non-navigable inland waters. Fish and wildlife values are vulnerable, at least from the standpoint of Federal protection, in non-navigable waters to the extent that water related activities are conducted by those who are not required to obtain Federal licenses or permits. As an illustration, dredging and channel alteration is controlled through permits issued by the U.S. Army Corps of Engineers, but those permits are only required when the waters are navigable in interstate or foreign commerce, and no application for the Corps permit need be filed for those activities in other inland waters.[96]

However, environmental groups disagreed. The Natural Resources Defense Council and the National Wildlife Federation challenged the Corps' regulation in the District Court for the District of Columbia based on the concern that the Corps' definition of navigable waters did not include tributaries or coastal marshes above the mean high tide mark or wetlands above the ordinary high water mark. These groups also expressed concern about lakes, isolated wetlands, and potholes.[97] In a 389-word order, the District Court held that the term "navigable waters" is not limited to the traditional tests of navigability and ordered the Corps to revoke its definition and publish a new definition "clearly recognizing the full regulatory mandate of the Water

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[94] 33 C.F.R. 209.120(d)(1) (1974); 39 Fed. Reg. 12,119 (Apr. 3, 1974).

[95] 33 C.F.R. 209.260 (1972); 37 Fed. Reg. 18,289, 18,290 (Sept. 9, 1972).

[96] "Water Policies For The Future: Final Report to the President and to the Congress of the United States by the National Water Commission (June 1973), at 200-201. The National Water Commission also recommended that state owned wetlands that have primary value for waterfowl propagation or other wildlife purposes, should ordinarily be reserved or otherwise protected from drainage operations and developments which would destroy or substantially impair such values. Id. at 279. This recommendation would have been moot if such wetlands were regulated under the Clean Water Act.

[97] See the discussion of this litigation in the preamble to the Corps' 1977 regulations. 42 Fed. Reg. 37,123-124 (July 19, 1977).

Act."[98] Although the plaintiffs clearly invited the court to opine on what constitutes that "full regulatory mandate," all the court said was that it went beyond traditional navigable water.

In response, in 1975 the Corps issued interim regulations that defined the term "navigable waters" to include periodically inundated coastal wetlands contiguous with or adjacent to navigable waters, periodically inundated freshwater wetlands contiguous with or adjacent to navigable waters, and, like EPA's 1973 regulations, certain intrastate waters outside the "highway of commerce."[99]

In their final regulations implementing section 404 issued in 1977, the Corps went even further than EPA's 1973 regulations and included "other waters" such as isolated lakes and wetlands, intermittent streams, prairie potholes and any other waters the degradation or destruction of which could affect interstate commerce.[100]

The 1977 Amendments.

The backlash against the *Callaway* decision and the Corps' revised regulations was quick. Legislation was introduced in both the 94th and the 95th Congresses to amend section 404 of the Clean Water Act. Action on Clean Water Act amendments was not completed in the 94th Congress so legislation was reintroduced in both the House and the Senate in the 95th Congress: H.R. 3199 (95th Cong., 1st Sess.) and S. 1952 (95th Cong. 1st Sess.).

House bill

The House Public Works Committee endorsed the Corps' regulations that limited section 404 to waters that are navigable in fact and their adjacent wetlands.

> In 1972, when Congress passed the comprehensive amendments to the Federal Water Pollution Control Act, it established in section 404 of that Act a new permitting authority for the discharge of dredged or fill materials in navigable waters, superseding the 1899) Act for these two activities. The Corps of Engineers, in implementing section 404, applied it to the same waters as those over which it exercised jurisdiction under the 1899 Act—the navigable waters of the United States. This Committee had no difficulty with that interpretation and considered it to be consistent with the provisions of section 404. However a suit was brought in the United States District Court for the District of Columbia alleging that section 404 was not being interpreted broadly enough and the Court agreed, ordering the Corps to publish revised regulations correctly interpreting the phrase "navigable waters". N.R.D.C. vs. Calloway (392 F. Supp. 687 1975).[101]

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[98] *Natural Resources Defense Council, Inc. v. Callaway,* 392 F. Supp. 685 (D.D.C. 1975).

[99] These were: Intrastate lakes, rivers and streams landward to their ordinary high water mark and up to their headwaters that are utilized: (a) by interstate travelers for water-related recreational purposes; (b) for the removal of fish that are sold in interstate commerce; (c) for industrial purposes by industries in interstate commerce; or (d) in the production of agricultural commodities sold or transported in interstate commerce. 42 Fed. Reg. at 37,127.

[100] 33 C.F.R. 323.2(1977); 42 Fed. Reg. at 37,127, 37,144.

[101] H. Rept. 95-139 (95th Cong., 1st Sess.), at Leg. Hist. vol. 4, at 1216.

In section 16, the House bill codified the Corps regulations that had been overturned by the district court in *Callaway.*

The House debated H.R. 3199 on April 5, 1977. As explained by the Chairman of the Committee, section 16 of the bill addressing section 404 was essentially the same as an amendment that had passed the House by a 2 to 1 margin that was incorporated in a the bill that passed the House by a wide margin in the previous Congress.[102] Congressman Edgar offered an amendment to provide exemptions from permitting under sections 404 and 402, without amending the definition of navigable water. That amendment was rejected by voice vote and the H.R. 3199 passed by a vote of 361 to 43.[103]

Senate bill

In S. 1952 the Senate Environment and Public Works Committee took an approach similar to the Edgar amendment that the House rejected, *i.e.*, creating exemptions rather than amending the section 404 definition of navigable water.[104] Also, unlike the Edgar amendment, S. 1952 authorized the regulation of discharges that alter the flow or reach of navigable waters.[105]

The Senate debated S. 1952 on August 4, 1977. During consideration of S. 1952, the House approach to section 404 was offered as an amendment by Senator Bentsen. To encourage Senators to oppose the Bentsen amendment, Senator Muskie claimed the Senate bill was based on the Corps' traditional jurisdiction over waters that are navigable in fact, disavowed support for the broad scope of the Corps' 1977 amendments, and made many assurances regarding the efficacy of the proposed exemptions.

First, Senator Muskie claimed that section 404 applies only to water within the Corps' traditional jurisdiction under the 1899 Act, but requires greater consideration of where dredged material is placed:

> Now, what the committee bill does is very simple. It undertakes to continue the corps' **traditional jurisdiction exercised since the Refuse Act of 1899 and before.**
> It was under that jurisdiction that the corps for all these decades has policed and monitored and approved dredging in the water ways of our country and disposing of the dredged spoil wherever it chose without any consideration for the environmental values concerned or the damage that was done because of that insensitivity.
> For the purpose of disciplining the corps in that respect, section 404 was enacted into law in 1972. The corps proceeded to take that section and, by its interpretation, **expand it far beyond any intent of the Congress** so that it found itself threatening regulation in areas of the country which the corps had never imagined it had any jurisdiction over.

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[102] Leg. Hist. vol. 4, at 1272, 1276. The underlying bill, H.R. 9560, passed the House by a vote of 339-5.
[103] Leg. Hist., vol. 4, at 1357, 1363.
[104] The Senate bill also allowed State assumption of section 404 and displacing section 402 and 404 with State best management practices. S. 1952, sec. 49.
[105] The example provided was the conversion of a hardwood swamp to another use through the construction of dikes or drainage channels. Leg. Hist. vol. 4, at 710. There was no discussion of freezing uses as of 1977.

> We all began to get letters from farmers, foresters, ranchers, from people whose activities in the mind of the Congress were not in the slightest bit intended to be affected by 404 when we enacted section 404.[106]

Second, Senate Muskie disavowed any support for the scope of jurisdiction in the Corps' 1977 regulations:

> I think it ought to be clear that no Member of the Senate, as far as I know, defends section 404. The Senator knows that I vigorously opposed the interpretation of section 404 which the Corps of Engineers undertook to implement, and the committee undertook in its proposal to meet the objections of section 404 in one way, and the Senator's amendment seeks to meet it in another way. So the contest is really not between those who defend section 404 and those who object to it but rather it is a competition between two different methods of dealing with the problems created by the corps' interpretation of section 404.[107]

Third, Senator Muskie claimed that the Senate bill creates clear exemptions:

> The committee bill is very clear on this proposition, very clear. For instance, in response to this question let me give an answer:
>
> How does the committee proposal handle minor agricultural drainage? I put this question because the Senator from Texas put it to me earlier. The answer is this: First, the committee's program does not apply to any drainage activities which occur in upland areas.
>
> The committee amendment also specifically exempts the construction and maintenance of agricultural irrigation ditches and the maintenance of agricultural drainage ditches. For instance, if the drainage is being constructed in a field already in agricultural use for crops such as soybeans or corn, the drainage activity would not be subject to any permit under the provisions of the committee bill. What types of farming and forestry practices are exempt from permit requirements under the committee bill? Let me list them: Normal farming and forestry activities such as plowing, seeding, harvesting and cultivating, minor drainage, upland soil and water conservation practices, maintenance and emergency reconstruction of existing fills such as dikes, dams and levees; construction and maintenance of farm or stock ponds and irrigation ditches; maintenance of drainage ditches, construction and maintenance of farm and forest roads, placement of dredge and fill material from farming and forestry practices which the State chooses to regulate by best management practices.[108]

Not all Senators were persuaded by Senator Muskie's assurances. In fact, Senator Tower's remarks in support of the Bentsen amendment were prescient:

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[106] Id. at 948 (emphasis added).
[107] Id. at 903.
[108] Id. at 928.

Now, the courts contend that navigable waters include all waters of the United States. Now, the Corps is in the position to obtain jurisdiction over waters which are navigable neither in law nor in fact, and furthermore, **not even critical to navigation**.

This court interpretation additionally creates the need for protecting major wetlands which can be better protected through a thorough and precise definition of what wetlands actually comprise. If this is done, there will be no doubt as to where the corps' jurisdiction lies. If the current definition of navigable waters is allowed to stand, it will mean that many day-to-day activities on lands that are wet, swampy, or poorly drained will require a permit.

If we are to take a practical, but effective, approach 'to regulating the discharge of dredged or fill material in navigable waters and adjacent wetlands, we must have a practical, but effective, definition of what those terms actually comprise. The corps may indeed find itself continuing with **authority over land areas not within the boundaries of water bodies** or **lands which merely have a high water table**.

Each of us is aware of the importance of regulating polluting activities on those waters which feed into larger bodies. Under our amendment States would thus be able to preserve and protect the quality of both nonnavigable and navigable waters with the assistance of the Federal Government if the States see fit.

Those favoring the committee provision assume that the definition presently used by the corps will remain constant, and that, as a result, streams with a discharge of less than 5 cubic feet per second and standing bodies of water less than 10 acres will be exempt forever from permit requirements. The committee bill depends on the corps definition. Section 329.3, part II of the Federal Register, dated July 19, 1977, states in part:

> Precise definitions of navigable waters or navigability are ultimately dependent on judicial interpretation, and cannot be made conclusively by administrative agencies.

If the committee amendment on section 404 is adopted, the courts ultimately may enlarge the definition of navigable waters even further. It is not unreasonable to say that once the present battle over 404 is concluded, nothing prohibits further litigation by groups to expand the jurisdiction of the corps to include those areas it presently exempts. If we leave the matter in the hands of the courts, the original problem may reoccur and we will have "reinvented the wheel." If we do not act affirmatively and clean up the language in Public Law 92-500, **it will result in unwarranted and despotic intrusion by the Federal Government over every brook, creek, cattle tank, mud puddle, slough, or damp spot in every landowner's backyard across this Nation**. It seems unreasonable that we should choose to force more Federal Government on our citizens in an era when they want and need less.[109]

[109] Leg. Hist. v. 4, at 930-31 (emphasis added) .

The Bentsen amendment failed by a vote of 45 to 51. However, given the vocal repudiation of the Corps' implementation of section 404, this vote can by no means be construed as Congressional acquiescence to the Corps' 1977 regulations.

Conference Report

The Conference Report for the 1977 amendments largely adopted the Senate position on section 404.[110] During consideration of the Conference Report in the Senate on December 15, 1977, Senator Muskie explained new section 404(f) as follows:

> The conferees agreed to adopt the Senate amendment that legislatively clarifies the exclusion of certain activities that do not typically involve point source discharges of dredged or fill material and will be adequately controlled by best management practices and performance standards. The conferees have adopted the Senate's explicit approach for clarifying that plowing, seeding, cultivating, harvesting, minor drainage, and soil and water conservation practices performed on uplands were not intended to require section 404 permits. Such exemptions were provided by the Corps of Engineers' regulations under the current law.
>
> New subsection 404(f) provides that Federal permits will not be required for those narrowly defined activities that cause little or no adverse effects either individually or cumulatively. While it is understood that some of these activities may necessarily result in incidental filling and minor harm to aquatic resources, the exemptions do not apply to discharges' that convert **extensive areas of water into dry land or impede circulation or reduce the reach or size of the water body**. For the same reasons, paragraph (f)(1)(E) provides that farm and forest roads are to be constructed and maintained in accordance with best management practices to minimize any adverse effects that may occur when water is displaced by fill material.[111]

[110] H. Rept. 95-830 (95th Cong. 1st Sess.), at 97-105; Leg. Hist. v. 3, at 281-89; Leg. Hist. v. 3, at 524.
[111] Leg. His. v. 3, at 474 (emphasis added).

Message

From: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Sent: 3/2/2017 11:16:13 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: Consent

You have informed the Committee on Environment & Public Works that in your position at the Environmental Protection Agency you may be called upon to work on matters relating to the development and implementation of statutory authorities for the regulation of coal combustion residuals; the regulatory definition of "waters of the United States" under the Clean Water Act; regulations referred to as the "Clean Power Plan;" and matters relating to the Superfund program; and that such work may involve the use and disclosure of related confidential information you were provided or developed while employed by the Committee. The Committee consents to such work and the use of such information

Susan Parker Bodine
Chief Counsel
U .S. Senate Environment & Public Works Committee
410 Dirksen Senate Office Building
Washington, DC 20510
202-224-6176

Message

From: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Sent: 7/24/2017 5:49:57 PM
To: Brown, Byron [brown.byron@epa.gov]
Subject: FW: EPA Superfund Task Force Report
Attachments: SF Task Force Report to Administrator.pdf

You can use cleaning up Navajo uranium mines as your first adaptive management project. You have $2 billion in settlement funds (Tronox and others) but we were told that the Region says they plan to do studies for 5 years before initiating any remediation.

From: Palich, Christian [mailto:palich.christian@epa.gov]
Sent: Monday, July 24, 2017 12:26 PM
To: Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov>; Russell, Richard (EPW) <Richard_Russell@epw.senate.gov>
Cc: Shimmin, Kaitlyn <shimmin.kaitlyn@epa.gov>
Subject: EPA Superfund Task Force Report

*****EMBARGOED UNTIL 12PM ET TUESDAY JULY 25th 2017*****

Hi Richard and Susan,

Please see attached EPA Superfund task force report which will be released tomorrow. ***Please note this report is embargoed till tomorrow at noon***

Have a great day,

Christian R. Palich
Deputy Associate Administrator
Office of Congressional & Intergovernmental Affairs
U.S Environmental Protection Agency
O: 202.564.4944
C: Ex. 6
E: Palich.Christian@epa.gov

SUPERFUND TASK FORCE RECOMMENDATIONS

JUNE 2017

Recommendations in response to Administrator Scott Pruitt's request on May 22, 2017. The recommendations address: expediting cleanup and remediation process; reducing financial burden on all parties involved in the entire cleanup process; encouraging private investment; promoting redevelopment and community revitalization; and, building and strengthening partnerships.

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July 26, 2017

The U.S. Environmental Protection Agency has an important role to ensure stewardship of our natural resources, including clean air, land, and water. A key objective to this goal is revitalizing land, to return it back to local communities so they can enjoy it.

When I assumed my role as EPA Administrator, I was astounded to learn there were over 1300 non-government Superfund sites across this country – sites where land has languished and left with contamination seeping into the land and water. Unfortunately, many of these sites have been listed as Superfund sites for decades, some for as many as 30 years. This is not acceptable. We can – and should – do better.

This is why earlier this year, I appointed a 'Superfund Task Force'. In both a thorough and timely manner, the task force has conducted a review of the Superfund sites and issued this report in order to provide certainty to the American families, businesses, local governments and economies that depend on EPA to provide the leadership and management needed to properly cleanup contaminated sites.

There are many hard working people who have dedicated their careers to cleaning up these sites, but they were not served well by the previous leadership – leadership that put other priorities first. I ask myself every day, what could be more important, more 'core' than giving Americans the ability to use the land they are blessed with. This report demonstrates EPA's commitment to getting these sites cleaned up so that the land is safe for those who build, live or play on it.

The professionals at EPA and the stakeholder partners that contributed to this report share my passion to clean up the country's worst pollution, as expeditiously and as thoroughly as possible. We welcome the feedback and help from all stakeholders in this national effort. And, we look forward to working together, with states, local communities and tribes – alongside those who are responsible for cleaning up their pollution.

Collectively, we can achieve great things when we provide the leadership and management that Americans deserve.

Respectfully,

E. Scott Pruitt

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"Depending on how the various recommendations and proposals in this report may be further developed and implemented, the wording and objectives of some of the items in the report may need to be refined to ensure consistency with existing laws, regulations and EPA guidance documents; in some cases, it also might be appropriate to modify existing policy statements, amend current regulations, or seek legislative amendments to clarify the Agency's authorities. The Task Force Report is not final Agency action."

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Executive Summary

The core mission of the Environmental Protection Agency is to protect the health of our citizens and the environment in which we all live. Action now serves to preserve that environment for future generations. Under Administrator Pruitt's leadership, we are focused on returning to that essential core mission. The Comprehensive Environmental Response, Compensation, and Liability Act or (CERCLA) also known as 'Superfund' was signed into law on December 11, 1980. Since its beginning, the Superfund Program has made remarkable achievements, most of which represent significant contributions to the nation's collective health and quality of life. Superfund, with its many tools, abates and remediates sites contaminated with hazardous waste and reduces risk to both humans and the environment as a whole.

The National Priorities List (NPL) came into existence in 1983. It represents those properties that are the most contaminated and pose the most risk to human health and the environment. Since that time, many sites have been listed on the NPL and many have been remediated and removed. However, sites still remain and each year sites are added to the list. As of June 21, 2017, there are 1,336 sites on the NPL, of which 1179 are private sites and 157 are Federal Facility sites. Many of these are in different stages of completion and will move off the NPL list in the future, once site completion is achieved. As such, much work still remains. This plan will improve and expedite the process of site remediation and promote reuse.

Administrator Pruitt commissioned the Superfund Task Force on May 22, 2017. The Task Force was charged to 'provide recommendations on an expedited timeframe on how the agency can restructure the cleanup process, realign incentives of all involved parties to promote expeditious remediation, reduce the burden on cooperating parties, incentivize parties to remediate sites, encourage private investment in cleanups and sites and promote the revitalization of properties across the country.' To focus their mission more precisely, the Task Force was given 30 days to complete its mission.

This document presents a set of recommendations that are reflective of the expectations of substantive action from the Administrator. It does not represent all potential actions that may be needed in the future. Rather, it represents a good beginning that will lead to program efficiencies and identify areas for further refining. Importantly, such refinement will be the subject of close stakeholder engagement as we seek to strengthen our partnerships with all those involved in the Superfund process. The recommended actions in this document are reflective of this Administrator's top priorities to reinvigorate and prioritize the Superfund program in a most expeditious manner.

The goals of this plan reflect the charge received by the Administrator, namely:

- Expediting Cleanup and Remediation
- Re-Invigorating Responsible Party Cleanup and Reuse
- Encouraging Private Investment
- Promoting Redevelopment and Community Revitalization
- Engaging Partners and Stakeholders

This plan provides for specific actions, offers time frames for commencement, and identifies EPA staff responsible for each action's implementation. The specific actions outlined are all planned to commence within twelve months and many will be initiated immediately following the approval of the plan. Components of the plan may be revised to include additional actions that may be taken at any stage of feedback, preparation, or implementation. Again, such revisions, improvements, and even additions to the plan are anticipated as we engage with our many stakeholders on the plan's details in an effort to greatly enhance our partnerships throughout the Superfund process. Therefore, the plan was designed to be fluid, dynamic, adaptable and provide both substance and accountability. It will be a living, ever improving action plan.

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The Task Force had many members participate. Over the course of this project, upwards of 80 highly experienced EPA professionals, including management and staff, were involved. Five groups, one for each goal, were formed to develop recommendations. The groups' chairs were Dana Stalcup, Ken Patterson, Karen Melvin, Betsy Smidinger, Monica Gardner, Debra Morey, Frank Avvisato, Matthew Tejada, Greg Gervais, Silvina Fonseca and Cyndy Mackey. These individuals used their extensive program knowledge and experience to develop the specific actions identified in the plan. Additionally, many unsolicited, but welcome, letters and white papers were received from industry, trade groups and individual companies which were considered by the Task Force members. Ultimately, the Task Force carefully considered many proposed recommendations but put forth a specific set of actions that could make a difference and meet the charge from the Administrator. Many of these recommendations will be the basis for future actions and plan revisions.

The Superfund Task Force Report identifies a number of opportunities to accelerate cleanup and reuse of Superfund cleanups. This effort identified 42 recommendations that can be initiated without legislative changes during the next year. These recommendations and other innovative ideas will be considered and applied to Superfund Sites with priority given to addressing NPL sites.

A summary of the proposals is the following:

- High attention is given to the Administrator's keen focus on sites that have seemingly taken far too long to remediate. This will be accomplished by:
  - *Establishing an "Administrator's Top Ten" list which will get his weekly attention.*
  - *Directing inquiry and resources as necessary to sites that have been on the NPL for five years or longer without a significant movement.*
  - *Reviewing all remedy review and approval authorities so as to have consistency across the nation.*
- Third party investments in NPL cleanups will become an operational way for the agency to accelerate cleanups and promote reuse of NPL sites. This will be done by identifying reuse candidate sites that are selected to pilot innovative tools and incentives. This includes:
  - *Publicizing site-specific information, including reuse fact sheets to inform the community and developers about properties with reuse potential.*
  - *Engaging communities in identifying cleanup and reuse opportunities.*
  - *Entering into site-specific agreements that define the responsibilities and liabilities of a third party investor.*
  - *Utilizing alternative approaches to financing site cleanups, including environmental liability transfer approaches.*
  - *Working with PRPs to better integrate reuse needs into cleanup activities.*
- NPL sites at which remedies have already been selected will be prioritized for faster completion and deletion from the NPL. Tools to achieve this goal include:
  - *Requiring Remedy Completion Strategies to identify next steps and track progress.*
  - *Conducting Optimization Reviews, including identification of fifteen sites at which to immediately pilot such review.*
  - *Implementing early response actions at selected portions of sites.*
  - *Finishing sites where construction is completed or nearly completed in order to transition the site from "Remedial Action" to "Ready for Reuse" to Deletion, as appropriate.*
- NPL sites in the assessment and investigation stages will be expedited by applying new technologies and approaches, including:
  - *Utilizing state of the art technologies, including using conceptual site model technologies at ten NPL sites.*

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- *Increasing access to technical resources.*
- *Promoting Adaptive Management at Complex Sites, including using Interim/Early Actions.*
- *Clarifying Groundwater Cleanup Goals*

➢ Efforts to secure PRP commitments to perform timely, high quality cleanup will be invigorated. EPA will provide increased inducements and deterrents to encourage PRPs to quickly complete negotiations and cleanup commitments, including:
  - *Reducing oversight costs for PRPs that perform timely, high quality work. This may include a compromise that reduces indirect cost charging. It may also include designating a singular agency or third party to oversee certain aspects of the cleanup.*
  - *Increasing PRP and agency personnel adherence to project deadlines.*
  - *Utilizing enforcement authorities to get work underway quickly and to keep work on schedule.*
  - *Streamlining the dispute resolution process at Federal Facilities and private sites so that final decisions are promptly made and quickly implemented.*

➢ Development of strong stakeholder relationships is key to EPA's remediation success. This will include:
  - *Ongoing and robust dialogue with stakeholders*
  - *Use of the input and feedback from these stakeholders to continuously upgrade the plan*
  - *Higher focus on our Federal industry partners*
  - *Joint identification of barriers to success*

The Plan includes many more details and other actions. For those of us who were privileged to work on this project, we are pleased and excited to be a part of the EPA's core mission. The recommendations and associated actions in this plan should expedite reduction of risks to human health and the environment and accelerate the reuse of properties affected by hazardous waste contamination. The recommendations and specific actions will benefit our citizens now and those of generations to come.

June 21, 2017
Environmental Protection Agency
Superfund Task Force
Washington, DC

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GOAL 1: EXPEDITING CLEANUP AND REMEDIATION

STRATEGY 1: EVALUATE AND ACCELERATE NATIONAL PRIORITIES LIST (NPL) SITES TO COMPLETION

Background: As of June 21, 2017, there are 1,336 sites on the National Priorities List (NPL). These sites (and portions thereof) are in various stages of investigation, cleanup, and reuse. As sites have been added, EPA has chosen to spread its resources across the Superfund pipeline to maximize its ability to make incremental progress at a majority of the sites. An effort to accelerate remedial action and NPL completions will involve re-prioritizing some resources to focus on remedial actions, construction completions, ready-for-reuse determinations, and deletions.

RECOMMENDATION 1*: *Target NPL Sites That Are Not Showing Sufficient Progress Towards Site Cleanup and Completion

Specific Actions:

- Develop a list of potential NPL sites to target for completion based on any the following criteria:
  - Five years listed on the NPL without a selected action;
  - Remedy design not started for a remedy selected more than 2 years ago;
  - Remedial action not started which have a Potentially Responsible Party (PRP); or,
  - Sites with special accounts with a remedial design completed more than 2 years ago.
- As sites are completed, replenish the NPL-targeted list.
- Establish a Top Ten Administrator's Emphasis List on sites determined to need immediate and intense attention:
  - Determine method for designating sites;
  - Find obstacles to completion and address them;
  - Report progress through monthly reports submitted directly to the Administrator; and,
  - As sites are completed, replenish the list.
- Determine any site where human exposure is not under control and prioritize effecting control.
- Develop recommendations for a process for working with Regions to:
  - Establish metrics on all sites to track progress, including PRP lead, length of time to estimated partial or complete deletion, costs anticipated, etc.;
  - Develop project timelines and exit strategies; and,
  - Track and report progress on achieving/meeting timelines.

Lead: Jennifer Hovis, Office of Site Remediation and Technology Innovation (OSRTI); Office of Site Remediation Enforcement (OSRE); Regional staff/management
Timeframe: Commence activities within 30 days of approval of this plan

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***RECOMMENDATION 2*: Develop Strategies for NPL Sites where Remedies have been Selected to Move Sites Towards NPL Deletion**

Specific Actions:

- Prepare and issue a directive to establish and adhere to a process for tracking and reporting on the progress towards site completion.
- Track remedy completion progress within Superfund Enterprise Management System (SEMS) or with other tracking methods if more efficient.
- Conduct regional and Headquarters work planning sessions semi-annually to discuss and develop strategies for site completion.
- Provide to the Administrator an annual report of sites progressing to completion.
- Review and revise the NPL deletion policy to maximize statutory flexibility.
- Focus resources on maximizing deletions/partial deletions for sites that meet Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and National Contingency Plan (NCP) requirements.

Lead: Jennifer Hovis, OSRTI
Timeframe: Commence activities within 30 days of approval of this plan

STRATEGY 2: PROMOTE THE APPLICATION OF ADAPTIVE MANAGEMENT AT COMPLEX SITES AND EXPEDITE CLEANUP THROUGH USE OF EARLY/INTERIM RODS AND REMOVAL ACTIONS

Background: Adaptive Management is an approach used at large and/or complex sites that focuses limited resources on making informed decisions throughout the remedial process. Adaptive management requires the development of a clear site strategy with measurable decision points, and focuses site decision making on a sound understanding of site conditions and uncertainties. Based on site uncertainties, decisions are made from data collection, to remedy selection and implementation that allow for the ability to adapt in the event that these uncertainties result in fundamental changes to site conditions.

Under an Adaptive Management strategy, Regions are encouraged to consider greater use of early and/or interim actions including use of removal authority or interim remedies, to address immediate risks, prevent source migration, and to return portions of sites to use pending more detailed evaluations on other parts of sites. The characterization data collected to support the early/interim actions can be used to update the site Conceptual Site Model (CSM) and reduce time and costs associated with the Remedial Investigation/Feasibility Study (RI/FS). This approach will be most effective at contaminated sediment and complex groundwater sites where using removals or early actions to address sources or areas of high contamination is highly efficient. US EPA's 2017 Directive (9200.1-130) memo reiterates EPA's stated bias for initiating responses as soon as the information makes it possible to do so and recommends the use of removals or early actions to quickly address high risk areas. US EPA's 1996 Directive (9283.1-12) outlines the "phased approach" strategy for addressing contaminated groundwater integration, site characterization, early actions, and remedy selection.

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***RECOMMENDATION 3*: Broaden the Use of Adaptive Management (AM) at Superfund Sites**

Specific Actions:

- Prepare a directive outlining adaptive management, including greater use of early actions and interim Records of Decision (RODs), and considerations for implementation at Superfund sites.
- Identify pilots to demonstrate AM implementation throughout the pipeline.
- Communicate success stories in this area.

Lead: Dana Stalcup, OSRTI; Assessment and Remediation Division (ARD); and AM technical experts
Timeframe: Q3, FY18

STRATEGY 3: CLARIFY POLICIES/GUIDANCE TO EXPEDITE REMEDIATION

Background: Regions should be consistent in prioritizing RI/FSs to identify those sites that need more immediate action in order to help focus available funds and resources. Targeting our efforts, resources and funding may achieve efficiencies in both performance and results. This will foster cooperative partnerships, shorten review times, target sampling and analysis, foster creative thinking, provide a higher level of program accountability and communicate EPA's commitment to the public. In order to accomplish this, the program should focus resources (funds and personnel) to activities associated with NPL sites and establish timeframes and financial limits for conducting RI/FSs.

The principles of groundwater restoration are key concepts outlined in CERCLA and the National Contingency Plan (NCP). Developing improved guidance in this area may help facilitate more timely remedy decisions and make use of the flexibilities inherent within the statute and the NCP. Flexibilities include: using a phased approach, considering monitored natural attenuation, determining whether a technical impracticability waiver is warranted, etc. These strategies, considered early in the cleanup process, may allow for early stakeholder consensus and input and more expedient implementation of remedies.

Currently, the National Remedy Review Board (NRRB) and Contaminated Sediments Technical Advisory Group (CSTAG) are review boards for high-cost sites and sediment sites respectively. Current policy provides that all remedy decisions over $50 million, which require approval by the Administrator, undergo an NRRB review. Both national consistency and expediting remedy completion are goals of this Administration.

***RECOMMENDATION 4*: To Better Promote National Consistency and Review, Update the Authority for Approval of the Remedy Selection While Considering the Retained Authority of the Administrator**

Specific Actions:

- Review the current approval and review authority for sites in excess of $50 million.
- Review current approval and review authority for all sediment sites.

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- Create new procedures with timelines for review of remedies in excess of $50 million or that have sediment sites.
- Prepare protocol for submission of remedy proposals to the Administrator.
- Determine all current levels of authority to approve remedies.
- Evaluate proper levels of authority in light of the Administrator's directive.
- Make recommendations to the Administrator.

Lead: Dana Stalcup, OSRTI
Timeframe: Q1, FY18

RECOMMENDATION 5: Clarify Priorities for RI/FS Resources and Encourage Performing Interim/Early Actions During the RI/FS Process to Address Immediate Risks

Specific Actions:

- Develop criteria for Regions to apply when prioritizing projects so that resources are directed in the order of priority. Include time limits for completing RI/FS.
- Evaluate EPA retaining engagement and direction of the Feasibility Studies.
- Prepare and issue policy memorandum that requires Regions to:
  - Focus on NPL sites first;
  - Establish criteria for prioritizing RI/FSs;
  - Set time and funding parameters for RI/FSs; and,
  - Promote and direct use of early/interim actions.

Lead: Doug Ammon, OSRTI, and Silvina Fonseca, OLEM
Timeframe: Q1, FY18

RECOMMENDATION 6: Provide Clarification to the Principles for Superfund Groundwater Restoration

Specific Actions:

- Draft a proposed policy for Clarification of Groundwater Flexibilities with special emphasis directed to early action and the phased approach of remedy selection and implementation. Once drafted and approved, distribute the Policy and provide outreach and training.
- Evaluate the groundwater beneficial use policy with a focus on beneficial use determinations for aquifers not reasonably anticipated for drinking water use in the near-term or long-term.
  - Maintain current policy for drinking water aquifers that are currently used for these purposes.
  - For aquifers not reasonably anticipated for drinking water use in the near- or long-term, consider modifying how groundwater use designation is determined for these aquifers. (The revised strategy should reflect the input from Office of Water and partners to CERCLA cleanups (e.g. federal facilities, state and tribal governments, communities, and environmental organizations) when making these decisions.)

Lead: HQ OSRTI (Science Policy Branch Chief)

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Timeframe:

1. Groundwater Flexibilities Policy Memorandum:
   a. Draft – Q2, FY18
   b. Final – Q4, FY18
2. Groundwater Use Criteria:
   a. Options Paper for Management Consideration – Q3, FY18
   b. Draft Policy Revision (if applicable) – Q4, FY18

STRATEGY 4: USE BEST MANAGEMENT PRACTICES, SYSTEMATIC PLANNING, REMEDY OPTIMIZATION, AND ACCESS TO EXPERT TECHNICAL RESOURCES TO EXPEDITE REMEDIATION

Background: Site characterization and remedial actions can take years to complete, especially when site conditions are complex and dynamic. Remedial activities should be continually reviewed and optimized in order to enhance the understanding of the changing site complexities and conditions.

Reinforcing the need for thorough systematic planning early in the process and throughout the project lifecycle as well as providing Remedial Project Managers (RPMs) the resources for systematic planning facilitation could significantly improve project efficiencies. Further, as site work progresses, emphasizing progress review through independent, third-party optimization[1] of the remedy and evolving site conditions can help ensure maximum effectiveness throughout the project life cycle. RPMs shall utilize best science and continue research on innovative technologies and cleanup approaches; while promoting Best Management Practices (BMPs) for optimization activities. Remedial Investigation/ Feasibility Study (RI/FS) planning will require development of tools and enhanced communication of internal and external resources to support these activities.

Recent developments in real-time investigation technologies and data visualization techniques offer opportunities to build robust understanding of site conditions portrayed in CSMs focused on root causes and high-value, targeted, remedial actions. Advances in electronic data capture and distance collaboration platforms enable project stakeholders to work as a team on RI/FS and Remedial Design/Remedial Action (RD/RA) activities, ensuring all stakeholder concerns are considered as the work is performed. In this way, the team can focus on taking actions that drive sites toward completion.

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[1] EPA defines optimization as: "Efforts at any phase of the removal or remedial response to identify and implement specific actions that improve the effectiveness and cost-efficiency of that phase. Such actions may also improve the remedy's protectiveness and long-term implementation which may facilitate progress towards site completion. To identify these opportunities, regions may use a systematic site review by a team of independent technical experts, apply techniques or principles from Green Remediation or Triad, or apply other approaches to identify opportunities for greater efficiency and effectiveness." For more information, reference the Office of Remediation and Technology Innovation June 2013 Guidance, "Remediation Optimization: Definition, Scope and Approach" available at https://clu-in.org/Optimization/pdfs/OptimizationPrimer_final_June2013.pdf

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RECOMMENDATION 7: Promote Use of Third-Party Optimization Throughout the Remediation Process and Focus Optimization on Complex Sites or Sites of Significant Public Interest

Specific Actions:

- Expand the use of third-party optimization evaluations throughout all phases of the pipeline on selected sites.
- Determine complex sites and sites of significant public interest:
  - Provide internal or external review and support for key project milestones;
  - Identify opportunities for efficiencies and cost savings; and,
  - Ensure a clear path to project completion.

Lead: Dan Powell, OSRTI; Regional Optimization Liaisons; Office of Research and Development (ORD); Superfund Technology Liaisons (STLs); and Technical Support Centers (TSCs)
Timeframe: Q1, FY18

RECOMMENDATION 8: Reinforce Focused Scoping Which Closely Targets the Specific Areas for Remediation and Identify and Use Best Management Practices (BMP) in the RI/FS Stage

Specific Actions:

- Prepare and issue a directive requiring the use of project scoping and outlining expected processes and procedures to be utilized in choosing the appropriate response action.
- Develop a plan to increase regional expertise to support this planning function.
- Study best management practices used across all Regions and adopt those nationally.

Lead: Doug Ammon, OSRTI; and Regions
Timeframe: Q1, FY18

RECOMMENDATION 9: Utilize State-Of-The-Art Technologies to Expedite Cleanup

Specific Actions:

- Expand the use of real-time investigation technologies and data visualization techniques.
- Determine other available state-of-the-art technologies on at least an annual basis.
- Compile annual report of new technologies and their applicability.

Lead: OSRTI Environmental Response Team
Timeframe: Q2, FY18

RECOMMENDATION 10: Develop a Technical Support Team and Tools to Inform RPMs Regarding Available Resources to Assist with Best Management Practice (BMP) Applications, Including Scoping and Targeted Technical Reviews

Specific Actions:

- Finalize online catalog of in-house resources using Tech Hub.
- Develop analytical and reporting capabilities to evaluate, document, and disseminate information on pilot studies and other demonstrations of innovative tools and technologies.

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- Increase awareness of and expand the existing ORD TSC Share Point site for requesting and tracking technical assistance requests for ORD TSCs and STLs.
- Combine or develop an additional tool for requesting and tracking OSRTI Environmental Response Team (ERT) technical assistance requests.
- Identify fifteen sites to undergo a Technical Support Team optimization review.

Lead: Pam Barr, OSRTI; ORD STLs; and TSCs
Timeframe: Q2, FY18

RECOMMENDATION 11: ***Review all Third-Party Contracting Procedures, Large EPA-Approved Contractors, and Contracts to Determine Appropriate Use Parameters and Qualification Methods for EPA Contracting***

Specific Actions:
- Consult with regions to determine the current use parameters and frequency of use of third-party contractors.
- Review amount of funds expended on outside contractors agency wide, including review of budgeted allocations.
- Specifically examine sole source contracts and contractors.
- Determine authorization levels for use of contractors.
- Review all large contractors approved by EPA.
- Involve appropriate personnel to modify, if necessary, the protocol for use of outside contractors.

Lead: Administrator's Office
Timeframe: Q1, FY18

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GOAL 2: RE-INVIGORATING RESPONSIBLE PARTY CLEANUP AND REUSE

STRATEGY 1: ENCOURAGE AND FACILITATE RESPONSIBLE PARTIES' EXPEDITIOUS AND THOROUGH CLEAN-UP OF SITES TO EFFECT RE-USE MORE QUICKLY

Background: At sites where responsible parties can be identified, the cost of remediation is intended to be borne by them. However, utilizing tools and procedures to assist these parties in their efforts is helpful to all stakeholders. Settlement can be reached sooner by providing incentives to performing parties. More importantly, proper use of incentives will reinforce the notion that cooperative parties who settle *early* will obtain significant benefits by doing so. Second, cleaning up a Superfund site can be completed faster and more efficiently by using incentives to reach expected milestones in the cleanup work. Third, enforcement authorities can be used as leverage in certain cases to get the cleanup started or to help reach settlement. Fourth, all parties can avoid the increased transaction costs associated with protracted negotiations.

Each of the federal facility agreements (FFAs) at federal facility NPL sites includes timelines for moving through the dispute process. These timelines were developed in order to ensure that work at Federal Facility (FF) NPL sites moved efficiently even in the case of disagreements between the parties. The dispute resolution process includes a commitment by the parties to make reasonable efforts to resolve disputes informally before invoking formal dispute procedures. Informal disputes and each of the stages of formal dispute have specific timeframes built into the FFAs. Reinforcing these timelines to ensure that the dispute resolution timelines are more closely adhered to will ensure that cleanup work is not unreasonably slowed when a disagreement between the FFA parties arises.

RECOMMENDATION 12: Recommend Consideration and Use of Early Response Actions at Superfund Sites, Particularly Sediment Sites, While Comprehensive Negotiations Are Underway for the Entire Cleanup

Specific Actions:

- Issue an Agency Directive requiring consideration of early actions and a separate track for Remedial Design (RD) actions at PRP-funded Superfund Sites. This should include (1) using parallel tracks for the remedial design and remedial action and (2) dividing cleanup work into manageable areas of response actions.
- Reissue/revise remedial design guidance.

Lead: Ken Patterson, OSRE, and Regions

Timeframe:

1. Q4, FY17
2. Q1, FY18

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***RECOMMENDATION 13*: Identify Opportunities to Utilize Various Federal and State Authorities to Conduct Response Actions that are Consistent with CERCLA and the NCP**

Specific Actions:

- Evaluate and develop criteria on utilizing alternate tools to pursue liable parties at NPL-caliber sites, including greater use of the Superfund Alternative Approach (SAA) in pursuit of cleanup.
- Where appropriate, use Resource Conservation and Recovery Act (RCRA), CERCLA, Safe Drinking Water Act (SDWA), and other Federal or State authorities to address hazardous waste sites where statutory requirements are met.
- Where appropriate, designate states as leads on sites.

Lead: Karen Melvin, OSRE; Office of Land and Emergency Management (OLEM); and Regions
Timeframe: Q1, FY18

***RECOMMENDATION 14*: Maximize the Use of Special Accounts to Facilitate Site Cleanup and/or Redevelopment**

Specific Actions:

- At sites where PRPs agree to perform cleanup work, prioritize use of special account funds as financial incentives. Consider, where applicable:
  - Reserving/prioritizing special account funds for sites with potential for redevelopment;
  - Disbursing funds quicker to a PRP when, for example, the PRP completes work ahead of schedule;
  - Providing reimbursement from special accounts to reduce the cost a PRP has incurred for cleanup at sites; and/or,
  - Delaying reimbursement from special accounts for response work until a PRP takes steps to increase potential for site reuse/redevelopment at sites where cleanup will enhance marketability of the property.
- Aggressively pursue additional opportunities to provide special account funds to Bona Fide Prospective Purchasers (BFPPs) that agree to perform cleanup work.
  - Develop guidance for disbursing special account funds to BFPPs.
  - Consider extending financial incentives available to PRPs to BFPPs.
- Establish and use special account funds to pay for EPA oversight (when any party is doing work).
- Maximize the use of special account funds to preserve scarce EPA and state resources.
- Evaluate for revisions EPA policy and guidance to reflect specific actions listed above.

Lead: Ken Patterson, OSRE, and OSRTI Special Accounts Teams in coordination with the Special Accounts Senior Management Committee (SASMC)
Timeframe: Disbursement guidance: Q4, FY17
Identification of additional revised / new guidance: Q2, FY18

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***RECOMMENDATION 15:* Speed Up Settlement Process Where There Are Federal PRPs at a Site**

Specific Actions:

- Work with the Department of Justice (DOJ) and other Federal Agencies for policy changes that promote early decisions on whether Federal Agencies will participate in settlement negotiations.
- Finalize model Federal Agency settlement language for all settlement agreements (both administrative and consent decrees), and work with DOJ to promote consistent use of the model language by DOJ personnel.
- Establish model reservation language and standard procedures/timeframes to allow private parties to reserve:
  - Their rights to pursue certain contribution claims against the federal government.
  - Certain contract/indemnification claims against the federal government.

Lead: Ken Patterson, OSRE

Timeframe: By Q1, FY18 reach agreement in principle at appropriate levels at DOJ on all three objectives. By Q2, FY18, finalize agreements reached and revise model documents.

RECOMMENDATION 16: Provide Reduced-Oversight Incentives to Cooperative, High-performing PRPs, and Make Full Use of Enforcement Tools as Disincentives for Protracted Negotiations, or Slow Performance Under Existing Cleanup Agreements

Specific Actions:

- Develop a plan to provide financial incentives in the form of reduced oversight to PRPs who perform timely, quality work under an agreement by reducing the costs associated with EPA's oversight, including adjustments to indirect costs.
- Determine current Regional practices, including actual charges that currently compose indirect costs
- Create a National Workgroup to identify circumstances under which a reduction in oversight costs would be appropriate.
- Develop guidance to assist Regional staff in application and identification of milestones at specific sites, establishing criteria for deliverables, and determining appropriate level of compromise of oversight costs during settlement.
- Develop model language for settlement documents relating to establishment of milestones and level of compromise of oversight costs.
- Identify efficiency opportunities for timely resolution of disputes (including evaluating whether protracted "informal" dispute resolution is advisable) with PRPs that arise in implementing cleanups.
- Establish and promote strict adherence to project deadlines.
- Assess stipulated penalties when deadlines are to motivate timely adherence to deadlines.
- Trigger work takeover provisions when multiple deadlines are missed and access financial assurance when appropriate.
- EPA will meet its own review deadlines when PRPs are performing quality work and will:
  - Publish response work completion schedules and milestones on EPA websites.

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- Consider incentives to all parties to meet the deadlines proposed.
- Prohibit PRPs from multiple chances to revise the same document when initial submittal is subpar.
- Actively use enforcement authorities, including more prevalent issuance of unilateral orders to recalcitrant parties to discourage protracted negotiations
  - As needed, implement "participate and cooperate" orders – particularly for Remedial Actions.
  - Emphasize the use of "delayed effective date" unilateral administrative orders as an incentive to speed negotiations.

Lead: Ken Patterson, OSRE; Regions; Office of the Chief Financial Officer (OCFO); OSRTI
Timeframe: Criteria for Reduced Oversight, Draft Q1, FY18. Guidance and model language for Reduced Oversight, Final Q3, FY18. Guidance, policy changes to support disincentives to protracted negotiations or delayed cleanup, Draft Q1, FY18.

RECOMMENDATION 17: Adjust Financial Assurance (FA) Required Under Enforcement Documents to Reduce Cooperating PRP's Financial Burden While Ensuring Resources Are Available to Complete Cleanups

Specific Actions:
- Review EPA's financial assurance requirements and consider modification to promote realistic requirements. This review should consider (1) defining situations where it may be appropriate for parties to incrementally provide FA for the various phases of cleanup work as they occur; (2) adjusting the discount rate used in the calculation of the cost of future work and (3) identifying other opportunities for achieving a responsible balance between the cost of financial assurances and the risk of financial default.
- Modify model settlement provisions, as needed.

Lead: Ken Patterson, OSRE; Regions
Timeframe: By Q1, FY18, reach agreement in principle on all criteria for identifying PRPs that could be subject to reduced FA burdens. By Q2, FY18, finalize model FA-related language.

RECOMMENDATION 18: Reinforce the Federal Facility Agreement Informal and Formal Dispute Timelines

Specific Actions:
- Develop a policy for the Regions, to be shared with, or ideally co-signed by, federal agencies and the states, which reinforces the importance of adhering to the informal and formal dispute timelines identified in the FFAs.
- Track and report to Regions, Federal Agencies, and States the informal and formal dispute times and postponement of milestones.

Lead: Karin Leff, Federal Facilities Enforcement Office (FFEO) and Greg Gervais, Federal Facilities Restoration and Reuse Office (FFRRO)
Timeframe: Q1, FY18

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STRATEGY 2: CREATE OVERSIGHT EFFICIENCIES FOR PRP LEAD CLEANUPS

Background: Cleanup decisions and implementation often take a long time due to the number of people and issues involved. Oversight efficiencies can be realized and costs can be reduced if responsibility for overseeing cleanup is clarified and better distributed.

RECOMMENDATION 19*: *Expand Cleanup Capacity by Designating One Agency Lead for Each Project in Order to Reduce Overlap and Duplication

Specific Actions:

- Increase use of Memoranda of Understanding with federal agencies, states and tribes to identify lead agencies for each site and roles and responsibilities for each.
- Identify situations or phases of cleanup for which certain agencies should have primary responsibility (e.g., tribal/state/local responsibility for long-term stewardship of sites).

Lead: Cyndy Mackey, OSRE; and Regions
Timeframe: FY18

RECOMMENDATION 20*: *Identify Opportunities to Engage Independent Third Parties to Oversee Certain Aspects of PRP Lead Cleanups

Specific Actions:

- Create a workgroup to research existing state programs and identify opportunities for independent third parties to perform certain fixed tasks at NPL sites.
- Design and implement a pilot that utilizes independent third parties to oversee certain actions, such as long-term monitoring.
- Evaluate pilot effectiveness and efficiency
- Have workgroup recommend use or non-use of pilot procedures.

Lead: Cyndy Mackey, OSRE; OSRTI; and Regions
Timeframe: FY18

STRATEGY 3: PROMOTE REDEVELOPMENT/REUSE OF SITES BY ENCOURAGING PRPS TO INVEST IN REUSE OUTCOMES

Background: Under the current paradigm, PRPs may resist engaging with third parties to facilitate reuse. To overcome such resistance, EPA should understand and address the legal, financial and technical burdens that may arise when a third party wants to build on a contaminated site. For instance, some uses may require additional cleanup beyond what is necessary to stabilize a site for protectiveness; some uses involve a project schedule that differs from the cleanup and some uses may complicate the long term maintenance obligations for the property.

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RECOMMENDATION 21: ***Facilitate Site Redevelopment During Cleanup by Encouraging PRPs to Fully Integrate and Implement Reuse Opportunities into Investigations and Cleanups of NPL Sites***

Specific Actions:

- Work with PRPs, local governments, and local professionals to identify opportunities for PRP-lead cleanups to integrate reuse outcomes.
- Issue an Agency Directive to encourage integration of reuse outcomes into PRP-led cleanups. This should include encouraging (1) PRPs to work with end users to perform assessment and additional cleanup/enhancement to achieve reuse objectives; (2) PRPs to directly fund or perform enhanced cleanup or "betterment" by entering into agreements with end users; and, (3) "marketing" of property undergoing cleanup as a deliverable to encourage private investment at sites during and after cleanup. This directive should include creative mechanisms for incentivizing these reuse actions, including financial credits for such actions.

Lead: Cyndy Mackey, OSRE; and OSRTI

Timeframe: By Q1, FY18 engage with PRPs to identify barriers and explore opportunities to encourage reuse. This action item should be closely coordinated with the activities under Goal 3.

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GOAL 3: ENCOURAGING PRIVATE INVESTMENT

STRATEGY 1: USE ALTERNATIVE AND NON-TRADITIONAL APPROACHES FOR FINANCING SITE CLEANUPS

Background: Private sector tools and approaches to manage environmental liabilities and risks are important to the cleanup and reuse of contaminated sites. Some PRPs engage in contractual arrangements to pay a premium for unknown risks and transfer responsibilities to environmental remediation companies where the Superfund site cleanup has a fair degree of certainty. These arrangements may be in the form of an insurance policy, annuity, a designated agent, or an agreement to allow a third party to assume all obligations for remediation and legal liability. However, as provided by CERCLA section 107(e)(1), even the most comprehensive arrangement does not legally bar the government from pursuing the PRP at a later date. Such arrangements tend to be reasonably specific to the circumstances of a site, but they can help expedite the cleanup and reuse of a site. EPA recognizes that it should support, where appropriate, innovative approaches to promote third-party investment in cleanup and reuse of contaminated properties consistent with statutory authorities and needs to consider mitigating its retained rights.

RECOMMENDATION 22*: *Explore Environmental Liability Transfer (ELT) Approaches and Other Risk Management Tools at PRP cleanups

Specific Actions:

- Conduct stakeholder outreach that includes:
  - Industry professionals to discuss their products and the industry climate;
  - PRPs who have used an ELT or other risk management tools (e.g. liens on property, bonds, trusts, or insurance) to discuss their experience;
  - Contractors who have successfully been parties to ELTs; and,
  - States to discuss their experiences with ELTs.
- Establish a national workgroup to identify:
  - Creative uses of insurance, annuities, indemnification and other tools for third parties interested in buying/selling the risk of cleanup;
  - Types of remedial actions, site conditions, and PRPs that stand to benefit from this risk management tool;
  - When it is appropriate to use comfort/status letters or settlement tools to provide certainty to encourage and/or reassure PRPs contemplating using an ELT or other tool; and,
  - Whether a pilot program using these risk management tools at appropriate sites is feasible.

Leads: Monica Gardner, OSRE
Timeframe: Q4, FY18

STRATEGY 2: STREAMLINE THE PROCESS FOR COMFORT LETTERS AND SETTLEMENT AGREEMENTS WITH THIRD PARTIES

Background: The 2002 Brownfield Amendments to CERCLA added new landowner liability protections, including the Bona Fide Prospective Purchaser (BFPP) protection, to address the liability concerns that act as a barrier to the cleanup and reuse of contaminated properties.

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Congress intended these liability protections to be self-implementing, although some third parties still remain concerned about potential liability and the availability of the BFPP protection at contaminated properties (see *Ashley II*[2]). As a result, at some sites, a site-specific tool may be needed for third parties to address liability concerns before the third party can move forward with the cleanup and reuse of the site. EPA's primary tools to address the CERCLA liability concerns of third parties are comfort/status letters and settlement agreements. These site-specific tools have enabled some cleanup and reuse at sites on the NPL to move forward where liability concerns posed a barrier. However, more substantive tools must be used.

***RECOMMENDATION 23*: Ensure Timely Use of Site-Specific Tools When Needed and Appropriate to Address Liability Concerns at Contaminated Sites**

Specific Actions:

- Identify regional best management practices for addressing purchaser liability concerns and how to respond to inquiries with site-specific comfort/status letters and agreements.
- Issue recommendations for improvements to the process for responding to requests for site-specific tools and the creation of regional third-party inquiry teams. (See Region 4 procedure).
- Develop a model request for prior written approval of site-specific letters and agreements to streamline and expedite regional/headquarters/DOJ approval process.
- Expand use of prospective purchaser agreements for BFPP and PPs to specifically limit their liability.
- Participate on national team of redevelopment experts (discussed in Goal 4) to support development of streamlined and innovative liability clarification and settlement approaches.

Lead: Monica Gardner, OSRE
Timeframe: FY17

***RECOMMENDATION 24:* Create and Maintain an OECA Information Repository to Provide Access to Enforcement Information and Tools to Support Third-Party Cleanup and Reuse.**

Specific Actions:

- Enhance EPA's web content to include case studies, statistics and other relevant information regarding site-specific comfort/status letters, agreements and other enforcement tools and approaches that have supported third-party cleanup and reuse.
- Establish a list of sites with greatest potential for cleanup/reuse by third parties and focus resources and activities at those sites.
- Create a national library, for internal EPA use, of sample comfort/status letters and settlement agreements.

Lead: Monica Gardner, OSRE
Timeframe: FY17

[2] *PCS Nitrogen v. Ashley II of Charleston, LLC*, 714 F.3d 161 (2013).

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STRATEGY 3: OPTIMIZE TOOLS AND REALIGN INCENTIVES TO ENCOURAGE THIRD-PARTY INVESTMENT

Background: Before the enactment of the Brownfield Amendments to CERCLA, Prospective Purchaser Agreements (PPAs) and comfort/status letters were used by Regions to address the CERCLA liability concerns of parties who wanted to reuse contaminated properties. Comfort/status letters were developed as an efficient tool, where a settlement agreement is not appropriate, to provide prospective purchasers and other parties with the information EPA has about a particular party, EPA's intentions with respect to the property as of the date of the letter, and the liability protections that may be available to the party. (See 2015 Revised Comfort/Status Letter Policy and Models.) After the addition of the landowner liability protections by the Brownfield Amendments, EPA issued enforcement guidance which explained that EPA involvement is no longer necessary in most private party transactions given the self-implementing nature of the protections and that EPA generally will no longer be entering into PPAs. In 2006, in recognition that BFPPs at some sites might be interested in performing cleanup work beyond what would be expected of them to maintain their BFPP liability protection (e.g., conducting cleanup work beyond the statutory requirement to take "reasonable steps" to prevent or limit exposure and stop continuing or threatened releases at the site), EPA issued a model agreement for BFPPs who are interested in performing Superfund removal work. EPA also has developed a model agreement to resolve an existing or potential "windfall lien" with interested BFPPs.

RECOMMENDATION 25*: *Update EPA's Position on the Use of Site-Specific Agreements with Third Parties at NPL Sites

Specific Actions:

- Develop and issue a new policy memorandum, working with the Office of General Counsel (OGC), Department of Justice (DOJ), and other EPA offices, which provides for the greater use of PPAs and windfall lien resolution agreements with third parties in addition to BFPP agreements consistent with CERCLA/DOJ authority at NPL sites. The policy should identify what situations, in addition to performing work, would justify entering into negotiations for written agreements.
- Develop a communications roll out plan announcing new policy statement and approach, including web and social platforms.
- Regularly publicize successful agreements that allow sites to be redeveloped by third parties.

Lead: Monica Gardner, OSRE and EPA's Office of Public Affairs
Timeframe: FY17

RECOMMENDATION 26*: *Revise EPA's Model Agreements to Create More Opportunities for Settlement with Third Parties Interested in Cleaning Up and Reusing NPL Sites

Specific Actions:

- Identify opportunities (with Regions, OGC, and DOJ), as appropriate within existing statutory authorities, to update the model BFPP work agreement, PPA model, and model windfall lien settlement agreement to:
  - Identify provisions in the models that may be revised to incentivize settlement;

- Research the types of consideration authorized for a settlement agreement; and,
- Explore options to address future liability concerns to insulate good faith purchasers from unexpected liability (e.g., identify "reasonable steps").

- Reinstitute the PPA tracking system allowing EPA to track individual requests, evaluate the timeliness of EPA's response, and identify where in the PPA process delays are occurring.
- Designate an agreements coordinator at EPA Headquarters to consult directly with DOJ to quickly resolve issues that impede progress.
- Evaluate and issue recommendations for revisions to model settlement provisions, other types of authorized consideration, and options to address future liability consistent with CERCLA and DOJ authority.
- Revise model agreements.

Lead: Monica Gardner, OSRE
Timeframe: Q4, FY17

RECOMMENDATION 27: Identify Tools for Third Parties Interested in Investment or Other Opportunities Supporting the Cleanup or Reuse of NPL Sites

Specific Actions:

- Conduct outreach to third-party investors who may provide private financing or otherwise become involved in transactions involving contaminated or previously contaminated property to identify specific liability concerns acting as a barrier to investment or other opportunities in such transactions.
- Identify potential new tools and approaches, as appropriate within existing statutory authorities, to address liability concerns of parties who might acquire property (e.g., enforcement guidance, model reuse assessment agreement, prospective operator agreement, prospective easement agreement).
- Work with lenders to determine standard language to be included in PPAs to facilitate financing.
- Identify public-private partnership investment opportunities and structure for successful arrangement.
- Issue recommendations on potential tools, approaches and opportunities.

Lead: Monica Gardner, OSRE
Timeframe: Q2, FY18

RECOMMENDATION 28: Provide Greater "Comfort" in Comfort/Status Letters

Specific Actions:

- Assess concerns that are not being addressed by the current model comfort letter (e.g., windfall lien uncertainties, comprehensive reasonable steps, lender liability).
- Work with lenders to determine standard language to be included in comfort letters that would allow for certainty in securing funding from lenders for redevelopment of Superfund sites.
- Identify revisions to the model letter, consistent with the statute and legal authorities, to address these concerns, possibly including:

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- Stronger statements by the Agency to address liability concerns; (e.g., BFPP status, applicability of statute of limitations);
- Clarifications on the application of EPA guidance at a site; and,
- EPA's intention regarding windfall liens evidenced by appropriate documents.

- Revise and reissue comfort/status letter model.

Lead: Monica Gardner, OSRE
Timeframe: FY18

RECOMMENDATION 29: Revise or Develop New Enforcement Guidance to Support the Cleanup and Reuse of Contaminated Sites

Specific Actions:

- Outline a potential new policy, as appropriate within existing statutory authorities, for developers, lenders, investors and/or other third parties to identify or create opportunities for new investment in cleaning up contaminated sites:
  - Propose potential revisions to the "Common Elements Guidance" based on case law developments and lessons learned by EPA and private sector.
  - Identify potential opportunities to expand Good Samaritans or other non-liable party approaches under section 107(d) for addressing liability issues and promoting sustainable redevelopment.

Lead: Monica Gardner, OSRE
Timeframe: FY18

RECOMMENDATION 30: Revise Federal Facility Enforcement Guidance

Specific Actions:

- Develop Model Federal Facilities Language for placing Federal Facilities Agreement (FFA) provisions on hold in instances where a third party wants to perform the cleanup work.
- Revise the 1997 "Policy Towards Landowners and Transferees of Federal Facilities" to assist with pre-1986 transfers of U.S. land.

Lead: Ava Azad, FFEO
Timeframe: Q2, FY18 months to develop model language for putting FFAs on hold; Q3, FY18 months for revising the 1997 policy

STRATEGY 4: ADDRESS LIABILITY CONCERNS OF LOCAL GOVERNMENTS

Background: Local governments play an integral role in facilitating the cleanup and reuse of contaminated properties. By acquiring contaminated properties, local governments have the opportunity to evaluate and assess public safety needs and promote redevelopment projects that will protect and improve the health, environment, and economic well-being of their communities. Although local governments may take advantage of the statutory liability protections, including the "involuntary acquisition" protection in section 101(20)(D), the innocent landowner defense in section 101(35)(A), and the BFPP protection, these governments continue to raise potential liability concerns about the acquisition of contaminated property as a barrier to reuse. Local government liability concerns at contaminated properties include the

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timing of and the cost associated with conducting due diligence, the meaning of "involuntary acquisition" in the statutory provisions, and the need for tools specific for local governments.

***RECOMMENDATION 31*: Develop New Local Government Enforcement Guidance to Address Concerns Raised by the Landowner Liability Provisions Potentially Applicable to Local Governments**

Specific Actions:

- Propose potential new enforcement guidance to address liability issues acting as a barrier to reuse for local governments, including issues raised by the applicability of the statutory liability protections potentially applicable to local governments.
- Issue recommendations for an enforcement guidance.

Lead: Monica Gardner, OSRE and David Lloyd, OBLR
Timeframe: Q4, FY18

***RECOMMENDATION 32*: Develop a Model Comfort/Status Letter and Other Tools to Address the Liability Concerns and Other Barriers Unique to Local Governments**

Specific Actions:

- Identify potential new tools and approaches to address the liability concerns and barriers unique to local governments (e.g., model comfort/status letter, streamlined settlement agreement, deferrals, MOU/MOAs, cost-share credits).
- Draft white paper that identifies options and positives/negatives.
- Issue recommendations.

Leads: Monica Gardner, OSRE and David Lloyd, OBLR
Timeframe: Q4, FY18

ED_002512_00000186-00030

GOAL 4 – PROMOTING REDEVELOPMENT AND COMMUNITY REVITALIZATION

STRATEGY 1 - FACILITATE SITE REDEVELOPMENT AND SUPPORT ONGOING INFORMATION SHARING

Background: Building capacity and providing training to EPA, Federal, state, tribal and local government staff, elected officials, and other community-based organizations on: the overall site cleanup process as it relates to redevelopment potential; key components of land use and economic development planning; and funding and financing tools will provide better support to communities and promote redevelopment of Superfund sites. Local planning departments and elected officials are critical in developing land use alternatives especially during the RI/FS phase of cleanup. Making sure interested parties have the training and basic knowledge regarding the site cleanup process will inform future use decisions and facilitate interested parties ability to promote redevelopment at Superfund sites.

Providing training that identifies specific actions a community can take in the near term will help community stakeholders understand the market potential/limitations of the site, including how they can make the site more attractive to future development. Initial work by a community demonstrates commitment to site reuse, and signals to developers that the community is a willing partner.

Reuse is further promoted when the community, including developers, has access to more information about an individual site and the sites around it. This includes determining which types of sites businesses/industries/developers are interested in potentially redeveloping and sharing information with them to promote Superfund site redevelopment.

RECOMMENDATION 33*: *Focus Redevelopment Efforts on 20 NPL Sites with Redevelopment Potential and Identify 20 Sites with Greatest Potential Reuse

Specific Actions:

- Focus reuse training, tools, and resources on the current list of NPL sites with the most redevelopment potential based on transportation access, land values, and other critical real estate market drivers.
- Identify 20 NPL sites with greatest reuse and commercial potential considering input from regions and agreed upon criteria.
- Identify the industries and businesses that may be interested in reusing Superfund sites especially the industries that may be interested in reusing the list of 20 NPL sites that have high redevelopment potential.
- Help these businesses and developers understand liabilities and ongoing obligations at sites they are interested in.
- Develop information package for all identified sites using successes from Region 4.

Lead: Helen Duteau, OSRTI
Timeframe: Q4, FY2017

ED_002512_00000186-00031

***RECOMMENDATION 34*: Publicize Site Specific Information to Promote Community Revitalization**

Specific Actions:

- Develop a geographic information system (GIS) based map of the U.S. that clearly shows site information, outlines reuse potential, and provides links to relevant documents (ICs, RODs, Five Year Reviews, Brownfield assessment, cleanup, consent orders, etc.) and other key information such as other nearby sites and community demographics.
- Highlight and make more readily available the current cleanup status of the site.
- Develop site specific reuse fact sheets during design, construction and post construction phases that would provide information of interest to the community and developers.
- When appropriate, develop a Ready-for-Reuse Fact Sheet as a mechanism for providing key site information to the community, developers and other potential site users. Include relevant key information for every site, update them regularly, and include contact information. Site owners should be contacted and if possible, included on the sheet as they control land use.
- Update information about sites achieving Site Wide Ready for Anticipated Use (SWRAU) early in the process and update on an annual basis. Include information about the reuse status of SWRAU sites.
- Make all site-specific information and reports readily accessible, including information on existing or needed Institutional Controls (ICs)/Engineering Controls (ECs), so developers and other future users are aware of site conditions.

Lead: Helen Duteau, OSRTI; Frank Avvisato, OSRTI; and Bill Denman, Region 4
Timeframe: Q3, FY17

***RECOMMENDATION 35*: Build Capacity of EPA and Its Stakeholders on the Broad Community and Economic Development Context for Site Remediation and Redevelopment**

Specific Actions:

- Conduct redevelopment training in all regions with Superfund, Brownfields, and legal staff on:
  - Existing tools, innovative strategies, and new tools being developed by the SF Task Force;
  - Redevelopment basics, such as incorporating reuse into the cleanup process and reuse assessments;
  - Environmental Liability Transfer and other risk management tools;
  - Financial, social and environmental benefits of conservation easements;
- Provide ongoing updates to EPA staff and stakeholders about reuse barriers and what EPA can do to address them.
  - Promote the Superfund redevelopment process at national meetings and educational opportunities for stakeholders.
  - Identify best ways to engage more tribes in site cleanups on tribal lands with a focus on reuse throughout the process.

Lead: Helen Duteau, OSRTI; Bill Denman, Region 4; Debi Morey, OBLR; and Matt Dalbey, OP
Timeframe: Q3, FY17

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RECOMMENDATION 36*: *Engage Superfund Communities in Cleanup and Redevelopment

Specific Actions:

- Provide training/fact sheets/on-line information on the following (based on the needs of the community):
  - The Superfund and Brownfields processes;
  - The interplay of federal, state, and local governments; effective communication; leadership; finance; sustainable redevelopment principles, etc;
  - How to undertake market studies and identify assets/challenges specific to the site;
  - The development approval processes, codes, design standards and/or public private financing packages that can help facilitate clean up and re-use;
  - How the redevelopment of the site fits with a broader vision for the economic revitalization for the community;
  - Best practices and case studies from other communities;
  - Which grants or other types of support might be available to help communities implement their site reuse vision;
  - Tools/approaches necessary for local governments or regional councils of government to encourage investment/leveraging, especially in soft markets;
  - Types of up front public or public-private investment that are generally successful in catalyzing redevelopment and community revitalization;
  - Funding/financing mechanisms (e.g. Community Reinvestment Act, CDFI's, New Market Tax Credits, P3 financing) available to local communities;
  - Community partners and other resources available to Superfund communities that can provide design charrettes, and other reuse visioning support;
  - Other agencies that can provide support to on-the-ground community design assistance for neighborhoods that contain Superfund sites;
  - Sustainable and equitable development approaches and how they can be utilized during the cleanup and reuse planning process; and,
  - Practices such as insurance tools that protect the developer from liability;

Lead: Helen Duteau, OSRTI; Aimee Storm, OBLR; Frank Avvisato, OSRTI; Matt Dalbey, OP
Timeframe: Q3, FY17

RECOMMENDATION 37*: *Recognize and Replicate Local Site Redevelopment Successes

Specific Actions:

- Issue more "Excellence in Site Reuse" awards across regions to recognize communities, local governments and/or developers who have gone "above and beyond."
- Develop an incentive program to recognize and facilitate redevelopment.

Lead: Helen Duteau, OSRTI; SRI Coordinators; and Land Revitalization (LR) Coordinators; OPA
Timeframe: Q4, FY17

STRATEGY 2: UTALIZE REUSE PLANNING TO LAY THE FOUNDATION & SET EXPECTATIONS FOR SITE REDEVELOPMENT

Background: EPA can play a significant role in helping communities realize the associated health, economic and social benefits that accompany Superfund site redevelopment. Cleanup must be coupled with assistance that addresses neighborhood and community challenges to redevelopment to expand the community's ability to redevelop sites. That assistance includes identifying barriers to redevelopment and helping to overcome them.

Additionally, EPA can help communities find ways to enter into partnerships with more public/private organizations and private business organizations such as real estate professionals, lenders, and developers. Using these partnerships can facilitate reuse by identifying resources these partners may have or connecting the site with potential users interested in developing the site.

RECOMMENDATION 38*: *Support Community Visioning, Revitalization, and Redevelopment of Superfund Sites

Specific Actions:

- Create a national team of EPA and other Federal agency redevelopment experts.
- Offer technical assistance to local communities and/or site owner(s) in envisioning and developing an economically feasible redevelopment plan for the site.
- Provide help in gathering and sharing with all interested parties' information that goes beyond contaminant levels, reuse restrictions and liability concerns, such as market demand, infrastructure and priorities of the community.
- Help ascertain employment and job training opportunities that may be available for the affected community during the cleanup and redevelopment process.

Lead: Helen Duteau, OSRTI and Brownfields/Superfund Redevelopment Initiative Coordinators
Timeframe: Q4, FY17

RECOMMENDATION 39*: *Engage and Facilitate Public/Private Partnerships to Share Information, Resources, and Work Toward Advancing and Promoting the Revitalization of the Site.

Specific Actions:

- Identify other federal and state agencies that may be interested in the development and may provide additional resources (e.g., Housing and Urban Development (HUD), Department of Transportation (DOT), Department of Agriculture (USDA)).
- Facilitate and take a proactive approach in involving additional funding institutions/organizations.
- Explore partnerships that could bring unique financing options to finance revitalization.
- Facilitate agreements that enable more non-liable parties to fund cleanups as part of site reuse activities. Facilitate their involvement by developing/sharing information such as "Top 10 Questions for a Non-Liable Party to Ask When Considering Cleanup at a Superfund Site" fact sheet.

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- Facilitate interactions for local stakeholders/PRPs/communities to work together. Actively encourage PRPs to engage and be supportive of the process, demonstrating that an engaged community looking to the future can speed up cleanups, have realistic expectations, act as stewards, and promote successful reuse.
- Connect each community with a similarly situated community that has had revitalization success – even if from a different state (i.e., a reuse mentoring program).
- Leverage resources to help market these sites and promote their reuse.

Lead: Helen Duteau, OSRTI
Timeframe: Q3, FY17

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GOAL 5: ENGAGING PARTNERS AND STAKEHOLDERS

STRATEGY 1: KEY STAKEHOLDER ENGAGEMENT

Background: Making the Superfund process more efficient and promoting revitalization to gain long-term benefits for impacted communities must necessarily include building stronger strategic partnerships with key stakeholders across the Superfund process. Such strong partnerships will serve as the underpinnings of this plan's other goals and the basis of relationships going forward.

We must deploy an assortment of partnership building activities and engagement opportunities to increase the collaboration with, and impact of, our key stakeholders. New activities and opportunities will be combined with ensuring that our traditional engagement activities include a focus on the goals of this Administrator's initiative.

***Recommendation 40*: Develop a Robust Communications Strategy to Identify and Target Key Stakeholders**

Specific Actions:

- Execute a strategy that is inclusive of all stakeholders.
- Hold focused public and private dialogues with key stakeholders to strengthen long-term partnerships for clean-up and reuse of sites. Convene regularly scheduled meetings with:
  - States, local governments and federally recognized Native American tribes;
  - Industry, PRPs, contractors, corporations and other private organizations;
  - Community organizations;
  - Environmental organizations, including those related to environmental justice; and,
  - Financial and banking associations.
- Provide reports on dialogues and meetings in a form agreed upon with distribution as agreed.

Lead: Brigid Lowery, OLEM; Ken Wagner, OA; and Matthew Tejada, OEJ
Timeframe: Q4, FY17

***Recommendation 41*: For Federal Facility Sites, Collaborate with Other Federal Agencies (OFAs) to Solicit Their Views on How EPA Can Better Engage Federal Agencies**

Specific Actions:

- Craft a plan to regularly engage solicitation of information from OFAs.
- Solicit OFAs to provide initial recommendations on how to achieve the Administrator's goals at their sites.
- Plan to include regular feedback sessions with other appropriate parties.
- Provide feedback to the identified central repository.

Lead: Greg Gervais, Federal Facilities Restoration and Reuse Office (FFRRO) and Karin Leff, FFEO
Timeframe: Commence activities within 90 days of approval of this plan

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***Recommendation 42:* Use a Federal Advisory Committee to Work with a Broad Array of Stakeholders to Identify Barriers and Opportunities Related to Cleanup and Reuse of Superfund Sites**

Specific Action:

- Establish a federal advisory committee to identify barriers and opportunities by:
  - Assessing PRP reuse concerns;
  - Obtaining state and local government concerns and opportunities;
  - Assessing input from local community champions;
  - Developing financing and infrastructure ideas;
  - Constructing new ways to address abandoned mining sites and contaminated sediment sites; and,
  - Proposing a methodology and forum for evaluating the effectiveness of the Task Force Recommendations in accelerating cleanup and reuse of Superfund Sites.
- Developing on-going reports of the committee findings

Lead: Matthew Tejada, OEJ

Timeframe: Commence activities within 180 days of this plan

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United States
Environmental Protection
Agency

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 7/21/2017 7:33:03 PM
To: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Subject: RE: CERCLA Letter coming around for signature

Thanks, Susan. Do you have a copy of the Senate report referenced in the letter?

From: Bodine, Susan (EPW) [mailto:Susan_Bodine@epw.senate.gov]
Sent: Tuesday, July 18, 2017 5:45 PM
To: Brown, Byron <brown.byron@epa.gov>
Subject: FW: CERCLA Letter coming around for signature

In case you did not yet receive this.

Susan

From: Williams, Andrew (Heller)
Sent: Tuesday, July 18, 2017 5:41 PM
To: Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov>; Wright, Jennie (Inhofe) <Jennie_Wright@inhofe.senate.gov>; Earl, Andrew (Crapo) <Andrew_Earl@crapo.senate.gov>; Parker, Darren (Risch) <Darren_Parker@Risch.senate.gov>; Cox, Ed (Hatch) <Ed_Cox@hatch.senate.gov>; Hansen, Heath (Lee) <Heath_Hansen@lee.senate.gov>; Valanos, Eleni (Rubio) <Eleni_Valanos@rubio.senate.gov>; Marino Thacker, Meghan (Daines) <Meghan_Thacker@daines.senate.gov>; Dickson, Lane (Energy) <Lane_Dickson@energy.senate.gov>; Wiegard, Pierce (Sullivan) <Pierce_Wiegard@sullivan.senate.gov>
Subject: RE: CERCLA Letter coming around for signature

All-

Thanks again for signing on. Attached is the signed copy sent to EPA.

Andrew

From: Williams, Andrew (Heller)
Sent: Tuesday, July 18, 2017 3:25 PM
To: Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov>; Wright, Jennie (Inhofe) <Jennie_Wright@inhofe.senate.gov>; Earl, Andrew (Crapo) <Andrew_Earl@crapo.senate.gov>; Parker, Darren (Risch) <Darren_Parker@Risch.senate.gov>; Cox, Ed (Hatch) <Ed_Cox@hatch.senate.gov>; Hansen, Heath (Lee) <Heath_Hansen@lee.senate.gov>; Valanos, Eleni (Rubio) <Eleni_Valanos@rubio.senate.gov>; Marino Thacker, Meghan (Daines) <Meghan_Thacker@daines.senate.gov>; Dickson, Lane (Energy) <Lane_Dickson@energy.senate.gov>; Wiegard, Pierce (Sullivan) <Pierce_Wiegard@sullivan.senate.gov>
Subject: CERCLA Letter coming around for signature

Hi all,

Thanks again for your boss's support on the CERCLA 108(b) letter. We will be circulating it for signature this afternoon, so please let your front offices know that it's coming.

Thanks,

Andrew
4-4313

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 2/15/2018 8:15:29 PM
To: Richards, Tina [Tina.Richards@mail.house.gov]
Subject: RE: WH infrastructure

I just tried calling your desk. My direct line is Deliberative Process / Ex. 5

-----Original Message-----
From: Richards, Tina [mailto:Tina.Richards@mail.house.gov]
Sent: Thursday, February 15, 2018 2:47 PM
To: Brown, Byron <brown.byron@epa.gov>
Subject: RE: WH infrastructure

If you are calling now - I am still at my desk (Deliberative Process / Ex. 5) if it will be more than half hour from now - I will give you my cell #

-----Original Message-----
From: Brown, Byron [mailto:brown.byron@epa.gov]
Sent: Thursday, February 15, 2018 2:26 PM
To: Richards, Tina <Tina.Richards@mail.house.gov>
Subject: RE: WH infrastructure

Hi Tina -- what would be a good number to call you at?

-----Original Message-----
From: Richards, Tina [mailto:Tina.Richards@mail.house.gov]
Sent: Tuesday, February 13, 2018 10:27 PM
To: Brown, Byron <brown.byron@epa.gov>
Subject: Re: WH infrastructure

I think Walden is talking to WH tomorrow but I'm sure it's just the start of the conversation and I gave him my preliminary thoughts so Thursday should work. My calendar for Thursday is pretty open as of now so whatever works for you.

> On Feb 13, 2018, at 10:23 PM, Brown, Byron <brown.byron@epa.gov> wrote:
>
> Yes happy to chat. What's your timing? Would Thursday afternoon work or do you need to talk earlier?
>
> Sent from my iPhone
>
>> On Feb 13, 2018, at 10:09 PM, Richards, Tina <Tina.Richards@mail.house.gov> wrote:
>>
>> Do you guys at EPA have insight on the superfund/Brownfields provisions in the WH infrastructure plan? GW is meeting with the WH and our front office asked for our thoughts and I wanted to better understand a couple of the suggestions/provisions. Just let me know if you can chat about the superfund stuff.

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 5/4/2017 11:43:51 AM
To: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Subject: contact info

Hi Susan – Carolyn Hoskinson from the UST program reached out to ask me for your contact info. She is mentoring someone in a professional development program and thought it would good for the person to talk to you. Is it OK to share your email address with Carolyn so she can have her mentee contact you?

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 4/25/2017 3:13:09 PM
To: chris.sarley@mail.house.gov
Subject: Call

Sorry I just finished by 10 am meeting. I am free now until 12:30 today. 202-564-1456.

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 2/15/2018 7:26:07 PM
To: Richards, Tina [Tina.Richards@mail.house.gov]
Subject: RE: WH infrastructure

Hi Tina -- what would be a good number to call you at?

-----Original Message-----
From: Richards, Tina [mailto:Tina.Richards@mail.house.gov]
Sent: Tuesday, February 13, 2018 10:27 PM
To: Brown, Byron <brown.byron@epa.gov>
Subject: Re: WH infrastructure

I think Walden is talking to WH tomorrow but I'm sure it's just the start of the conversation and I gave him my preliminary thoughts so Thursday should work. My calendar for Thursday is pretty open as of now so whatever works for you.

> On Feb 13, 2018, at 10:23 PM, Brown, Byron <brown.byron@epa.gov> wrote:
>
> Yes happy to chat. What's your timing? Would Thursday afternoon work or do you need to talk earlier?
>
> Sent from my iPhone
>
>> On Feb 13, 2018, at 10:09 PM, Richards, Tina <Tina.Richards@mail.house.gov> wrote:
>>
>> Do you guys at EPA have insight on the superfund/Brownfields provisions in the WH infrastructure plan? GW is meeting with the WH and our front office asked for our thoughts and I wanted to better understand a couple of the suggestions/provisions. Just let me know if you can chat about the superfund stuff.

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 4/20/2017 6:33:41 PM
To: andrew.vecera@mail.house.gov
Subject: Congratulations

Heard about the promotion. Congratulations! Good luck and hope all is well. - Byron

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 2/15/2018 2:20:41 PM
To: Tomassi, Chris (Appropriations) [Chris_Tomassi@appro.senate.gov]
Subject: Re: Lunch

Hi Chris - just wanted to check and see if you're still available for lunch today. I made a reservation for central at 12:30.

Sent from my iPhone

On Feb 6, 2018, at 10:14 AM, Tomassi, Chris (Appropriations) <Chris_Tomassi@appro.senate.gov> wrote:

> That works for me. Does 12:30 work for you?
>
> **From:** Brown, Byron [mailto:brown.byron@epa.gov]
> **Sent:** Tuesday, February 6, 2018 10:13 AM
> **To:** Tomassi, Chris (Appropriations) <Chris_Tomassi@appro.senate.gov>
> **Subject:** RE: Lunch
>
> Maybe Thursday 2/15? Central?
>
> **From:** Tomassi, Chris (Appropriations) [mailto:Chris_Tomassi@appro.senate.gov]
> **Sent:** Tuesday, February 6, 2018 10:12 AM
> **To:** Brown, Byron <brown.byron@epa.gov>
> **Subject:** RE: Lunch
>
> Absolutely. What works best for you next week? I'm booked Friday, but am free otherwise at this stage.
>
> **From:** Brown, Byron [mailto:brown.byron@epa.gov]
> **Sent:** Tuesday, February 6, 2018 10:09 AM
> **To:** Tomassi, Chris (Appropriations) <Chris_Tomassi@appro.senate.gov>
> **Subject:** Lunch
>
> Hi Chris – wanted to follow up and see when you wanted to grab lunch. I should have some availability next week.
>
> Byron R. Brown
> Deputy Chief of Staff for Policy
> Office of the Administrator
> U.S. Environmental Protection Agency

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 4/20/2017 6:32:49 PM
To: kiel.weaver@mail.house.gov
Subject: Congratulations

Saw the news about your new job. Congratulations and good luck. - Byron

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 2/14/2018 3:23:03 AM
To: Richards, Tina [Tina.Richards@mail.house.gov]
Subject: Re: WH infrastructure

Yes happy to chat. What's your timing? Would Thursday afternoon work or do you need to talk earlier?

Sent from my iPhone

> On Feb 13, 2018, at 10:09 PM, Richards, Tina <Tina.Richards@mail.house.gov> wrote:
>
> Do you guys at EPA have insight on the superfund/Brownfields provisions in the WH infrastructure plan? GW is meeting with the WH and our front office asked for our thoughts and I wanted to better understand a couple of the suggestions/provisions. Just let me know if you can chat about the superfund stuff.

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 3/6/2018 11:42:30 PM
To: Lyons, Troy [lyons.troy@epa.gov]
CC: Holland, Luke (Inhofe) [Luke_Holland@inhofe.senate.gov]
Subject: Re:

We're sensitive to the concern and do not want to interfere with any momentum to get a legislative fix. That would be more durable and would provide greater certainty than a rulemaking could. That said we sent a draft proposed rule to OMB today to begin the interagency process but do not plan to move a proposed rule until we know whether legislation will not pass. Given the time it takes to get a proposed rule through OMB and into the federal register we could not wait until the end of month until after funding deadline passes to send proposal to OMB for it to get finalized in time to provide relief if needed. I heard from pork producers today and this was the message I shared with them. Our Ag advisor and his staff have been in contact with the other groups but again we are trying to support legislative process with the time and process limits we're facing.

Sent from my iPhone

> On Mar 6, 2018, at 5:47 PM, Lyons, Troy <lyons.troy@epa.gov> wrote:
>
> I have not heard from industry—Byron have you heard anything similar to what Luke is hearing?
>
> Sent from my iPhone
>
>> On Mar 6, 2018, at 5:40 PM, Holland, Luke (Inhofe) <Luke_Holland@inhofe.senate.gov> wrote:
>>
>> Industry is worried if you move the cercla reg before Omni it could hurt the chances of it getting in. Are you hearing the same thing?
>>
>> Sent from my iPhone

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 9/7/2017 10:31:26 PM
To: Tomassi, Chris (Appropriations) [Chris_Tomassi@appro.senate.gov]
Subject: RE: question

Yes, thanks. 564-1456.

From: Tomassi, Chris (Appropriations) [mailto:Chris_Tomassi@appro.senate.gov]
Sent: Thursday, September 7, 2017 6:30 PM
To: Brown, Byron <brown.byron@epa.gov>
Subject: RE: question

Hey Byron – I'm traveling tomorrow. Are you free now?

From: Brown, Byron [mailto:brown.byron@epa.gov]
Sent: Thursday, September 7, 2017 6:25 PM
To: Tomassi, Chris (Appropriations) <Chris_Tomassi@appro.senate.gov>
Subject: question

Hi Chris – I wanted to see if you would be free to chat on Friday about something? My number is 564-1456. Thanks.

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 11/7/2017 11:18:45 PM
To: Ungerecht, Todd [Todd.Ungerecht@mail.house.gov]
CC: Fotouhi, David [fotouhi.david@epa.gov]; Forsgren, Lee [Forsgren.Lee@epa.gov]; Lyons, Troy [lyons.troy@epa.gov]
Subject: TMDL Question

Hi Todd – putting you in touch with Lee Forsgren, Deputy Assistant Administrator for Water, David Fotouhi, Deputy General Counsel, and Troy Lyons, Associate Administrator for Congressional and Intergovernmental Relations to discuss your question about a Washington state TMDL. Hope all is well. - Byron

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 4/6/2017 10:05:43 PM
To: Clowser, Jessica (Fischer) [Jessica_Clowser@fischer.senate.gov]
CC: Lyons, Troy [lyons.troy@epa.gov]
Subject: RE: Inquiry about Phase 2 standards for Heavy Duty Vehicles

Hi Jessica – hope all is well. I am copying Troy Lyons, who is the new appointee heading up Congressional affairs who can help set this up. If you want to keep it close hold to the policy staff, just let us know.

From: Clowser, Jessica (Fischer) [mailto:Jessica_Clowser@fischer.senate.gov]
Sent: Thursday, April 6, 2017 10:11 AM
To: Brown, Byron <brown.byron@epa.gov>
Subject: Inquiry about Phase 2 standards for Heavy Duty Vehicles

Hey, Byron,

I am reaching out regarding Phase 2 Standards for Heavy Duty Vehicles. We are hearing from grain trailer manufactures about the impact these standards will have on trailers. I have also touched base with the Food Distributors who share the same concerns. Can we please set up a call to discuss a path forward? I want to run a legislative idea by you and gather your thoughts on and administrative fix (if it's even possible). I am out tomorrow. Friday, April 7 – Tuesday, April 11.

Thank you so much!
Jessica
4-5908

Jessica Clowser
Legislative Assistant
Office of U.S. Senator Deb Fischer
454 Russell Senate Office Building | Washington, DC 20510
202.224.5908 (direct)
202.224.6551 (main)
Jessica_Clowser@fischer.senate.gov

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 12/2/2017 12:30:43 AM
To: Tomassi, Chris (Appropriations) [Chris_Tomassi@appro.senate.gov]
Subject: FW: EPA Determines Risks from Hardrock Mining Industry Minimal and No Need for Additional Federal Requirements

Hi Chris – Thought you'd be interested to know that the pre-publication version of the CERCLA 108 final rule has now been posted to the website and is accessible through the link in the press release. Hope all is well and that things are not too crazy in the Senate these day. – Byron

From: EPA Press Office
On Behalf Of EPA Press Office
Sent: Friday, December 1, 2017 6:00 PM
Subject: EPA Determines Risks from Hardrock Mining Industry Minimal and No Need for Additional Federal Requirements

EPA Determines Risks from Hardrock Mining Industry Minimal andNo Need for Additional Federal Requirements

WASHINGTON (December 1, 2017) - Today the U.S. Environmental Protection Agency (EPA) announced that the Agency will not issue final regulations for financial responsibility requirements for certain hardrock mining facilities.

"After careful analysis of public comments, the statutory authority, and the record for this rulemaking, EPA is confident that modern industry practices, along with existing state and federal requirements address risks from operating hardrock mining facilities," **said EPA Administrator Scott Pruitt**. "Additional financial assurance requirements are unnecessary and would impose an undue burden on this important sector of the American economy and rural America, where most of these mining jobs are based."

EPA published proposed regulations under section 108(b) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, or Superfund) on January 11, 2017, and the public comment period closed on July 11, 2017. EPA has decided not to issue final regulations because the risks associated with these facilities' operations are addressed by existing federal and state programs and industry practices. EPA was under a court-ordered deadline to take final action on this rulemaking by December 1, 2017. The decision not to issue final rules under CERCLA section 108(b) will be published in the Federal Register.

EPA has analyzed the need for financial responsibility requirements under CERCLA section 108(b) based on the degree and duration of risk associated with the production, transportation, treatment, storage, and disposal of hazardous substances from current hardrock mining operations, as well the risk of taxpayer funded cleanups at facilities operating under modern management practices and modern environmental regulations. That risk is identified by examining: the management of hazardous substances at such facilities; federal and state regulatory controls on that management and federal and state financial responsibility requirements; and, the payment experience of the Fund in responding to releases.

EPA concluded the degree and duration of risk associated with the modern production, transportation, treatment, storage or disposal of hazardous substances by the hardrock mining industry does not present a level of risk of taxpayer funded response actions that warrant imposition of financial responsibility requirements under CERCLA for this sector. This determination reflects EPA's interpretation of the statute, EPA's evaluation of the record for the proposed rule, and the approximately 11,000 public comments received by EPA on this rulemaking.

State mining and environmental regulators, as well as other federal agencies and the regulated community and financial sectors, commented that the proposed requirements would potentially interfere with state and local mining regulations, were unnecessary, and would be difficult to implement. This decision does not in any way affect EPA's authority to take appropriate response actions under CERCLA.

"I urged then President-elect Trump to stop the EPA's overreach into state regulation harming Montana businesses," said **U.S. Senate Western Caucus Chairman Steve Daines (R-MT)**. "Instead of threatening the very industries that are a backbone of our Western economies, we need to support American families and American businesses to secure our mineral and energy independence. I am pleased the EPA has taken action."

"I am grateful for Administrator Pruitt's leadership in eliminating this costly, duplicative, and job-killing rule," **said Arizona Governor Doug Ducey**. "Arizona already has financial responsibility protections in place for hardrock mines and does not need a duplicative federal program that will unnecessarily burden a key Arizona industry."

"I am thankful that the EPA and Administrator Pruitt have decided to reject the proposed CERCLA rule," **said Idaho Governor Butch Otter**. "This is another victory for returning power to the states."

"The pending CERCLA 108(b) rulemaking has been at the top of my agenda," **said Nevada Governor Brian Sandoval**. "The success of Nevada's robust mine bonding program protects public safety and our environment and ensures our critical mining industry can operate with certainty. I applaud the EPA for their thoughtful approach and thorough review of the proposed rule, for seeking comments from a diverse set of stakeholders and ultimately, for making the right decision. Today's action by the

Administrator recognizes the reality that the states have been capably regulating mine bonding without interference from Washington and should be allowed to continue to do so."

"States have developed comprehensive financial responsibility programs for hardrock mining in the 30 years since the passage of CERCLA 108(b)(1)," **said Jim Ogsbury, executive director of the bipartisan Western Governors' Association.** "These programs require operators to comply with state regulations, implement reclamation and post-closure plans, and post financial assurance to minimize risks to public health and the environment. Western Governors appreciate EPA's decision regarding its proposed financial assurance requirements under CERCLA 108(b), which would have duplicated or supplanted existing and proven state financial assurance regulations."

"EPA's actions to rescind the CERCLA 108(b) financial assurance rule is another positive step by EPA in eliminating redundant regulations and recognizing the importance of cooperative federalism," **said Todd Parfitt, director of Wyoming Department of Environmental Quality.**

A pre-publication version of this action may be viewed at:
https://www.epa.gov/superfund/proposed-rule-financial-responsibility-requirements-under-cercla-section-108b-classes

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U.S. Environmental Protection Agency
1200 Pennsylvania Avenue Northwest
Washington, D.C. 20004

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Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 9/7/2017 10:25:02 PM
To: chris_tomassi@appro.senate.gov
Subject: question

Hi Chris – I wanted to see if you would be free to chat on Friday about something? My number is 564-1456. Thanks.

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

Message

From: Brown, Byron [brown.byron@epa.gov]
Sent: 3/29/2017 6:47:14 PM
To: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Subject: Re: I will be at EPA East later today

I'm hoping to stop by at 3:30

Sent from my iPhone

On Mar 29, 2017, at 1:50 PM, Bodine, Susan (EPW) <Susan_Bodine@epw.senate.gov> wrote:

> For Randy Deitz's retirement party.
>
> Barry Breen did a good job at today's EPW hearing.
>
> If you are around I can stop and say hello after.
>
> Susan
>
> Susan Parker Bodine
> Chief Counsel
> U .S. Senate Environment & Public Works Committee
> 410 Dirksen Senate Office Building
> Washington, DC 20510
> 202-224-6176

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 6/6/2018 2:18:19 PM
To: Nabity, Caroline [Caroline.Nabity@mail.house.gov]
CC: Castor, Stephen [Stephen.Castor@mail.house.gov]
Subject: RE: Transcript Review

Yes, thanks. See you then.

From: Nabity, Caroline [mailto:Caroline.Nabity@mail.house.gov]
Sent: Wednesday, June 6, 2018 10:10 AM
To: Brown, Byron <brown.byron@epa.gov>
Cc: Castor, Stephen <Stephen.Castor@mail.house.gov>
Subject: Transcript Review

Byron,

Just wanted to confirm 2pm tomorrow still works. I have reserved room 6480 in the O'Neill House Office Building. This is the same room where the transcribed interview took place.

Thanks,
Caroline Nabity

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 3/28/2017 8:02:46 PM
To: Herrgott, Alex (Inhofe) [Alex_Herrgott@inhofe.senate.gov]
Subject: RE: follow up re: Truck Trailer Manufacturers Assn

Saw JMI and Luke here today. Where were you? Are they keeping baby in a corner?

From: Herrgott, Alex (Inhofe) [mailto:Alex_Herrgott@inhofe.senate.gov]
Sent: Tuesday, March 28, 2017 12:04 PM
To: Brown, Byron <brown.byron@epa.gov>
Subject: FW: follow up re: Truck Trailer Manufacturers Assn

Tom is a good old Baucus staffer.

Let me know if you have time to reach out to him.

Hope all is well.

Alex

From: "Herrgott, Alex (Inhofe)" <Alex_Herrgott@inhofe.senate.gov>
Date: Tuesday, January 17, 2017 at 1:35 PM
To: Tom Lynch <tom.lynch@icemillerstrategies.com>
Cc: Jeff Sims <jeff@ttmanet.org>, John Freiler <john@ttmanet.org>
Subject: RE: follow up re: Truck Trailer Manufacturers Assn

Tom,

Thank you for this email. I will make sure we get this in front of Scott immediately. We are working on the confirmation hearing tomorrow, but once we get past we indeed will do a full review, and this will be something we will be reaching out to you on. We will have to look at all options as we unwind many of the rules over the past few years.

I will be in touch.

Thanks

Alex

From: Tom Lynch [mailto:tom.lynch@icemillerstrategies.com]
Sent: Tuesday, January 17, 2017 1:28 PM
To: Herrgott, Alex (Inhofe) <Alex_Herrgott@inhofe.senate.gov>; Herrgott, Alex (EPW) <Alex_Herrgott@epw.senate.gov>
Cc: Jeff Sims <jeff@ttmanet.org>; John Freiler <john@ttmanet.org>
Subject: follow up re: Truck Trailer Manufacturers Assn

AH - Great to see you the other night. Thanks again. As we discussed, my client is interested in establishing contact with Scott Pruitt's office going forward in order to discuss the Greenhouse Gas Phase 2 rulemaking from October, 2016 where EPA adopted an unsupportable claim regarding its Clean Air Act jurisdiction. Attached is the two-page discussion about the law

and EPA's interpretation, EPA's failure to appropriately exercise discretion, and the counterproductive nature of foreseeable outcomes including three more highway deaths annually.

Tom Lynch
Ice Miller Strategies LLC
20 F St. NW, Ste. 850
Washington, DC 20001
202 824-8662 direct
Ex. 6 mobile

202-824-8666 main
202-824-8667 fax

www.icemillerstrategies.com

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 6/5/2018 9:44:00 PM
To: Caroline.Nabity@mail.house.gov
Subject: Contact info

Hi Caroline – just wanted to send you my email so you would have it. Thanks. - Byron

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 3/21/2017 2:54:05 PM
To: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]; Richardson, RobinH [Richardson.RobinH@epa.gov]; Bennett, Elizabeth [bennett.elizabeth@epa.gov]
CC: Jackson, Ryan [jackson.ryan@epa.gov]; Dravis, Samantha [dravis.samantha@epa.gov]; bennett.tate@epw.gov
Subject: RE: Fischer/Cardin Integrated Planning/Affordability bill

Tate's email is not correct, so adding her to this.

From: Bodine, Susan (EPW) [mailto:Susan_Bodine@epw.senate.gov]
Sent: Tuesday, March 21, 2017 10:45 AM
To: Richardson, RobinH <Richardson.RobinH@epa.gov>
Cc: Jackson, Ryan <jackson.ryan@epa.gov>; Brown, Byron <brown.byron@epa.gov>; Dravis, Samantha <dravis.samantha@epa.gov>; bennett.tate@epw.gov
Subject: Fischer/Cardin Integrated Planning/Affordability bill

This is being introduced today by Senators Fischer and Cardin. It is language from the Senate passed WRDA (section 7203, 7204 and 7205) that was negotiated with EPA last Congress.

Our legislative hearing in next Tuesday March 28.

We are not seeking a witness, but would like a statement for the record.

Administrator Pruitt supported integrated planning and green infrastructure during his confirmation. Excerpts from his QFRs:

56.The American Society of Civil Engineers states that decrepit, decades-old municipal wastewater systems are at fault for the discharge of 900 billion gallons of untreated sewage and wastewater into U.S. waterways each year, enough to cover New York City under a layer 127 feet deep. According to a New York Times report, municipal sewer systems are the nation's biggest violators of the U.S. Clean Water Act, and more than one-third of them have violated pollution laws at least once since 2006. This worn-out, faulty infrastructure requires new investments in order to protect public health and the environment. As the leader of the Agency in charge of protecting human health and US waterways, how will you help states and municipalities modernize their wastewater infrastructure?
If confirmed, I will continue support for the Clean Water State Revolving Loan Funds and the new Water Infrastructure Financing Innovation Act loan program. In addition, I would continue to implement EPA's Integrated Planning Framework to provide municipalities with flexibility to prioritize actions they take to come into compliance.

151. The EPA is responsible for administering two of the nation's most important infrastructure investment programs- the Clean Water and Safe Drinking Water State Revolving Loan Funds (SRFs). Unfortunately, water and sewer infrastructure in this country continues to deteriorate and investment is sorely needed. The American Society of Civil Engineers rates our wastewater and drinking water infrastructure a "D." If confirmed, what will you do to ensure that the federal government is adequately investing in our nation's wastewater and drinking water infrastructure?
If confirmed, I will continue support for the Clean Water State Revolving Loan Funds and the new Water Infrastructure Financing Innovation Act loan program. In addition, I would continue to implement EPA's

Integrated Planning Framework to provide municipalities with flexibility to prioritize actions they take to come into compliance.

73.What clean water initiatives undertaken by the EPA in the last five years do you support?
I support the Mach 2011 nutrient framework issued by the Assistant Administrator for the Office of Water entitled "Working in Partnership with States to Address Phosphorus and Nitrogen Pollution through Use of a Framework for State Nutrient Reductions," which prioritizes state action to encourage on the ground activities over establishment of numeric nutrient limits. I support EPA's May 2012 Integrated Municipal Stormwater and Wastewater Planning Framework, which directs EPA enforcement and permitting officials to allow municipalities to integrate multiple CWA responsibilities in a single plan and prioritize the actions with the greatest health and environmental benefits, and to allow extended compliance schedules to carry out that prioritization. I support EPA's efforts to promote green infrastructure to meet Clean Water Act requirements. Green infrastructure can be a neighborhood solution to meet national standards. I support the new Water Infrastructure Finance and Innovation Act loan program authorized by Congress in 2014 that recently received its first appropriations. The WIFIA program creates tremendous opportunities to increase water and wastewater infrastructure investment because every federal dollar appropriated can leverage as much as $60 in infrastructure investments.

Susan Parker Bodine
Chief Counsel
U .S. Senate Environment & Public Works Committee
410 Dirksen Senate Office Building
Washington, DC 20510
202-224-6176

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 3/1/2018 2:56:25 PM
To: Vey, Madeline [Madeline.Vey@mail.house.gov]
CC: Darwin, Veronica [darwin.veronica@epa.gov]; Ringel, Aaron [ringel.aaron@epa.gov]
Subject: RE: following up

Madeline – I am connecting you with Veronica Darwin, senior advisor to the Administrator, who has been looking into the A-Gas issue and recently spoke to the state regulatory agency. I am also copying Aaron Ringel from the Office of Congressional and Intergovernmental Relations for his awareness. Thanks.

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

From: Vey, Madeline [mailto:Madeline.Vey@mail.house.gov]
Sent: Thursday, March 1, 2018 9:46 AM
To: Brown, Byron <brown.byron@epa.gov>
Subject: following up

Good Morning Byron,

Thank you so much for getting back to me, I'd love to be connected with the correct people to discuss the Agas issue with.

Best,

Madeline

Madeline Barter Vey
Legislative Director/Policy Coordinator
Congressman Robert E. Latta OH-05
2448 Rayburn House Office Building
202-225-6405

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 6/4/2018 9:22:48 PM
To: Castor, Stephen [Stephen.Castor@mail.house.gov]
CC: Lyons, Troy [lyons.troy@epa.gov]; Baptist, Erik [baptist.erik@epa.gov]
Subject: RE: minority letter

Hi Steve – just left you a message. Would 1 pm Tuesday work for a call? Looks like folks here are free at that time.

From: Castor, Stephen [mailto:Stephen.Castor@mail.house.gov]
Sent: Monday, June 4, 2018 3:55 PM
To: Brown, Byron <brown.byron@epa.gov>
Cc: Lyons, Troy <lyons.troy@epa.gov>; Baptist, Erik <Baptist.Erik@epa.gov>
Subject: RE: minority letter

Here is the letter from our Dems.

From: Castor, Stephen
Sent: Monday, June 4, 2018 1:38 PM
To: Brown, Byron <brown.byron@epa.gov>
Cc: Lyons, Troy <lyons.troy@epa.gov>; Baptist, Erik <Baptist.Erik@epa.gov>
Subject: Re: minority letter

Hi Byron - I tried you a couple times and left voicemails last week. Sorry we didn't connect. We are not happy about the release of information by our Democratic colleagues, but were not afforded an opportunity to discuss, review, or object to their letter before it was transmitted. We first heard about from the press. I will send you the letter when I am able to get back to my desk. I've been completely out of pocket in several meetings today. I will give you a ring. -Steve

On Jun 4, 2018, at 11:22 AM, Brown, Byron <brown.byron@epa.gov> wrote:

> Steve – I have seen news reports this morning about a letter from the minority to Chairman Gowdy concerning Millan Hupp's transcribed interview that includes several excerpts of the transcript. I could not find a copy of the letter on the committee website, so could you please forward a copy. I also want to object to the selective leak of the transcript by the minority – especially before the witness has had a chance to review. We'd like to discuss this further, along with the status of the broader document production and sensitivity concerning some of the information contained in the documents and that may have been discussed in Mr. Perrotta's interview. I left a voicemail on Thursday afternoon, so let me know when you are available to discuss. Thanks. – Byron, 564-1456.

Message

From: Brown, Byron [brown.byron@epa.gov]
Sent: 3/16/2017 5:27:38 PM
To: Freire, JP (Hatch) [JP_Freire@hatch.senate.gov]
Subject: Re: CAFE Op-ed

I should be free after 3 if that will work or is that too late and do you need to speak sooner?

Sent from my iPhone

On Mar 16, 2017, at 1:15 PM, Freire, JP (Hatch) <JP_Freire@hatch.senate.gov> wrote:

> Byron,
>
> Excited to be working with you. Do you have time to speak on the phone sometime today? Should be 10 minutes or so.
>
> **J.P. Freire**
> **Director of Communications**
> Office of Senator Orrin Hatch
> (202) 228-0210—Office
> Ex. 6 –Mobile
> <image001.png><image002.png><image003.png><image004.png>
>
> ---
>
> **From:** "Brown, Byron" <brown.byron@epa.gov>
> **Date:** Wednesday, March 15, 2017 at 9:22 PM
> **To:** "Dravis, Samantha" <dravis.samantha@epa.gov>
> **Cc:** "Jackson, Ryan" <jackson.ryan@epa.gov>, "Konkus, John" <konkus.john@epa.gov>, "Freire, JP (Hatch)" <JP_Freire@hatch.senate.gov>, "Ferguson, Lincoln" <ferguson.lincoln@epa.gov>
> **Subject:** Re: CAFE Op-ed
>
> **Deliberative Process / Ex. 5**
>
> Sent from my iPhone
>
> On Mar 15, 2017, at 8:00 PM, Dravis, Samantha <dravis.samantha@epa.gov> wrote:
>
> **Deliberative Process / Ex. 5**

Sent from my iPhone

On Mar 15, 2017, at 7:58 PM, Jackson, Ryan <jackson.ryan@epa.gov> wrote:I

Guys please hurry and get this get this placed. I was assuming that was done well before now.

Ryan Jackson
Chief of Staff
U.S. EPA
Ex. 6

On Mar 15, 2017, at 6:55 PM, Konkus, John <konkus.john@epa.gov> wrote:

Samantha and Byron: Would you mind please taking a look at the attached op-ed tonight before I send it to USA Today tomorrow?

From: Ferguson, Lincoln
Sent: Wednesday, March 15, 2017 6:13 PM
To: Jackson, Ryan <jackson.ryan@epa.gov>
Cc: Konkus, John <konkus.john@epa.gov>
Subject: CAFE Op-ed

Attached is the updated version of the CAFÉ op-ed with input from JP. Can we get this in from of SP before we release? USA Today is needing it ASAP – but hopefully we can still shoot to get it in this weekend.

Thanks,
Lincoln
<LF EDITS Draft CAFE Op-Ed EDITS.DOCX>

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 2/6/2018 3:13:17 PM
To: Tomassi, Chris (Appropriations) [Chris_Tomassi@appro.senate.gov]
Subject: RE: Lunch

Maybe Thursday 2/15? Central?

From: Tomassi, Chris (Appropriations) [mailto:Chris_Tomassi@appro.senate.gov]
Sent: Tuesday, February 6, 2018 10:12 AM
To: Brown, Byron <brown.byron@epa.gov>
Subject: RE: Lunch

Absolutely. What works best for you next week? I'm booked Friday, but am free otherwise at this stage.

From: Brown, Byron [mailto:brown.byron@epa.gov]
Sent: Tuesday, February 6, 2018 10:09 AM
To: Tomassi, Chris (Appropriations) <Chris_Tomassi@appro.senate.gov>
Subject: Lunch

Hi Chris – wanted to follow up and see when you wanted to grab lunch. I should have some availability next week.

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 6/4/2018 3:22:53 PM
To: stephen.castor@mail.house.gov
CC: Lyons, Troy [lyons.troy@epa.gov]; Baptist, Erik [baptist.erik@epa.gov]
Subject: minority letter

Steve – I have seen news reports this morning about a letter from the minority to Chairman Gowdy concerning Millan Hupp's transcribed interview that includes several excerpts of the transcript. I could not find a copy of the letter on the committee website, so could you please forward a copy. I also want to object to the selective leak of the transcript by the minority – especially before the witness has had a chance to review. We'd like to discuss this further, along with the status of the broader document production and sensitivity concerning some of the information contained in the documents and that may have been discussed in Mr. Perrotta's interview. I left a voicemail on Thursday afternoon, so let me know when you are available to discuss. Thanks. – Byron, 564-1456.

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 2/6/2018 3:09:02 PM
To: Tomassi, Chris (Appropriations) [Chris_Tomassi@appro.senate.gov]
Subject: Lunch

Hi Chris – wanted to follow up and see when you wanted to grab lunch. I should have some availability next week.

Byron R. Brown
Deputy Chief of Staff for Policy
Office of the Administrator
U.S. Environmental Protection Agency

Message

From: Brown, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9242D85C7DF343D287659F840D730E65-BROWN, BYRO]
Sent: 3/6/2017 5:08:35 PM
To: Bodine, Susan (EPW) [Susan_Bodine@epw.senate.gov]
Subject: RE: Consent

Thanks, Susan. Confirming receipt. My desk phone is 202-564-1456.

From: Bodine, Susan (EPW) [mailto:Susan_Bodine@epw.senate.gov]
Sent: Thursday, March 2, 2017 6:16 PM
To: Brown, Byron <brown.byron@epa.gov>
Subject: Consent

You have informed the Committee on Environment & Public Works that in your position at the Environmental Protection Agency you may be called upon to work on matters relating to the development and implementation of statutory authorities for the regulation of coal combustion residuals; the regulatory definition of "waters of the United States" under the Clean Water Act; regulations referred to as the "Clean Power Plan;" and matters relating to the Superfund program; and that such work may involve the use and disclosure of related confidential information you were provided or developed while employed by the Committee. The Committee consents to such work and the use of such information

Susan Parker Bodine
Chief Counsel
U .S. Senate Environment & Public Works Committee
410 Dirksen Senate Office Building
Washington, DC 20510
202-224-6176