To: Arora, Asha@DTSC[Asha.Arora@dtsc.ca.gov]
From: Lin, Sharon
Sent: Thur 6/4/2015 1:24:55 PM
Subject: RE: Shell

Hi, Asha,

Congrats on your son's achievement! You must be so proud.

We have a couple of items in the works for Shell. (1) We have a 3007 information request almost ready to go. When I send it to Andy and Larry for review, I will cc you. You will get a sense of the data gap that we currently have. (2) field sampling and analysis plan. I plan to have a draft to share next week. this will have the details of what we plan to do the 1st week of August on the field sampling side.

I will be at two LA refineries next week with the South Coast Air District for its refinery inspection of two VOC air rules. I am not doing any RCRA stuff, just following the air inspectors. Our supervisor wanted us (RCRA staff) to learn how the south coast air district performs its refinery inspection since he came from the Clean Air Act enforcement program.

Sharon Lin, P.E.

U.S. Environmental Protection Agency Region 9

Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street

San Francisco, CA 94105

Tel: (415) 972-3446

Email: Lin.Sharon@epa.gov

From: Arora, Asha@DTSC [mailto:Asha.Arora@dtsc.ca.gov]
Sent: Wednesday, June 03, 2015 2:11 PM
To: Lin, Sharon
Subject: Shell
Importance: High

Hi Sharon,

How are you doing? I just came back from a vacation as I had gone for my son's graduation ceremony from the Harvard Business school.

I am following up on some of the documents you were going to send me for Shell. I just got my nomax coverall. The reason I am asking early is because of my busy schedule. I wanted to read everything by the 1st week of July.

I am providing trainings/travel on June 10-12, 17-18

June 23-25 – CERS meetings with CalEPA

July 14-30 – Vacation for a family out of the country

Thank you

Asha

Asha Arora

Senior Environmental Scientist (Specialist)

Department of Toxic Substances Control

Berkeley Office

(510) 540-3874

Asha.Arora@dtsc.ca.gov

To: Yang, Teng@DTSC[Teng.Yang@dtsc.ca.gov]
From: Lin, Sharon
Sent: Wed 9/13/2017 6:23:18 PM
Subject: heads up shell martinez epa negotiation

Hi, Andy,

Just wanted to keep you informed that Shell Martinez refinery is coming in for case negotiation on September 28. I will keep you posted regarding our negotiation progress. Thanks.

sharon

To: Cuffel, Donald[Don.Cuffel@valero.com]
Cc: Sugerman, Rebecca[Sugerman.Rebecca@epa.gov]; Frazer, Russell[Frazer.Russell@epa.gov]; Howe, Chris[Chris.Howe@valero.com]
From: Lin, Sharon
Sent: Fri 7/31/2015 8:09:50 PM
Subject: RE: CD-R disc

Hi, Don,

I apologize for the missing content on the CD disc. I will check with our CBI document control officer since she did the mailing. I will get back to you next week. We will adjust the requested response dates accordingly. Thanks.

Sharon

From: Cuffel, Donald [mailto:Don.Cuffel@valero.com]
Sent: Friday, July 31, 2015 12:59 PM
To: Lin, Sharon
Cc: Sugerman, Rebecca; Frazer, Russell; Howe, Chris
Subject: FW: CD-R disc
Importance: High

Good afternoon Sharon,

The CD-R disc in the manila envelope with EPA Region IX's return address is blank. It is also unlabeled. Perhaps the disc intended for Valero is still in your offices on Hawthorne Street?

We do not have the benefit of the data files supporting EPA's cover letter content; therefore, I believe that the countdown for our responses will be reset to the date on which we receive the full set of data files you intended to be included on the CD-R.

I have saved the disc and envelope in case EPA wants to review it. Please advise when we can

expect the correct CD-R. Thank you,

Don

Donald W. Cuffel

Manager - Environmental Engineering

Valero Refining Company - CA, Benicia Refinery

707 745 7545

From: Lazorik, John
Sent: Friday, July 31, 2015 12:52 PM
To: Cuffel, Donald; Howe, Chris
Subject: FW: CD-R disc

I checked with Aaron Cruz how best to retrieve the information on the disc that EPA provided to assure there were no viruses or other threats. Aaron checked the disc on his computer and found that the disc was blank.

John Lazorik

Sr. Staff Environmental Engineer

Valero Benicia Refinery

3400 East Second Street Benicia, CA 94510

Office: 707-745-7660 Fax: 707-745-7339

john.lazorik@valero.com

From: Cruz, Aaron
Sent: Friday, July 31, 2015 12:49 PM
To: Lazorik, John
Subject: CD-R disc

John

Looking at the disc and how Windows behaves when inserted in the drive, I believe the disc is blank.

Regards,

Aaron Cruz

IS Analyst

Valero Benicia Refinery

VHD

707 745-7932

To: Cuffel, Donald[Don.Cuffel@valero.com]; Howe, Chris[Chris.Howe@valero.com]
Cc: Sugerman, Rebecca[Sugerman.Rebecca@epa.gov]; Frazer, Russell[Frazer.Russell@epa.gov]
From: Lin, Sharon
Sent: Fri 7/31/2015 3:44:26 PM
Subject: RE: Notice of Intent to File a Complaint RCRA/EPCRA - Valero Benicia Refinery

Hi, Don,

I just checked the UPS tracking. It looks like the package is on the truck for delivery now. Chris is the recipient of the package. You should have it today. Please let me know if you don't receive the package today. Thanks.

Sharon Lin

U.S. Environmental Protection Agency Region 9

Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street

San Francisco, CA 94105

Tel: (415) 972-3446

Email: Lin.Sharon@epa.gov

From: Cuffel, Donald [mailto:Don.Cuffel@valero.com]
Sent: Friday, July 31, 2015 8:30 AM
To: Lin, Sharon; Howe, Chris
Cc: Sugerman, Rebecca; Frazer, Russell
Subject: RE: Notice of Intent to File a Complaint RCRA/EPCRA - Valero Benicia Refinery

Good morning Sharon,

Thank you for your note below with clear instructions and documentation. We will be in touch if questions arise. Given that today is Friday, July 31, 2015, I suppose that the CD will arrive on Monday August 3, correct? Given that is the first day we will have the benefit of the entire set of documents and files, I presume the 14-day clock begins on August 3rd. Please confirm.

Sincerely,

Don

Donald W. Cuffel

Manager - Environmental Engineering

Valero Refining Company - CA, Benicia Refinery

707 745 7545

From: Lin, Sharon [mailto:Lin.Sharon@epa.gov]
Sent: Friday, July 31, 2015 7:40 AM
To: Howe, Chris; Cuffel, Donald
Cc: Sugerman, Rebecca; Frazer, Russell
Subject: Notice of Intent to File a Complaint RCRA/EPCRA - Valero Benicia Refinery

Dear Mr. Howe and Mr. Cuffel,

The attached letter including a CD report is being transmitted to you via UPS overnight. Because you claimed confidential business information (CBI) for some of the information the report relied on during EPA's inspection in May 2014, EPA is transmitting the report and the report attachments as CBI. You will find instructions on how to properly handle CBI materials in the package. We are also requesting you to review your existing CBI claim and assert your confidentiality claim **in accordance with the regulations within 14 calendar days of receipt of this letter** (refer to the attached letter). Please let me know if you have any questions. Thanks.

Sharon Lin

U.S. Environmental Protection Agency Region 9

Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street

San Francisco, CA 94105

Tel: (415) 972-3446

Email: Lin.Sharon@epa.gov

To: chris.howe@valero.com[chris.howe@valero.com]; donald.cuffel@valero.com[donald.cuffel@valero.com]
Cc: Sugerman, Rebecca[Sugerman.Rebecca@epa.gov]; Frazer, Russell[Frazer.Russell@epa.gov]
From: Lin, Sharon
Sent: Fri 7/31/2015 2:40:23 PM
Subject: Notice of Intent to File a Complaint RCRA/EPCRA - Valero Benicia Refinery
ShowCauseLetterJuly302015.pdf

Dear Mr. Howe and Mr. Cuffel,

The attached letter including a CD report is being transmitted to you via UPS overnight. Because you claimed confidential business information (CBI) for some of the information the report relied on during EPA's inspection in May 2014, EPA is transmitting the report and the report attachments as CBI. You will find instructions on how to properly handle CBI materials in the package. We are also requesting you to review your existing CBI claim and assert your confidentiality claim **in accordance with the regulations within 14 calendar days of receipt of this letter** (refer to the attached letter). Please let me know if you have any questions. Thanks.

Sharon Lin

U.S. Environmental Protection Agency Region 9

Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street

San Francisco, CA 94105

Tel: (415) 972-3446

Email: Lin.Sharon@epa.gov

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

JUL 30 2015

UPS PRIORITY OVERNIGHT/EXPRESS MAIL
SIGNATURE REQUIRED

Christopher W. Howe
Director, Health, Safety, Environment & Government Affairs
Valero Benicia Refinery
3400 East Second Street
Benicia, California 94510-1005
Chris.howe@valero.com

RE: **Notice of Intent to File a Complaint Pursuant to Section 3008(a) of the Resource Conservation and Recovery Act and Section 325(c) of the Emergency Planning and Community Right-to Know Act**

Dear Mr. Howe:

This letter is to notify you that the U.S. Environmental Protection Agency ("the EPA" or "the Agency") is preparing to issue a civil administrative complaint against Valero Benicia Refinery pursuant to Section 3008(a) of the Resource Conservation and Recovery Act ("RCRA"), as amended, 42 U.S.C. §§ 6921-6939e; and Section 325(c) of the Emergency Planning and Community Right-to-Know Act ("EPCRA"), 42 U.S.C. §§ 11001 – 11050, for violations discovered during routine compliance evaluation inspections performed in May 2014 at 3400 East Second Street, Benicia, California.

The allegations against Valero Benicia include violations of the RCRA Hazardous Waste Management requirements, 42 U.S.C. § 6921 *et seq.*, the California Health and Safety Code, Division 20, and the California Code of Regulations (CCR), Title 22, Division 4.5, as specified below; and EPCRA Section 313, 42 U.S.C. § 11023. Under Section 3006 of RCRA, 42 U.S.C. § 6926, the violations of the State of California authorized RCRA hazardous waste management program identified below are federally enforceable.

The allegations against Valero Benicia Refining Company include:

1. Treatment and Storage of Hazardous Waste Without a Permit (operating an unlined stormwater surface impoundment as a hazardous waste management unit without obtaining a RCRA permit; storing and treating hazardous waste on the heat exchanger bundle cleaning pad without a RCRA permit), 22 CCR § 66270.1(c) [see also 40 CFR § 270.1(c)];

2. Failure to make a hazardous waste determination, 22 CCR § 66262.11 [see also 40 CFR § 262.11];

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3. Failure to minimize the possibility of unplanned release of hazardous waste or hazardous waste constituents to air, soil or surface water, 22 CCR§ 66265.31 as referenced by § 66262.34(a)(4) [see also 40 CFR § 265.31, as referenced by § 262.34(a)(4)]; and

4. Failure to submit timely, complete and correct Toxic Chemical Release Inventory Forms ("Form R reports") pursuant to EPCRA Section 313 for:

    - Benzene in reporting years ("RY") 2010, 2011 and 2012;
    - Ethylbenzene in RY2012;
    - Ethylene in RY2010 and RY2011;
    - Toluene in RY2010, RY2011 and RY2012; and
    - Xylene (mixed isomers) in RY2010, RY2011 and RY2012.

A copy of the RCRA/EPCRA inspection report is enclosed for your information and response. The report identifies potential violations of RCRA and EPCRA observed during EPA's investigation. EPA regulations governing the confidentiality of business information are set forth in 40 CFR Part 2, Subpart B. EPA routinely provides copies of investigation reports to state agencies, and upon request, to the public. Such releases are handled according to the Freedom of Information Act regulations (40 CFR Part 2). If Valero Benicia Refinery believes the enclosed RCRA/EPCRA report contains information entitled to treatment as confidential business information, please assert a confidentiality claim in accordance with 40 C.F.R. § 2.203(b) **within fourteen (14) calendar days from the date of receipt of this letter.** Business confidentiality includes the concept of trade secrecy and other related concepts. Your claim must specifically identify the information covered by the claim and should be sent to EPA by certified mail. EPA will construe the failure to furnish a confidentiality claim within **fourteen (14) calendar days** from the date of Valero Benicia Refinery's receipt of this letter as a waiver of that claim and information may be made available to the public by the EPA without further notice. See 40 CFR § 2.203(a)(2).

EPA anticipates filing a Complaint, Compliance Order and Notice of Right to Request a Hearing (Complaint) against Valero Benicia Refinery **within the next twenty-eight (28) calendar days** unless Valero Benicia Refinery advises EPA of substantial reasons not to proceed. EPA is extending to Valero Benicia Refinery the opportunity to submit any information that EPA should consider before issuing the Complaint. Relevant information may include any evidence of reliance on compliance assistance, additional compliance tasks performed after the inspection, or financial factors bearing on Valero Benicia Refinery's ability to pay a civil penalty.

Even if you are unaware of any mitigating or exculpatory factors, we are extending to you the opportunity to commence settlement discussions concerning the above-described violations.

The violations alleged are subject to penalties of up to $37,500 per day per violation pursuant to section 3008(g) of RCRA, 42 U.S.C. § 6928(g), and section 325(c) of EPCRA, 42 U.S.C. § 11045(c), as adjusted by the Debt Collection Improvement Act of 1996 (61 Fed. Reg. 69360 (Dec. 31, 1996)) and the Civil Monetary Penalty Inflation Adjustment Rule (73 Fed. Reg. 75340 (Dec. 11, 2008)).

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Any penalty discussed in settlement negotiations for violations of RCRA and its implementing regulations will be calculated pursuant to EPA's RCRA Civil Penalty Policy, available online at http://www2.epa.gov/enforcement/resource-conservation-and-recovery-act-rcra-civil-penalty-policy. Penalties for EPCRA violations will be calculated pursuant to EPA's Enforcement Response Policy for Section 313 of the Emergency Planning and Community Right-to-know Act (1986) and Section 6607 of the Pollution Prevention Act (1990) [Amended], available online at http://www2.epa.gov/sites/production/files/documents/epcra-sec311-mem.pdf.

EPA's Civil Monetary Penalty Inflation Adjustment Rule and Supplemental Environmental Projects Policy (SEP Policy) are available at the links below. EPA's SEP Policy describes the terms under which a commitment to perform an environmental project may mitigate, in part, an EPA civil penalty.

- EPA's "Civil Monetary Penalty Inflation Adjustment Rule," which adjusts for inflation the statutory civil monetary penalties that may be assessed for violations of EPA-administered statutes and their implementing regulations, available online at: http://www2.epa.gov/enforcement/memorandum-amendments-epas-civil-penalty-policies-implement-2008-civil-monetary-penalty

- EPA's Supplemental Environmental Project (SEP) policy, available online at: http://www2.epa.gov/sites/production/files/2015-04/documents/sepupdatedpolicy15.pdf

In addition, please review the attached Small Business Regulatory Enforcement and Fairness Act ("SBREFA") Information Sheet that is designed to provide information on compliance assistance, as well as to inform small businesses of their rights to comment to the SBREFA Ombudsman concerning EPA enforcement activities. Be aware that SBREFA does not eliminate your responsibility to respond to a complaint, information request, or other enforcement activity within the allowed time nor does it create any new rights or defenses under the law.

Enclosed for your information are requirements of the Securities and Exchange Commission (SEC) for "registrants" to provide information on environmental legal proceedings to the public. To determine the applicability of these requirements to your company you should seek competent legal counsel as described in the enclosed SEC Notice.

Thank you for your prompt attention to this matter. If you wish to discuss this matter or commence settlement negotiations, please contact Sharon Lin at (415) 972-3446 (for RCRA) or Russ Frazer at (415) 947-4220 (for EPCRA) or have your attorney contact Rebecca Sugerman of the Office of Regional Counsel at (415) 972-3893.

Sincerely,

Joel Jones
Assistant Director
Enforcement Division

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cc: Donald W. Cuffel, Manager Environmental Engineering, Valero Benicia Refinery
Donald.cuffel@valero.com

Enclosures

SBREFA Information Sheet
Notice of SEC Registrants' Duty to Report
Inspection Report (CD)

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

NOTICE OF SECURITIES AND EXCHANGE COMMISSION REGISTRANTS' DUTY TO DISCLOSE ENVIRONMENTAL LEGAL PROCEEDINGS

Securities and Exchange Commission regulations require companies registered with the SEC (e.g., publicly traded companies) to disclose, on at least a quarterly basis, the existence of certain administrative or judicial proceedings taken against them arising under Federal, State or local provisions that have the primary purpose of protecting the environment. Instruction 5 to Item 103 of the SEC's Regulation S-K (17 CFR 229.103) requires disclosure of these environmental legal proceedings. For those SEC registrants that use the SEC's "small business issuer" reporting system, Instructions 1-4 to Item 103 of the SEC's Regulation S-B (17 CFR 228.103) requires disclosure of these environmental legal proceedings.

If you are an SEC registrant, you have a duty to disclose the existence of pending or known to be contemplated environmental legal proceedings that meet any of the following criteria (17 CFR 229.103(5)(A)-(C)): Such proceeding is material to the business or financial condition of the registrant;

> A.Such proceeding involves primarily a claim for damages, or involves potential monetary sanctions, capital expenditures, deferred charges or charges to income and the amount involved, exclusive of interest and costs, exceeds 10 percent of the current assets of the registrant and its subsidiaries on a consolidated basis; or
> B.A governmental authority is a party to such proceeding and such proceeding involves potential monetary sanctions, unless the registrant reasonably believes that such proceeding will result in no monetary sanctions, or in monetary sanctions, exclusive of interest and costs, of less than $100,000; provided, however, that such proceedings which are similar in nature may be grouped and described generically.

Specific information regarding the environmental legal proceedings that must be disclosed is set forth in Item 103 of Regulation S-K or, for registrants using the "small business issuer" reporting system, Item 103(a)-(b) of Regulation S-B. If disclosure is required, it must briefly describe the proceeding, "including the name of the court or agency in which the proceedings are pending, the date instituted the principal parties thereto, a description of the factual basis alleged to underlie the proceedings and the relief sought."

You have been identified as a party to an environmental legal proceeding to which the United States government is, or was, a party. If you are an SEC registrant, this environmental legal proceeding may trigger, or may already have triggered, the disclosure obligation under the SEC regulations described above.

This notice is being provided to inform you of SEC registrants' duty to disclose any relevant environmental legal proceedings to the SEC. This notice does not create, modify or interpret any existing legal obligations, it is not intended to be an exhaustive description of the legally applicable requirements and it is not a substitute for regulations published in the Code of Federal Regulations. This notice has been issued to you for information purposes only. No determination of the applicability of this reporting requirement to your company has been made by any governmental entity. You should seek competent counsel in determining the applicability of these and other SEC requirements to the environmental legal proceeding at issue, as well as any other proceedings known to be contemplated by governmental authorities.

If you have any questions about the SEC's environmental disclosure requirements, please contact the SEC Office of the Special Senior Counsel for Disclosure Operations at (202) 942-1888.

TITLE 17 - COMMODITY AND SECURITIES EXCHANGES

Title 17, Volume 2, Parts 200 to 239

(Division: Securities and Exchange Commission)

Part 229 - Standard Instructions for Filing Forms Under Securities Act of 1933, Securities Exchange Act of 1934 and Energy Policy and Conservation Act of 1975-Regulation S-K

Subpart 229-100 - Business

§229.103 (Item 103) Legal proceedings

Describe briefly any material pending legal proceedings, other than ordinary routine litigation incidental to the business, to which the registrant or any of its subsidiaries is a party or of which any of their property is the subject. Include the name of the court or agency in which the proceedings are pending, the date instituted, the principal parties thereto, a description of the factual basis alleged to underlie the proceeding and the relief sought. Include similar information as to any such proceedings known to be contemplated by governmental authorities.

Instructions to Item 103: 1. If the business ordinarily results in actions for negligence or other claims, no such action or claim need be described unless it departs from the normal kind of such actions.

2. No information need be given with respect to any proceeding that involves primarily a claim for damages if the amount involved, exclusive of interest and costs, does not exceed 10 percent of the current assets of the registrant and its subsidiaries on a consolidated basis. However, if any proceeding presents in large degree the same legal and factual issues as other proceedings pending or known to be contemplated, the amount involved in such other proceedings shall be included in computing such percentage.

3. Notwithstanding Instructions 1 and 2, any material bankruptcy, receivership, or similar proceeding with respect to the registrant or any of its significant subsidiaries shall be described.

4. Any material proceedings to which any director, officer or affiliate of the registrant, any owner of record or beneficially of more than five percent of any class of voting securities of the registrant, or any associate of any such director, officer, affiliate of the registrant, or security holder is a party adverse to the registrant or any of its subsidiaries or has a material interest adverse to the registrant or any of its subsidiaries also shall be described.

5. Notwithstanding the foregoing, an administrative or judicial proceeding (including, for purposes of A and B of this Instruction, proceedings which present in large degree the same issues) arising under any Federal, State or local provisions that have been enacted or adopted regulating the discharge of materials into the environment or primary for the purpose of protecting the environment shall not be deemed "ordinary routine litigation incidental to the business" and shall be described if:

A. Such proceeding is material to the business or financial condition of the registrant;

B. Such proceeding involves primarily a claim for damages, or involves potential monetary sanctions, capital expenditures, deferred charges or charges to income and the amount involved, exclusive of interest and costs, exceeds 10 percent of the current assets of the registrant and its subsidiaries on a consolidated basis; or

C. A governmental authority is a party to such proceeding and such proceeding involves potential monetary sanctions, unless the registrant reasonably believes that such proceeding will result in no monetary sanctions, or in monetary sanctions, exclusive of interest and costs, of less than $100,000; provided, however, that such proceedings which are similar in nature may be grouped and described generically.

Office of Enforcement and Compliance Assurance (2201A)
EPA-300-B-15-001 May 2015

U.S. EPA Small Business Resources Information Sheet

The United States Environmental Protection Agency provides an array of resources to help small businesses understand and comply with federal and state environmental laws. In addition to helping small businesses understand their environmental obligations and improve compliance, these resources will also help such businesses find cost-effective ways to comply through pollution prevention techniques and innovative technologies.

Small Business Programs
www.epa.gov/smallbusiness
EPA's Office of Small Business Programs (OSBP) advocates and fosters opportunities for direct and indirect partnerships, contracts, and sub-agreements for small businesses and socio-economically disadvantaged businesses.

EPA's Asbestos Small Business Ombudsman
www.epa.gov/sbo or 1-800-368-5888
The EPA Asbestos and Small Business Ombudsman (ASBO) serves as a conduit for small businesses to access EPA and facilitates communications between the small business community and the Agency.

EPA's Compliance Assistance Homepage
www2.epa.gov/compliance
This page is a gateway industry and statute-specific environmental resources, from extensive web-based information to hotlines and compliance assistance specialists.

EPA's Compliance Assistance Centers
www.assistancecenters.net
EPA's Compliance Assistance Centers provide information targeted to industries with many small businesses. They were developed in partnership with industry, universities and other federal and state agencies.

Agriculture
www.epa.gov/agriculture/

Automotive Recycling
www.ecarcenter.org

Automotive Service and Repair
ccar-greenlink.org/ or 1-888-GRN-LINK

Chemical Manufacturing
www.chemalliance.org

Construction
www.cicacenter.org or 1-734-995-4911

Education
www.campuserc.org

Food Processing
www.fpeac.org

Healthcare
www.hercenter.org

Local Government
www.lgean.org

Metal Finishing
www.nmfrc.org

Paints and Coatings
www.paintcenter.org

Printing
www.pneac.org

Ports
www.portcompliance.org

Transportation
www.tercenter.org

U.S. Border Compliance and Import/Export Issues
www.bordercenter.org

EPA Hotlines, Helplines and Clearinghouses
www2.epa.gov/home/epa-hotlines
EPA sponsors many free hotlines and clearinghouses that provide convenient assistance regarding environmental requirements. Some examples are:

Clean Air Technology Center (CATC) Info-line
www.epa.gov/ttn/catc or 1-919-541-0800

Superfund, TRI, EPCRA, RMP and Oil Information Center
www.epa.gov/superfund/contacts/infocenter/index.htm or 1-800-424-9346

EPA Imported Vehicles and Engines Public Helpline
www.epa.gov/otaq/imports or 734-214-4100

National Pesticide Information Center
www.npic.orst.edu/ or 1-800-858-7378

National Response Center Hotline to report oil and hazardous substance spills - www.nrc.uscg.mil or 1-800-424-8802

Pollution Prevention Information Clearinghouse (PPIC) - www.epa.gov/opptintr/ppic or 1-202-566-0799

Safe Drinking Water Hotline - www.epa.gov/drink/hotline/index.cfm or 1-800-426-4791

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Stratospheric Ozone Protection Hotline
www.epa.gov/ozone/comments.htm or 1-800-296-1996

Toxic Substances Control Act (TSCA) Hotline
tsca-hotline@epa.gov or 1-202-554-1404

Small Entity Compliance Guides
http://www.epa.gov/sbrefa/compliance-guides.html
EPA publishes a Small Entity Compliance Guide (SECG) for every rule for which the Agency has prepared a final regulatory flexibility analysis, in accordance with Section 604 of the Regulatory Flexibility Act (RFA).

Regional Small Business Liaisons
http://www.epa.gov/sbo/rsbl.htm
The U.S. Environmental Protection Agency (EPA) Regional Small Business Liaison (RSBL) is the primary regional contact and often the expert on small business assistance, advocacy, and outreach. The RSBL is the regional voice for the EPA Asbestos and Small Business Ombudsman (ASBO).

State Resource Locators
www.envcap.org/statetools
The Locators provide state-specific contacts, regulations and resources covering the major environmental laws.

State Small Business Environmental Assistance Programs (SBEAPs)
www.epa.gov/sbo/507program.htm
State SBEAPs help small businesses and assistance providers understand environmental requirements and sustainable business practices through workshops, trainings and site visits.

EPA's Tribal Portal
www.epa.gov/tribalportal/
The Portal provides access to information on environmental issues, laws, and resources related to federally recognized tribes.

EPA Compliance Incentives
EPA provides incentives for environmental compliance. By participating in compliance assistance programs or voluntarily disclosing and promptly correcting violations before an enforcement action has been initiated, businesses may be eligible for penalty waivers or reductions. EPA has two such policies that may apply to small businesses:

EPA's Small Business Compliance Policy
www2.epa.gov/enforcement/small-businesses-and-enforcement
This Policy offers small businesses special incentives to come into compliance voluntarily.

EPA's Audit Policy
www2.epa.gov/compliance/epas-audit-policy
The Policy provides incentives to all businesses that voluntarily discover, promptly disclose and expeditiously correct their noncompliance.

Commenting on Federal Enforcement Actions and Compliance Activities
The Small Business Regulatory Enforcement Fairness Act (SBREFA) established a SBREFA Ombudsman and 10 Regional Fairness Boards to receive comments from small businesses about federal agency enforcement actions. If you believe that you fall within the Small Business Administration's definition of a small business (based on your North American Industry Classification System designation, number of employees or annual receipts, as defined at 13 C.F.R. 121.201; in most cases, this means a business with 500 or fewer employees), and wish to comment on federal enforcement and compliance activities, call the SBREFA Ombudsman's toll-free number at 1-888-REG-FAIR (1-888-734-3247).

Every small business that is the subject of an enforcement or compliance action is entitled to comment on the Agency's actions without fear of retaliation. EPA employees are prohibited from using enforcement or any other means of retaliation against any member of the regulated community in response to comments made under SBREFA.

Your Duty to Comply
If you receive compliance assistance or submit a comment to the SBREFA Ombudsman or Regional Fairness Boards, you still have the duty to comply with the law, including providing timely responses to EPA information requests, administrative or civil complaints, other enforcement actions or communications. The assistance information and comment processes do not give you any new rights or defenses in any enforcement action. These processes also do not affect EPA's obligation to protect public health or the environment under any of the environmental statutes it enforces, including the right to take emergency remedial or emergency response actions when appropriate. Those decisions will be based on the facts in each situation. The SBREFA Ombudsman and Fairness Boards do not participate in resolving EPA's enforcement actions. Also, remember that to preserve your rights, you need to comply with all rules governing the enforcement process.

EPA is disseminating this information to you without making a determination that your business or organization is a small business as defined by Section 222 of the Small Business Regulatory Enforcement Fairness Act or related provisions.

ED_001593_00018106

To: Bellot, Michael[Bellot.Michael@epa.gov]; Saenz, Diana[Saenz.Diana@epa.gov]; Russell, Bethany[Russell.Bethany@epa.gov]
Cc: McDaniel, Doug[McDaniel.Doug@epa.gov]; Vega, Jackie[Vega.Jackie@epa.gov]
From: Lin, Sharon
Sent: Fri 7/31/2015 12:08:17 AM
Subject: Valero Benicia Refinery Show Cause Letter
ShowCauseLetterJuly302015.pdf

Hi, Diana, Mike and Bethany,

We sent out the combined RCRA/EPCRA show cause letter for Valero Benicia Refinery today. Our Region 9 EPCRA contact told me that it is their program practice for regions to send their show cause letters to OECA for the purpose of information sharing. I don't know if RCRA program has the same practice. Since you folks are in the same division, I am forwarding this on as FYI. Thanks.

Sharon

Sharon Lin, P.E.

U.S. Environmental Protection Agency Region 9

Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street

San Francisco, CA 94105

Tel: (415) 972-3446

Email: Lin.Sharon@epa.gov

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

JUL 30 2015

UPS PRIORITY OVERNIGHT/EXPRESS MAIL
SIGNATURE REQUIRED

Christopher W. Howe
Director, Health, Safety, Environment & Government Affairs
Valero Benicia Refinery
3400 East Second Street
Benicia, California 94510-1005
Chris.howe@valero.com

RE: **Notice of Intent to File a Complaint Pursuant to Section 3008(a) of the Resource Conservation and Recovery Act and Section 325(c) of the Emergency Planning and Community Right-to Know Act**

Dear Mr. Howe:

This letter is to notify you that the U.S. Environmental Protection Agency ("the EPA" or "the Agency") is preparing to issue a civil administrative complaint against Valero Benicia Refinery pursuant to Section 3008(a) of the Resource Conservation and Recovery Act ("RCRA"), as amended, 42 U.S.C. §§ 6921-6939e; and Section 325(c) of the Emergency Planning and Community Right-to-Know Act ("EPCRA"), 42 U.S.C. §§ 11001 – 11050, for violations discovered during routine compliance evaluation inspections performed in May 2014 at 3400 East Second Street, Benicia, California.

The allegations against Valero Benicia include violations of the RCRA Hazardous Waste Management requirements, 42 U.S.C. § 6921 *et seq.*, the California Health and Safety Code, Division 20, and the California Code of Regulations (CCR), Title 22, Division 4.5, as specified below; and EPCRA Section 313, 42 U.S.C. § 11023. Under Section 3006 of RCRA, 42 U.S.C. § 6926, the violations of the State of California authorized RCRA hazardous waste management program identified below are federally enforceable.

The allegations against Valero Benicia Refining Company include:

1. Treatment and Storage of Hazardous Waste Without a Permit (operating an unlined stormwater surface impoundment as a hazardous waste management unit without obtaining a RCRA permit; storing and treating hazardous waste on the heat exchanger bundle cleaning pad without a RCRA permit), 22 CCR § 66270.1(c) [see also 40 CFR § 270.1(c)];

2. Failure to make a hazardous waste determination, 22 CCR § 66262.11 [see also 40 CFR § 262.11];

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3. Failure to minimize the possibility of unplanned release of hazardous waste or hazardous waste constituents to air, soil or surface water, 22 CCR§ 66265.31 as referenced by § 66262.34(a)(4) [see also 40 CFR § 265.31, as referenced by § 262.34(a)(4)]; and

4. Failure to submit timely, complete and correct Toxic Chemical Release Inventory Forms ("Form R reports") pursuant to EPCRA Section 313 for:

    - Benzene in reporting years ("RY") 2010, 2011 and 2012;
    - Ethylbenzene in RY2012;
    - Ethylene in RY2010 and RY2011;
    - Toluene in RY2010, RY2011 and RY2012; and
    - Xylene (mixed isomers) in RY2010, RY2011 and RY2012.

A copy of the RCRA/EPCRA inspection report is enclosed for your information and response. The report identifies potential violations of RCRA and EPCRA observed during EPA's investigation. EPA regulations governing the confidentiality of business information are set forth in 40 CFR Part 2, Subpart B. EPA routinely provides copies of investigation reports to state agencies, and upon request, to the public. Such releases are handled according to the Freedom of Information Act regulations (40 CFR Part 2). If Valero Benicia Refinery believes the enclosed RCRA/EPCRA report contains information entitled to treatment as confidential business information, please assert a confidentiality claim in accordance with 40 C.F.R. § 2.203(b) **within fourteen (14) calendar days from the date of receipt of this letter.** Business confidentiality includes the concept of trade secrecy and other related concepts. Your claim must specifically identify the information covered by the claim and should be sent to EPA by certified mail. EPA will construe the failure to furnish a confidentiality claim within **fourteen (14) calendar days** from the date of Valero Benicia Refinery's receipt of this letter as a waiver of that claim and information may be made available to the public by the EPA without further notice. See 40 CFR § 2.203(a)(2).

EPA anticipates filing a Complaint, Compliance Order and Notice of Right to Request a Hearing (Complaint) against Valero Benicia Refinery **within the next twenty-eight (28) calendar days** unless Valero Benicia Refinery advises EPA of substantial reasons not to proceed. EPA is extending to Valero Benicia Refinery the opportunity to submit any information that EPA should consider before issuing the Complaint. Relevant information may include any evidence of reliance on compliance assistance, additional compliance tasks performed after the inspection, or financial factors bearing on Valero Benicia Refinery's ability to pay a civil penalty.

Even if you are unaware of any mitigating or exculpatory factors, we are extending to you the opportunity to commence settlement discussions concerning the above-described violations.

The violations alleged are subject to penalties of up to $37,500 per day per violation pursuant to section 3008(g) of RCRA, 42 U.S.C. § 6928(g), and section 325(c) of EPCRA, 42 U.S.C. § 11045(c), as adjusted by the Debt Collection Improvement Act of 1996 (61 Fed. Reg. 69360 (Dec. 31, 1996)) and the Civil Monetary Penalty Inflation Adjustment Rule (73 Fed. Reg. 75340 (Dec. 11, 2008)).

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Any penalty discussed in settlement negotiations for violations of RCRA and its implementing regulations will be calculated pursuant to EPA's RCRA Civil Penalty Policy, available online at http://www2.epa.gov/enforcement/resource-conservation-and-recovery-act-rcra-civil-penalty-policy. Penalties for EPCRA violations will be calculated pursuant to EPA's Enforcement Response Policy for Section 313 of the Emergency Planning and Community Right-to-know Act (1986) and Section 6607 of the Pollution Prevention Act (1990) [Amended], available online at http://www2.epa.gov/sites/production/files/documents/epcra-sec311-mem.pdf.

EPA's Civil Monetary Penalty Inflation Adjustment Rule and Supplemental Environmental Projects Policy (SEP Policy) are available at the links below. EPA's SEP Policy describes the terms under which a commitment to perform an environmental project may mitigate, in part, an EPA civil penalty.

- EPA's "Civil Monetary Penalty Inflation Adjustment Rule," which adjusts for inflation the statutory civil monetary penalties that may be assessed for violations of EPA-administered statutes and their implementing regulations, available online at: http://www2.epa.gov/enforcement/memorandum-amendments-epas-civil-penalty-policies-implement-2008-civil-monetary-penalty

- EPA's Supplemental Environmental Project (SEP) policy, available online at: http://www2.epa.gov/sites/production/files/2015-04/documents/sepupdatedpolicy15.pdf

In addition, please review the attached Small Business Regulatory Enforcement and Fairness Act ("SBREFA") Information Sheet that is designed to provide information on compliance assistance, as well as to inform small businesses of their rights to comment to the SBREFA Ombudsman concerning EPA enforcement activities. Be aware that SBREFA does not eliminate your responsibility to respond to a complaint, information request, or other enforcement activity within the allowed time nor does it create any new rights or defenses under the law.

Enclosed for your information are requirements of the Securities and Exchange Commission (SEC) for "registrants" to provide information on environmental legal proceedings to the public. To determine the applicability of these requirements to your company you should seek competent legal counsel as described in the enclosed SEC Notice.

Thank you for your prompt attention to this matter. If you wish to discuss this matter or commence settlement negotiations, please contact Sharon Lin at (415) 972-3446 (for RCRA) or Russ Frazer at (415) 947-4220 (for EPCRA) or have your attorney contact Rebecca Sugerman of the Office of Regional Counsel at (415) 972-3893.

Sincerely,

Joel Jones
Assistant Director
Enforcement Division

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cc: Donald W. Cuffel, Manager Environmental Engineering, Valero Benicia Refinery
Donald.cuffel@valero.com

Enclosures

SBREFA Information Sheet
Notice of SEC Registrants' Duty to Report
Inspection Report (CD)

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

NOTICE OF SECURITIES AND EXCHANGE COMMISSION REGISTRANTS' DUTY TO DISCLOSE ENVIRONMENTAL LEGAL PROCEEDINGS

Securities and Exchange Commission regulations require companies registered with the SEC (e.g., publicly traded companies) to disclose, on at least a quarterly basis, the existence of certain administrative or judicial proceedings taken against them arising under Federal, State or local provisions that have the primary purpose of protecting the environment. Instruction 5 to Item 103 of the SEC's Regulation S-K (17 CFR 229.103) requires disclosure of these environmental legal proceedings. For those SEC registrants that use the SEC's "small business issuer" reporting system, Instructions 1-4 to Item 103 of the SEC's Regulation S-B (17 CFR 228.103) requires disclosure of these environmental legal proceedings.

If you are an SEC registrant, you have a duty to disclose the existence of pending or known to be contemplated environmental legal proceedings that meet any of the following criteria (17 CFR 229.103(5)(A)-(C)): Such proceeding is material to the business or financial condition of the registrant;

> A.Such proceeding involves primarily a claim for damages, or involves potential monetary sanctions, capital expenditures, deferred charges or charges to income and the amount involved, exclusive of interest and costs, exceeds 10 percent of the current assets of the registrant and its subsidiaries on a consolidated basis; or
> B.A governmental authority is a party to such proceeding and such proceeding involves potential monetary sanctions, unless the registrant reasonably believes that such proceeding will result in no monetary sanctions, or in monetary sanctions, exclusive of interest and costs, of less than $100,000; provided, however, that such proceedings which are similar in nature may be grouped and described generically.

Specific information regarding the environmental legal proceedings that must be disclosed is set forth in Item 103 of Regulation S-K or, for registrants using the "small business issuer" reporting system, Item 103(a)-(b) of Regulation S-B. If disclosure is required, it must briefly describe the proceeding, "including the name of the court or agency in which the proceedings are pending, the date instituted the principal parties thereto, a description of the factual basis alleged to underlie the proceedings and the relief sought."

You have been identified as a party to an environmental legal proceeding to which the United States government is, or was, a party. If you are an SEC registrant, this environmental legal proceeding may trigger, or may already have triggered, the disclosure obligation under the SEC regulations described above.

This notice is being provided to inform you of SEC registrants' duty to disclose any relevant environmental legal proceedings to the SEC. This notice does not create, modify or interpret any existing legal obligations, it is not intended to be an exhaustive description of the legally applicable requirements and it is not a substitute for regulations published in the Code of Federal Regulations. This notice has been issued to you for information purposes only. No determination of the applicability of this reporting requirement to your company has been made by any governmental entity. You should seek competent counsel in determining the applicability of these and other SEC requirements to the environmental legal proceeding at issue, as well as any other proceedings known to be contemplated by governmental authorities.

If you have any questions about the SEC's environmental disclosure requirements, please contact the SEC Office of the Special Senior Counsel for Disclosure Operations at (202) 942-1888.

TITLE 17 - COMMODITY AND SECURITIES EXCHANGES

Title 17, Volume 2, Parts 200 to 239

(Division: Securities and Exchange Commission)

Part 229 - Standard Instructions for Filing Forms Under Securities Act of 1933, Securities Exchange Act of 1934 and Energy Policy and Conservation Act of 1975-Regulation S-K

Subpart 229-100 - Business

§229.103 (Item 103) Legal proceedings

Describe briefly any material pending legal proceedings, other than ordinary routine litigation incidental to the business, to which the registrant or any of its subsidiaries is a party or of which any of their property is the subject. Include the name of the court or agency in which the proceedings are pending, the date instituted, the principal parties thereto, a description of the factual basis alleged to underlie the proceeding and the relief sought. Include similar information as to any such proceedings known to be contemplated by governmental authorities.

Instructions to Item 103: 1. If the business ordinarily results in actions for negligence or other claims, no such action or claim need be described unless it departs from the normal kind of such actions.

2. No information need be given with respect to any proceeding that involves primarily a claim for damages if the amount involved, exclusive of interest and costs, does not exceed 10 percent of the current assets of the registrant and its subsidiaries on a consolidated basis. However, if any proceeding presents in large degree the same legal and factual issues as other proceedings pending or known to be contemplated, the amount involved in such other proceedings shall be included in computing such percentage.

3. Notwithstanding Instructions 1 and 2, any material bankruptcy, receivership, or similar proceeding with respect to the registrant or any of its significant subsidiaries shall be described.

4. Any material proceedings to which any director, officer or affiliate of the registrant, any owner of record or beneficially of more than five percent of any class of voting securities of the registrant, or any associate of any such director, officer, affiliate of the registrant, or security holder is a party adverse to the registrant or any of its subsidiaries or has a material interest adverse to the registrant or any of its subsidiaries also shall be described.

5. Notwithstanding the foregoing, an administrative or judicial proceeding (including, for purposes of A and B of this Instruction, proceedings which present in large degree the same issues) arising under any Federal, State or local provisions that have been enacted or adopted regulating the discharge of materials into the environment or primary for the purpose of protecting the environment shall not be deemed "ordinary routine litigation incidental to the business" and shall be described if:

A. Such proceeding is material to the business or financial condition of the registrant;

B. Such proceeding involves primarily a claim for damages, or involves potential monetary sanctions, capital expenditures, deferred charges or charges to income and the amount involved, exclusive of interest and costs, exceeds 10 percent of the current assets of the registrant and its subsidiaries on a consolidated basis; or

C. A governmental authority is a party to such proceeding and such proceeding involves potential monetary sanctions, unless the registrant reasonably believes that such proceeding will result in no monetary sanctions, or in monetary sanctions, exclusive of interest and costs, of less than $100,000; provided, however, that such proceedings which are similar in nature may be grouped and described generically.

Office of Enforcement and Compliance Assurance (2201A)
EPA-300-B-15-001 May 2015

U.S. EPA Small Business Resources Information Sheet

The United States Environmental Protection Agency provides an array of resources to help small businesses understand and comply with federal and state environmental laws. In addition to helping small businesses understand their environmental obligations and improve compliance, these resources will also help such businesses find cost-effective ways to comply through pollution prevention techniques and innovative technologies.

Small Business Programs
www.epa.gov/smallbusiness
EPA's Office of Small Business Programs (OSBP) advocates and fosters opportunities for direct and indirect partnerships, contracts, and sub-agreements for small businesses and socio-economically disadvantaged businesses.

EPA's Asbestos Small Business Ombudsman
www.epa.gov/sbo or 1-800-368-5888
The EPA Asbestos and Small Business Ombudsman (ASBO) serves as a conduit for small businesses to access EPA and facilitates communications between the small business community and the Agency.

EPA's Compliance Assistance Homepage
www2.epa.gov/compliance
This page is a gateway industry and statute-specific environmental resources, from extensive web-based information to hotlines and compliance assistance specialists.

EPA's Compliance Assistance Centers
www.assistancecenters.net
EPA's Compliance Assistance Centers provide information targeted to industries with many small businesses. They were developed in partnership with industry, universities and other federal and state agencies.

Agriculture
www.epa.gov/agriculture/

Automotive Recycling
www.ecarcenter.org

Automotive Service and Repair
ccar-greenlink.org/ or 1-888-GRN-LINK

Chemical Manufacturing
www.chemalliance.org

Construction
www.cicacenter.org or 1-734-995-4911

Education
www.campuserc.org

Food Processing
www.fpeac.org

Healthcare
www.hercenter.org

Local Government
www.lgean.org

Metal Finishing
www.nmfrc.org

Paints and Coatings
www.paintcenter.org

Printing
www.pneac.org

Ports
www.portcompliance.org

Transportation
www.tercenter.org

U.S. Border Compliance and Import/Export Issues
www.bordercenter.org

EPA Hotlines, Helplines and Clearinghouses
www2.epa.gov/home/epa-hotlines
EPA sponsors many free hotlines and clearinghouses that provide convenient assistance regarding environmental requirements. Some examples are:

Clean Air Technology Center (CATC) Info-line
www.epa.gov/ttn/catc or 1-919-541-0800

Superfund, TRI, EPCRA, RMP and Oil Information Center
www.epa.gov/superfund/contacts/infocenter/index.htm or 1-800-424-9346

EPA Imported Vehicles and Engines Public Helpline
www.epa.gov/otaq/imports or 734-214-4100

National Pesticide Information Center
www.npic.orst.edu/ or 1-800-858-7378

National Response Center Hotline to report oil and hazardous substance spills - www.nrc.uscg.mil or 1-800-424-8802

Pollution Prevention Information Clearinghouse (PPIC) - www.epa.gov/opptintr/ppic or 1-202-566-0799

Safe Drinking Water Hotline - www.epa.gov/drink/hotline/index.cfm or 1-800-426-4791

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Stratospheric Ozone Protection Hotline
www.epa.gov/ozone/comments.htm or 1-800-296-1996

Toxic Substances Control Act (TSCA) Hotline
tsca-hotline@epa.gov or 1-202-554-1404

Small Entity Compliance Guides
http://www.epa.gov/sbrefa/compliance-guides.html
EPA publishes a Small Entity Compliance Guide (SECG) for every rule for which the Agency has prepared a final regulatory flexibility analysis, in accordance with Section 604 of the Regulatory Flexibility Act (RFA).

Regional Small Business Liaisons
http://www.epa.gov/sbo/rsbl.htm
The U.S. Environmental Protection Agency (EPA) Regional Small Business Liaison (RSBL) is the primary regional contact and often the expert on small business assistance, advocacy, and outreach. The RSBL is the regional voice for the EPA Asbestos and Small Business Ombudsman (ASBO).

State Resource Locators
www.envcap.org/statetools
The Locators provide state-specific contacts, regulations and resources covering the major environmental laws.

State Small Business Environmental Assistance Programs (SBEAPs)
www.epa.gov/sbo/507program.htm
State SBEAPs help small businesses and assistance providers understand environmental requirements and sustainable business practices through workshops, trainings and site visits.

EPA's Tribal Portal
www.epa.gov/tribalportal/
The Portal provides access to information on environmental issues, laws, and resources related to federally recognized tribes.

EPA Compliance Incentives
EPA provides incentives for environmental compliance. By participating in compliance assistance programs or voluntarily disclosing and promptly correcting violations before an enforcement action has been initiated, businesses may be eligible for penalty waivers or reductions. EPA has two such policies that may apply to small businesses:

EPA's Small Business Compliance Policy
www2.epa.gov/enforcement/small-businesses-and-enforcement
This Policy offers small businesses special incentives to come into compliance voluntarily.

EPA's Audit Policy
www2.epa.gov/compliance/epas-audit-policy
The Policy provides incentives to all businesses that voluntarily discover, promptly disclose and expeditiously correct their noncompliance.

Commenting on Federal Enforcement Actions and Compliance Activities
The Small Business Regulatory Enforcement Fairness Act (SBREFA) established a SBREFA Ombudsman and 10 Regional Fairness Boards to receive comments from small businesses about federal agency enforcement actions. If you believe that you fall within the Small Business Administration's definition of a small business (based on your North American Industry Classification System designation, number of employees or annual receipts, as defined at 13 C.F.R. 121.201; in most cases, this means a business with 500 or fewer employees), and wish to comment on federal enforcement and compliance activities, call the SBREFA Ombudsman's toll-free number at 1-888-REG-FAIR (1-888-734-3247).

Every small business that is the subject of an enforcement or compliance action is entitled to comment on the Agency's actions without fear of retaliation. EPA employees are prohibited from using enforcement or any other means of retaliation against any member of the regulated community in response to comments made under SBREFA.

Your Duty to Comply
If you receive compliance assistance or submit a comment to the SBREFA Ombudsman or Regional Fairness Boards, you still have the duty to comply with the law, including providing timely responses to EPA information requests, administrative or civil complaints, other enforcement actions or communications. The assistance information and comment processes do not give you any new rights or defenses in any enforcement action. These processes also do not affect EPA's obligation to protect public health or the environment under any of the environmental statutes it enforces, including the right to take emergency remedial or emergency response actions when appropriate. Those decisions will be based on the facts in each situation. The SBREFA Ombudsman and Fairness Boards do not participate in resolving EPA's enforcement actions. Also, remember that to preserve your rights, you need to comply with all rules governing the enforcement process.

EPA is disseminating this information to you without making a determination that your business or organization is a small business as defined by Section 222 of the Small Business Regulatory Enforcement Fairness Act or related provisions.

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To: Koch, Lori@DTSC[Lori.Koch@dtsc.ca.gov]
Cc: Kowbel, Nelline@DTSC[Nelline.Kowbel@dtsc.ca.gov]; McDaniel, Doug[McDaniel.Doug@epa.gov]; Schofield, John[Schofield.John@epa.gov]
From: Lin, Sharon
Sent: Mon 3/20/2017 5:05:40 PM
Subject: RE: DTSC Letters to Shell Martinez

March 26 is a Sunday. Perhaps this Thursday AM if it works for you and Nelline?

From: Koch, Lori@DTSC [mailto:Lori.Koch@dtsc.ca.gov]
Sent: Monday, March 20, 2017 10:02 AM
To: Lin, Sharon <Lin.Sharon@epa.gov>
Cc: Kowbel, Nelline@DTSC <Nelline.Kowbel@dtsc.ca.gov>; McDaniel, Doug <McDaniel.Doug@epa.gov>; Schofield, John <Schofield.John@epa.gov>
Subject: RE: DTSC Letters to Shell Martinez

Hi Sharon,

It seems like it would be a good idea for Nelline and I to meet with you before the meeting with Shell, if possible. I am not available March 28th and 29th so the next possibility would be after April 9. Did you want to have a call with us on March 26th? We can check availability that day.

Lori

From: Lin, Sharon [mailto:Lin.Sharon@epa.gov]
Sent: Friday, March 17, 2017 7:48 PM
To: Koch, Lori@DTSC <Lori.Koch@dtsc.ca.gov>
Cc: Kowbel, Nelline@DTSC <Nelline.Kowbel@dtsc.ca.gov>; McDaniel, Doug <McDaniel.Doug@epa.gov>; Schofield, John <Schofield.John@epa.gov>
Subject: RE: DTSC Letters to Shell Martinez

Hi, Lori,

Shell Martinez Refinery is coming to our office for a meeting with us on March 27. I am pretty sure that they will present their view on the biotreater ETP-1. Will March 29 work for you and Nelline for us to talk? Would you be available to come to EPA's office in San Francisco or a teleconference? Please advise. I'm out of the office March 28 – April 9. Thanks.

Sharon

From: Koch, Lori@DTSC [mailto:Lori.Koch@dtsc.ca.gov]
Sent: Friday, March 10, 2017 9:58 AM
To: Lin, Sharon <Lin.Sharon@epa.gov>
Cc: Kowbel, Nelline@DTSC <Nelline.Kowbel@dtsc.ca.gov>
Subject: RE: DTSC Letters to Shell Martinez

Hi Sharon

Let me know when you would like to meet to discuss this. My branch chief, Nelline Kowbell, would like to be part of the discussion. Our availability is better in about two weeks.

Thanks

Lori

From: Lin, Sharon [mailto:Lin.Sharon@epa.gov]
Sent: Thursday, March 09, 2017 9:49 AM
To: Koch, Lori@DTSC <Lori.Koch@dtsc.ca.gov>
Cc: Schofield, John <Schofield.John@epa.gov>; McDaniel, Doug <McDaniel.Doug@epa.gov>; Reynolds, Rebekah <Reynolds.Rebekah@epa.gov>; Soria, Maria@DTSC <Maria.Soria@dtsc.ca.gov>
Subject: DTSC Letters to Shell Martinez

Hi, Lori,

Attached is a copy of DTSC letters that Shell Martinez refinery provided in response to EPA's NOV. 1994 letter indicated that there was going to be another letter that listed deficiencies that Shell needed to address. If you have that "list of deficiencies" letter, please let me know. Thanks.

Sharon

To: Natalie.Braden@shell.com[Natalie.Braden@shell.com]
Cc: Schofield, John[Schofield.John@epa.gov]; michael.monson@shell.com[michael.monson@shell.com]; Rollins, Christopher[Rollins.Christopher@epa.gov]
From: Lin, Sharon
Sent: Fri 8/28/2015 6:43:28 PM
Subject: RE: Extension Request for Shell Martinez Refinery

Thanks.

From: Natalie.Braden@shell.com [mailto:Natalie.Braden@shell.com]
Sent: Friday, August 28, 2015 11:42 AM
To: Lin, Sharon
Cc: Schofield, John; michael.monson@shell.com; Rollins, Christopher
Subject: RE: Extension Request for Shell Martinez Refinery

Hi Sharon,

I placed in the mail yesterday our response to your information request. In the envelope, there is a flash drive that contains things like, test results. The flash drive is encrypted so I am providing the password for the flash drive in this email.

Password: 2015ShellEPA03

Please contact me if you need additional information.

Regards,

Natalie

From: Lin, Sharon [mailto:Lin.Sharon@epa.gov]
Sent: Friday, July 24, 2015 9:26 AM
To: Braden, Natalie A SOPUS-DMW/323

Cc: Schofield, John; Monson, Michael J SOPUS-DMW/323; Rollins, Christopher
Subject: RE: Extension Request for Shell Martinez Refinery

Hi, Natalie,

Your request for a 30 day time extension to respond to EPA RCRA information request is granted. The new due date is August 28, 2015. If you have any questions, please let me know. Thanks.

Sharon

From: Natalie.Braden@shell.com [mailto:Natalie.Braden@shell.com]
Sent: Friday, July 24, 2015 8:16 AM
To: Lin, Sharon
Cc: Schofield, John; michael.monson@shell.com
Subject: Extension Request for Shell Martinez Refinery

Ms. Lin,

We are working through the EPA Request for Information you sent us and that we received in this office on June 29, 2015. While we have been able to make progress on this request, our progress on completing it has been (and will continue to be) slowed due to the high number of pre-scheduled summer vacations, an extended national wide Shell oil spill drill being hosted locally by the Martinez Refinery, and a 2nd EPA Request for Information received shortly after this one that requires the same resources as your request. Therefore, I am requesting an extension of 30 days from the original due date of July 29th, 2015. Please let me know if this extension will be granted and thank you for considering my request.

Regards,

Natalie

Natalie Braden
Environmental Affairs Manager - Shell Martinez Refinery
Shell Martinez Refinery, 3485 Pacheco Blvd, Martinez CA 94553
Tel: +1 925-313-3705 **Email:** natalie.braden@shell.com

To: Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]; Peebler, Diana@DTSC[Diana.Peebler@dtsc.ca.gov]
Cc: Schofield, John[Schofield.John@epa.gov]; McDaniel, Doug[McDaniel.Doug@epa.gov]
From: Lin, Sharon
Sent: Wed 8/2/2017 7:23:36 PM
Subject: Chevron Richmond Refinery RCRA Inspection - EPA assistance

Hi, Maria and Diana,

Hope you are having a great summer. I am interested in assisting the DTSC inspector for his (her) inspection at Chevron Richmond Refinery if appropriate and convenient. I look forward to learning about the facility and learning from the DTSC inspector colleague(s) in the field. Thanks in advance for your consideration.

Sharon

To: Koch, Lori@DTSC[Lori.Koch@dtsc.ca.gov]
Cc: Kowbel, Nelline@DTSC[Nelline.Kowbel@dtsc.ca.gov]; McDaniel, Doug[McDaniel.Doug@epa.gov]; Schofield, John[Schofield.John@epa.gov]
From: Lin, Sharon
Sent: Sat 3/18/2017 2:47:58 AM
Subject: RE: DTSC Letters to Shell Martinez

Hi, Lori,

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From: Koch, Lori@DTSC [mailto:Lori.Koch@dtsc.ca.gov]
Sent: Friday, March 10, 2017 9:58 AM
To: Lin, Sharon <Lin.Sharon@epa.gov>
Cc: Kowbel, Nelline@DTSC <Nelline.Kowbel@dtsc.ca.gov>
Subject: RE: DTSC Letters to Shell Martinez

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To: Koch, Lori@DTSC <Lori.Koch@dtsc.ca.gov>
Cc: Schofield, John <Schofield.John@epa.gov>; McDaniel, Doug <McDaniel.Doug@epa.gov>; Reynolds, Rebekah <Reynolds.Rebekah@epa.gov>; Soria, Maria@DTSC <Maria.Soria@dtsc.ca.gov>
Subject: DTSC Letters to Shell Martinez

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Sharon

To: Greenlee, Paris@DTSC[Paris.Greenlee@dtsc.ca.gov]
From: Lin, Sharon
Sent: Wed 3/15/2017 5:51:35 PM
Subject: RE: Selenium treatment dewatering process

My phone number 415 972-3446

From: Greenlee, Paris@DTSC [mailto:Paris.Greenlee@dtsc.ca.gov]
Sent: Wednesday, March 15, 2017 10:11 AM
To: Lin, Sharon <Lin.Sharon@epa.gov>
Subject: FW: Selenium treatment dewatering process

Hi Sharon, I'm looking into our records to see if PSC has any pending notifications that haven't been processed. Can you give me the EPA ID numbers for both PSC and the Torrance facility they are operating at.

Also, include your phone number in your response so we can talk about this facilities operations.

Thanks,

Sincerely,

Mr. Paris Greenlee, P.E.

Hazardous Substances Engineer

Policy and Program Support Division

Department of Toxic Substances Control

Phone: (916) 323-2274

From: Greenlee, Paris@DTSC
Sent: Tuesday, March 14, 2017 4:29 PM
To: Arora, Asha@DTSC <Asha.Arora@dtsc.ca.gov>
Subject: Re: Selenium treatment dewatering process

Hi Asha,

PSC has had three TTUs authorized for the last nine years, and there have been several site specific authorizations throughout the state for 2016, although my records don't show a specific site authorization for a refinery in Torrance this year. It is possible that: 1) they did file a notification and it never got to my desk, or 2) they were authorized within the last year and the records are not showing up, or 3) that the waste they are treating is exempt. I have received several inquiries over the last two months from TTU operators claiming they filed notices and have not received a response, and later found notices that didn't get directed properly.

Due to the consistent track record of notification filings from PSC I would not immediately assume that they are out of compliance. I will communicate with Sharon and let her know I'm still looking through the records.

Sincerely,

Mr. Paris Greenlee, P.E.

Hazardous Substances Engineer

Department of Toxic Substances Control

From: Arora, Asha@DTSC
Sent: Tuesday, March 14, 2017 2:03 PM
To: Greenlee, Paris@DTSC
Subject: RE: Selenium treatment dewatering process

Paris,

Yes, they have a fixed treatment unit. In addition, a portion of this treatment (centrifuge) is being operated by PSC. I know that Refineries tend to get TTU for a number of treatments.

Thank you
Asha

From: Greenlee, Paris@DTSC
Sent: Tuesday, March 14, 2017 1:59 PM
To: Arora, Asha@DTSC
Subject: RE: Selenium treatment dewatering process

Asha, this sounds more like a fixed treatment unit. I'll email Sharon for more information.

Sincerely,

Mr. Paris Greenlee, P.E.

Hazardous Substances Engineer

Policy and Program Support Division

Department of Toxic Substances Control

Phone: (916) 323-2274

From: Arora, Asha@DTSC
Sent: Tuesday, March 14, 2017 1:49 PM
To: Greenlee, Paris@DTSC <Paris.Greenlee@dtsc.ca.gov>
Cc: Lin, Sharon <Lin.Sharon@epa.gov>
Subject: RE: Selenium treatment dewatering process
Importance: High

Hi Paris,

This request is from EPA, Region IX to find out if PSC submitted to DTSC, a TTU initial notification and a site specific notification at Torrance Refinery. If yes, please send Sharon a copy of both notifications and DTSC acknowledgement letter, etc.

Thank you

Asha

Asha Arora

Senior Environmental Scientist (Specialist)

Department of Toxic Substances Control

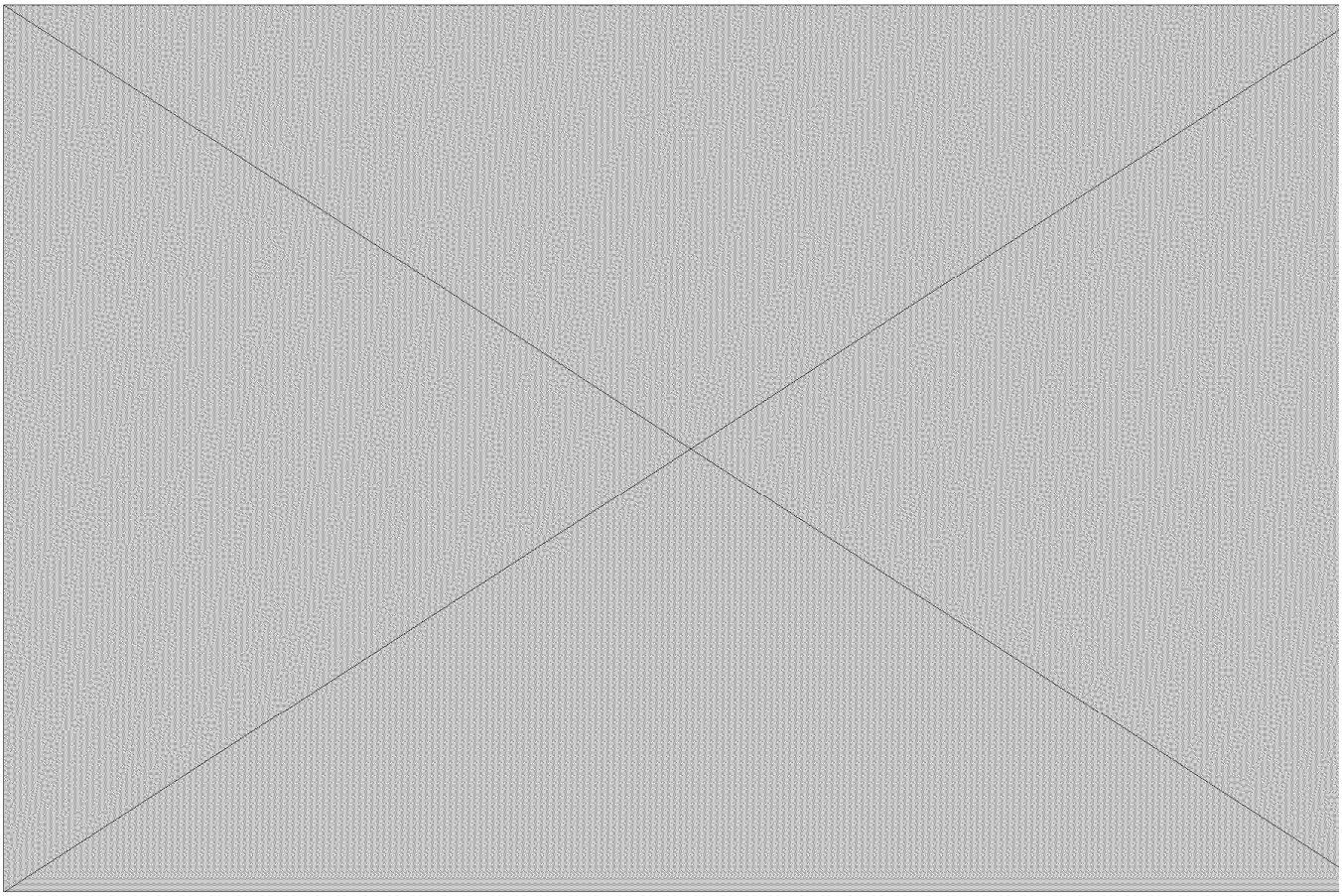
(510) 540-3874

Asha.Arora@dtsc.ca.gov

From: Lin, Sharon [mailto:Lin.Sharon@epa.gov]
Sent: Tuesday, March 14, 2017 1:17 PM
To: Arora, Asha@DTSC
Subject: Selenium treatment dewatering process

Hi, Asha, the Selenium treatment unit at the Torrance Refinery is a CA unit under the California tiered permitting program. The CA unit only includes the three tanks (oxidation, reactor and thickener). The dewatering facilities which consist of a two phase centrifuge is owned and run by PSC, contractor to the refinery. Would you please let me know the status of their permit to run the operation? Thanks.

sharon



To: Greenlee, Paris@DTSC[Paris.Greenlee@dtsc.ca.gov]
From: Lin, Sharon
Sent: Wed 3/15/2017 5:51:16 PM
Subject: RE: Selenium treatment dewatering process

Torrance Refining Company, LLC

Location 3700 W. 190th Street

Address: Torrance, CA 90504-2929

RCRA ID Number: CAD008354052

From: Greenlee, Paris@DTSC [mailto:Paris.Greenlee@dtsc.ca.gov]
Sent: Wednesday, March 15, 2017 10:11 AM
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Asha

Asha Arora

Senior Environmental Scientist (Specialist)

Department of Toxic Substances Control

(510) 540-3874

Asha.Arora@dtsc.ca.gov

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Subject: Selenium treatment dewatering process

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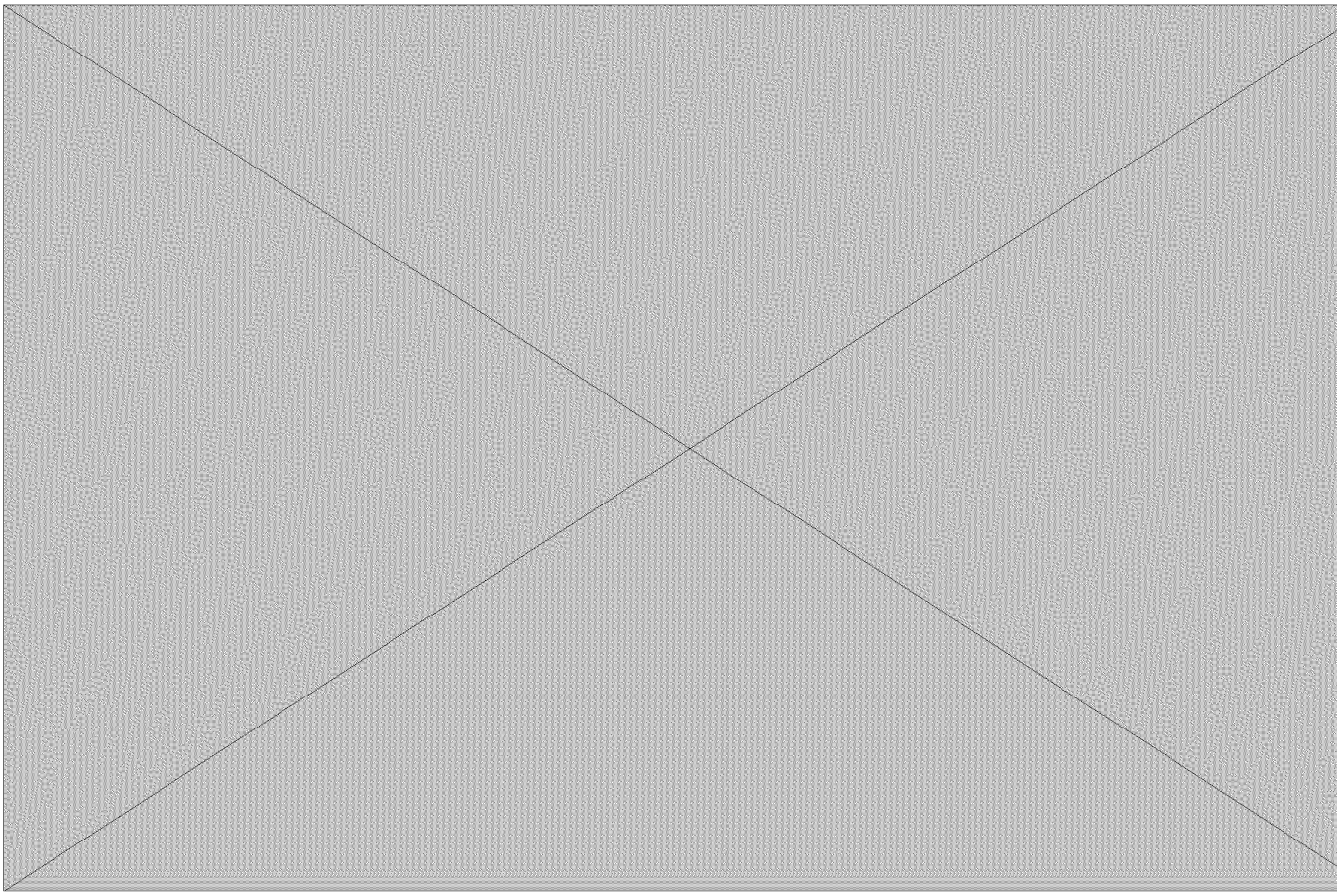

To: Lin, Sharon[Lin.Sharon@epa.gov]
Cc: Cuffel, Donald[Don.Cuffel@valero.com]; Ronan, Kimberly A[Kim.Ronan@valero.com]; Bourbon, Elizabeth[Elizabeth.Bourbon@valero.com]; Bluntzer, Megan[Megan.Bluntzer@valero.com]
From: Pacheco-Mendez, Marisol
Sent: Mon 11/27/2017 6:28:26 PM
Subject: Valero Benicia Refinery- EOL10 Data from Nov 16
R1711061_11-16 Benzene EOL10.pdf

Sharon,

I apologize for not including this data in my earlier email found it buried in my inbox…...

Pursuant to item 63 of the Consent Agreement and Final Order negotiated between EPA and Valero (RCRA EPA ID No. CAD063001770, TRI ID No. 94510XXNCS3400E), please see attached for end of line (EOL) sampling point EOL-10 data collected on November 16, 2017. This data was received from the contractor laboratory on November 22, 2017.

Please confirm receipt of this email.

Please contact me if you have any questions.

Regards,

Thanks,

Marisol Pacheco-Mendez

Valero Benicia Refinery

Staff Environmental Engineer

707-745-7573

Delta
Environmental Laboratories
685 Stone Road Ste. 9 - 12
Benicia, CA 94510
T: 707.747.6081
F: 707.361.5689
www.deltaenvironmentallab.com

November 22, 2017

Analytical Report

Client: **Valero**
3400 East Second St
Benicia, CA 94510

Attn: **Marisol Pacheco-Mendez**

Work Order #: 1711061

Project: Delta Benzene

Project #: [none]

P.O. Number: 4503805062-10

Project Received: November 16, 2017 9:22

Project Reported: November 22, 2017 16:48

Sincerely,

Timea Majoros

Timea Majoros, Ph.D.
Laboratory Director / President

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Benicia, CA 94510
T: 707.747.6081
F: 707.361.5689
www.deltaenvironmentallab.com

WORK ORDER: 1711061 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Summary

Lab ID	Sample	Matrix	Date Sampled	Date Received
1711061-01	EOL 10	Aqueous	November 16, 2017 3:40	November 16, 2017 9:22
1711061-02	EOL 10	Aqueous	November 16, 2017 3:40	November 16, 2017 9:22

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www.deltaenvironmentallab.com

WORK ORDER: 1711061 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results

Sample Date: November 16, 2017 3:

Sample: EOL 10
1711061-01 (Aqueous) **Sample Type:** Grab **Prep Date:** November 16, 2017 9:

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 8270								
Acenaphthene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Acenaphthylene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Anthracene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Benzidine	20.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Benzoic Acid	20.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Benzo (a) anthracene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Benzo (b) fluoranthene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Benzo (k) fluoranthene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Benzo (g,h,i) perylene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Benzo (a) pyrene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Benzyl Alcohol	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Bis (2-chloroethoxy) methane	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Bis (2-chloroethyl) Ether	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Bis (2-chloroisopropyl) Ether	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Bis (2-ethylhexy) Phthalate	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
4-Bromophenyl Phenyl Ether	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Butylbenzyl Phthalate	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
4-Chloroaniline	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
2-Chloronaphthalene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
4-Chlorophenyl Phenyl Ether	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Chrysene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Dibenzo (a,h) anthracene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Dibenzofuran	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Di-n-butyl Phthalate	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
1,2-Dichlorobenzene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
1,3-Dichlorobenzene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
1,4-Dichlorobenzene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
3,3'-Dichlorobenzidine	10.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT

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F: 707.361.5689
www.deltaenvironmentallab.com

WORK ORDER: 1711061 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: November 16, 2017 3:

Sample: EOL 10 (Continued)
1711061-01 (Aqueous) **Sample Type:** Grab **Prep Date:** November 16, 2017 9:

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 8270 (Continued)								
Diethyl Phthalate	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
2,4-Dinitrotoluene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
2,6-Dinitrotoluene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Di-n-octyl Phthalate	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Fluoranthene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Fluorene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Hexachlorobenzene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Hexachlorobutadiene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Hexachlorocyclopentadiene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Hexachloroethane	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Indeno (1,2,3-cd) pyrene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Isophorone	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
2-Methylnaphthalene	5.0		**17.1**	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Naphthalene	5.0		**8.4**	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
2-Nitroaniline	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
3-Nitroaniline	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
4-Nitroaniline	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Nitrobenzene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
N-Nitrosodiphenylamine	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
N-Nitrosodi-n-propylamine	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Phenanthrene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Pyrene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
1,2,4-Trichlorobenzene	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
4-Chloro-3-methylphenol	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
2-Chlorophenol	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
2,4-Dichlorophenol	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
2,4-Dimethylphenol	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
4,6-Dinitro-2-methylphenol	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT

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WORK ORDER: 1711061 **COC Number:**

Valero
3400 East Second St
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Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: November 16, 2017 3:

Sample: EOL 10 (Continued)
1711061-01 (Aqueous) **Sample Type:** Grab **Prep Date:** November 16, 2017 9:

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 8270 (Continued)								
2,4-Dinitrophenol	10.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
2-Methylphenol	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
4-Methylphenol	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
2-Nitrophenol	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
4-Nitrophenol	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Pentachlorophenol	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Phenol	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
2,4,5-Trichlorophenol	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
2,4,6-Trichlorophenol	5.0		ND	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Pyridine			0.0	ug/L	1	11/16/17	EPA 8270C	17K0129/ZT
Surrogate: 2-Fluorobiphenyl	32-144		130%			11/16/17	EPA 8270C	17K0129/ZT
Surrogate: Phenol-d6	5-93		36.1%			11/16/17	EPA 8270C	17K0129/ZT
Surrogate: Nitrobenzene-d5	34-141		122%			11/16/17	EPA 8270C	17K0129/ZT
Surrogate: 2-Fluorophenol	23-92		45.8%			11/16/17	EPA 8270C	17K0129/ZT
Surrogate: 2,4,6-Tribromophenol	22-154		89.5%			11/16/17	EPA 8270C	17K0129/ZT
Surrogate: p-Terphenyl-d14	28-157		135%			11/16/17	EPA 8270C	17K0129/ZT

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WORK ORDER: 1711061 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: November 16, 2017 3:

Sample: EOL 10
1711061-02 (Aqueous) **Sample Type:** Grab **Prep Date:** November 21, 2017 9:

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds								
Benzene	0.500		**0.850**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Bromobenzene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Methylene Chloride	5.00		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Bromochloromethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Bromodichloromethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Bromoform	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Bromomethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
n-Butylbenzene	0.500		**3.04**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
sec-Butylbenzene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
tert-Butylbenzene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Carbon Tetrachloride	0.500		**6.29**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Chlorobenzene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Chloroethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Chloroform	0.500		**4.13**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Chloromethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
2-Chlorotoluene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
4-Chlorotoluene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Dibromochloromethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,2-Dibromo-3-chloropropane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,2-Dibromoethane (EDB)	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Dibromomethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Dichlorodifluoromethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT

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WORK ORDER: 1711061 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: November 16, 2017 3:

Sample: EOL 10 (Continued)
1711061-02 (Aqueous) **Sample Type:** Grab **Prep Date:** November 21, 2017 9:

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds (Continued)								
cis-1,2-Dichloroethene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,3-Dichloropropane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
2,2-Dichloropropane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,1-Dichloropropene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Ethylbenzene	0.500		**4.56**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Hexachlorobutadiene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Isopropylbenzene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
p-Isopropyltoluene	0.500		**1.95**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Naphthalene	0.500		**37.8**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
n-Propylbenzene	0.500		**2.56**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Styrene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,1,1,2-Tetrachloroethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Tetrachloroethene	0.500		**2.75**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Toluene	0.500		**11.4**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,2,3-Trichlorobenzene	0.500		**55.9**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,2,4-Trichlorobenzene	0.500		**13.8**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Trichloroethene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Trichlorofluoromethane	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,2,3-Trichloropropane, TCP	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,2,4-Trimethylbenzene	0.500		**33.2**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
1,3,5-Trimethylbenzene	0.500		**9.56**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Vinyl Chloride	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT

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WORK ORDER: 1711061 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: November 16, 2017 3:

Sample: EOL 10 (Continued)
1711061-02 (Aqueous) **Sample Type:** Grab **Prep Date:** November 21, 2017 9:

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds (Continued)								
o-Xylene	0.500		**12.5**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
m,p-Xylenes	1.00		**20.4**	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Butanone (Methyl Ethyl Ketone)			0.00	ug/L	1	11/21/17	EPA 8260 B	17K0118/ZT
Surrogate: Dibromofluoromethane	70-130		104%			11/21/17	EPA 8260 B	17K0118/ZT
Surrogate: Toluene-d8	70-130		98.0%			11/21/17	EPA 8260 B	17K0118/ZT
Surrogate: 4-Bromofluorobenzene	70-130		95.5%			11/21/17	EPA 8260 B	17K0118/ZT

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Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control

Volatile Organic Compounds

Prepared & Analyzed: Nov-21-17

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17K0118										**Analyst:** ZT
Blank (17K0118-BLK1)										
Benzene		**ND**		0.500	ug/L					
Methylene Chloride		**ND**		5.00	ug/L					
Bromobenzene		**ND**		0.500	ug/L					
Bromochloromethane		**ND**		0.500	ug/L					
Bromodichloromethane		**ND**		0.500	ug/L					
Bromoform		**ND**		0.500	ug/L					
Bromomethane		**ND**		0.500	ug/L					
n-Butylbenzene		**ND**		0.500	ug/L					
sec-Butylbenzene		**ND**		0.500	ug/L					
tert-Butylbenzene		**ND**		0.500	ug/L					
Carbon Tetrachloride		**ND**		0.500	ug/L					
Chlorobenzene		**ND**		0.500	ug/L					
Chloroethane		**ND**		0.500	ug/L					
Chloroform		**ND**		0.500	ug/L					
Chloromethane		**ND**		0.500	ug/L					
2-Chlorotoluene		**ND**		0.500	ug/L					
4-Chlorotoluene		**ND**		0.500	ug/L					
Dibromochloromethane		**ND**		0.500	ug/L					
1,2-Dibromo-3-chloropropane		**ND**		0.500	ug/L					
1,2-Dibromoethane (EDB)		**ND**		0.500	ug/L					
Dibromomethane		**ND**		0.500	ug/L					
1,2-Dichlorobenzene		**ND**		0.500	ug/L					
1,3-Dichlorobenzene		**ND**		0.500	ug/L					
1,4-Dichlorobenzene		**ND**		0.500	ug/L					
Dichlorodifluoromethane		**ND**		0.500	ug/L					
1,1-Dichloroethane		**ND**		0.500	ug/L					
1,2-Dichloroethane		**ND**		0.500	ug/L					
1,1-Dichloroethene		**ND**		0.500	ug/L					
cis-1,2-Dichloroethene		**ND**		0.500	ug/L					
trans-1,2-Dichloroethene		**ND**		0.500	ug/L					

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3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Volatile Organic Compounds (Continued) **Prepared & Analyzed: Nov-21-17**

Batch: 17K0118 (Continued) **Analyst:** ZT

Blank (17K0118-BLK1)

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
1,2-Dichloropropane		ND		0.500	ug/L					
1,3-Dichloropropane		ND		0.500	ug/L					
2,2-Dichloropropane		ND		0.500	ug/L					
1,1-Dichloropropene		ND		0.500	ug/L					
Ethylbenzene		ND		0.500	ug/L					
Hexachlorobutadiene		ND		0.500	ug/L					
Isopropylbenzene		ND		0.500	ug/L					
p-Isopropyltoluene		ND		0.500	ug/L					
Naphthalene		ND		0.500	ug/L					
n-Propylbenzene		ND		0.500	ug/L					
Styrene		ND		0.500	ug/L					
1,1,1,2-Tetrachloroethane		ND		0.500	ug/L					
1,1,2,2-Tetrachloroethane		ND		0.500	ug/L					
Tetrachloroethene		ND		0.500	ug/L					
Toluene		ND		0.500	ug/L					
1,2,3-Trichlorobenzene		ND		0.500	ug/L					
1,2,4-Trichlorobenzene		ND		0.500	ug/L					
1,1,1-Trichloroethane		ND		0.500	ug/L					
1,1,2-Trichloroethane		ND		0.500	ug/L					
Trichloroethene		ND		0.500	ug/L					
Trichlorofluoromethane		ND		0.500	ug/L					
1,2,3-Trichloropropane, TCP		ND		0.500	ug/L					
1,2,4-Trimethylbenzene		ND		0.500	ug/L					
1,3,5-Trimethylbenzene		ND		0.500	ug/L					
Vinyl Chloride		ND		0.500	ug/L					
o-Xylene		ND		0.500	ug/L					
m,p-Xylenes		ND		1.00	ug/L					
cis-1,3-Dichloropropene		ND		0.500	ug/L					
trans-1,3-Dichloropropene		ND		0.500	ug/L					
Methyl-tert-butyl ether (MTBE)		ND		0.500	ug/L					

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Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Volatile Organic Compounds (Continued) **Prepared & Analyzed: Nov-21-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17K0118 (Continued)										**Analyst:** ZT
Blank (17K0118-BLK1)										
Butanone (Methyl Ethyl Ketone)		**0.00**			ug/L					
Surrogate: Dibromofluoromethane		21.4			ug/L	20.0	107	70-130		
Surrogate: Toluene-d8		20.1			ug/L	20.0	100	70-130		
Surrogate: 4-Bromofluorobenzene		19.1			ug/L	20.0	95.5	70-130		
LCS (17K0118-BS1)										
Benzene		**20.2**		0.500	ug/L	20.0	101	80-120		
Chlorobenzene		**20.6**		0.500	ug/L	20.0	103	80-120		
1,1-Dichloroethene		**19.9**		0.500	ug/L	20.0	99.5	80-120		
Toluene		**20.2**		0.500	ug/L	20.0	101	80-120		
Trichloroethene		**20.7**		0.500	ug/L	20.0	104	80-120		
Surrogate: Dibromofluoromethane		20.2			ug/L	20.0	101	70-130		
Surrogate: Toluene-d8		19.5			ug/L	20.0	97.5	70-130		
Surrogate: 4-Bromofluorobenzene		19.6			ug/L	20.0	98.0	70-130		

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Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 8270 **Prepared & Analyzed: Nov-16-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17K0129										**Analyst:** ZT
Blank (17K0129-BLK1)										
Acenaphthene		**ND**		5.0	ug/L					
Acenaphthylene		**ND**		5.0	ug/L					
Anthracene		**ND**		5.0	ug/L					
Benzidine		**ND**		20.0	ug/L					
Benzoic Acid		**ND**		20.0	ug/L					
Benzo (a) anthracene		**ND**		5.0	ug/L					
Benzo (b) fluoranthene		**ND**		5.0	ug/L					
Benzo (k) fluoranthene		**ND**		5.0	ug/L					
Benzo (g,h,i) perylene		**ND**		5.0	ug/L					
Benzo (a) pyrene		**ND**		5.0	ug/L					
Benzyl Alcohol		**ND**		5.0	ug/L					
Bis (2-chloroethoxy) methane		**ND**		5.0	ug/L					
Bis (2-chloroethyl) Ether		**ND**		5.0	ug/L					
Bis (2-chloroisopropyl) Ether		**ND**		5.0	ug/L					
Bis (2-ethylhexy) Phthalate		**ND**		5.0	ug/L					
4-Bromophenyl Phenyl Ether		**ND**		5.0	ug/L					
Butylbenzyl Phthalate		**ND**		5.0	ug/L					
4-Chloroaniline		**ND**		5.0	ug/L					
2-Chloronaphthalene		**ND**		5.0	ug/L					
4-Chlorophenyl Phenyl Ether		**ND**		5.0	ug/L					
Chrysene		**ND**		5.0	ug/L					
Dibenzo (a,h) anthracene		**ND**		5.0	ug/L					
Dibenzofuran		**ND**		5.0	ug/L					
Di-n-butyl Phthalate		**ND**		5.0	ug/L					
1,2-Dichlorobenzene		**ND**		5.0	ug/L					
1,3-Dichlorobenzene		**ND**		5.0	ug/L					
1,4-Dichlorobenzene		**ND**		5.0	ug/L					
3,3'-Dichlorobenzidine		**ND**		10.0	ug/L					
Diethyl Phthalate		**ND**		5.0	ug/L					
2,4-Dinitrotoluene		**ND**		5.0	ug/L					

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WORK ORDER: 1711061 **COC Number:**

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Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 8270 (Continued) **Prepared & Analyzed: Nov-16-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17K0129 (Continued)										**Analyst:** ZT
Blank (17K0129-BLK1)										
2,6-Dinitrotoluene		**ND**		5.0	ug/L					
Di-n-octyl Phthalate		**ND**		5.0	ug/L					
Fluoranthene		**ND**		5.0	ug/L					
Fluorene		**ND**		5.0	ug/L					
Hexachlorobenzene		**ND**		5.0	ug/L					
Hexachlorobutadiene		**ND**		5.0	ug/L					
Hexachlorocyclopentadiene		**ND**		5.0	ug/L					
Hexachloroethane		**ND**		5.0	ug/L					
Indeno (1,2,3-cd) pyrene		**ND**		5.0	ug/L					
Isophorone		**ND**		5.0	ug/L					
2-Methylnaphthalene		**ND**		5.0	ug/L					
Naphthalene		**ND**		5.0	ug/L					
2-Nitroaniline		**ND**		5.0	ug/L					
3-Nitroaniline		**ND**		5.0	ug/L					
4-Nitroaniline		**ND**		5.0	ug/L					
Nitrobenzene		**ND**		5.0	ug/L					
N-Nitrosodiphenylamine		**ND**		5.0	ug/L					
N-Nitrosodi-n-propylamine		**ND**		5.0	ug/L					
Phenanthrene		**ND**		5.0	ug/L					
Pyrene		**ND**		5.0	ug/L					
1,2,4-Trichlorobenzene		**ND**		5.0	ug/L					
4-Chloro-3-methylphenol		**ND**		5.0	ug/L					
2-Chlorophenol		**ND**		5.0	ug/L					
2,4-Dichlorophenol		**ND**		5.0	ug/L					
2,4-Dimethylphenol		**ND**		5.0	ug/L					
4,6-Dinitro-2-methylphenol		**ND**		5.0	ug/L					
2,4-Dinitrophenol		**ND**		10.0	ug/L					
2-Methylphenol		**ND**		5.0	ug/L					
4-Methylphenol		**ND**		5.0	ug/L					
2-Nitrophenol		**ND**		5.0	ug/L					

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Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 8270 (Continued) **Prepared & Analyzed: Nov-16-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17K0129 (Continued)										**Analyst:** ZT
Blank (17K0129-BLK1)										
4-Nitrophenol		**ND**		5.0	ug/L					
Pentachlorophenol		**ND**		5.0	ug/L					
Phenol		**ND**		5.0	ug/L					
2,4,5-Trichlorophenol		**ND**		5.0	ug/L					
2,4,6-Trichlorophenol		**ND**		5.0	ug/L					
Pyridine		**0.0**			ug/L					
Surrogate: 2-Fluorobiphenyl		105			ug/L	100	105	32-144		
Surrogate: Phenol-d6		70.4			ug/L	200	35.2	5-93		
Surrogate: Nitrobenzene-d5		102			ug/L	100	102	34-141		
Surrogate: 2-Fluorophenol		101			ug/L	200	50.5	23-92		
Surrogate: 2,4,6-Tribromophenol		159			ug/L	200	79.5	22-154		
Surrogate: p-Terphenyl-d14		122			ug/L	100	122	28-157		
LCS (17K0129-BS1)										
Acenaphthene		**41.2**		5.0	ug/L	50.0	82.4	31-123		
1,4-Dichlorobenzene		**38.6**		5.0	ug/L	50.0	77.2	26-113		
2,4-Dinitrotoluene		**35.2**		5.0	ug/L	50.0	70.4	34-128		
N-Nitrosodi-n-propylamine		**37.7**		5.0	ug/L	50.0	75.4	30-139		
Pyrene		**38.0**		5.0	ug/L	50.0	76.0	27-136		
1,2,4-Trichlorobenzene		**40.3**		5.0	ug/L	50.0	80.6	29-105		
4-Chloro-3-methylphenol		**43.0**		5.0	ug/L	50.0	86.0	28-125		
2-Chlorophenol		**36.6**		5.0	ug/L	50.0	73.2	29-104		
4-Nitrophenol		**18.2**		5.0	ug/L	50.0	36.4	0.4-90		
Pentachlorophenol		**31.9**		5.0	ug/L	50.0	63.8	1-165		
Phenol		**18.9**		5.0	ug/L	50.0	37.8	1-90		
Surrogate: 2-Fluorobiphenyl		107			ug/L	100	107	32-144		
Surrogate: Phenol-d6		68.2			ug/L	200	34.1	5-93		
Surrogate: Nitrobenzene-d5		99.1			ug/L	100	99.1	33-141		
Surrogate: 2-Fluorophenol		90.8			ug/L	200	45.4	23-92		
Surrogate: 2,4,6-Tribromophenol		145			ug/L	200	72.5	22-154		

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WORK ORDER: 1711061 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 8270 (Continued) **Prepared & Analyzed: Nov-16-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17K0129 (Continued)										**Analyst:** ZT
LCS (17K0129-BS1)										
Surrogate: p-Terphenyl-d14		124			ug/L	100	124	28-157		

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WORK ORDER: 1711061 **COC Number:**

Valero
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Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Notes and Definitions

Item	Definition
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
%REC	Percent Recovery
DF	Dilution Factor
LCS	Lab Control Sample
LCSD	Lab Control Sample Duplicate
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated

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ED_001593_00018258

Valero Benicia Refinery
Bioassay Laboratory

Sample Destination: Delta

Date: 16-Nov-17

Report Results To: Marisol.Pacheco-Mendez@Valero.com

Phone: 745-7573

David.Johnston@Valero.com

PO# Delta Benzene - 4503805062-10

1711061

Sample Notes or Special Instructions

#	Sample ID	Turn Around	Sample Size	# of Samples	Date	Time	GRAB COMP	Preserve	Temp.	Total Se 200.7	Oil & Grease EPA 1664	NH3 as N SM 4500 -NH3	CA 17 Metals EPA 200.7	Chronic *Mysidopsis bahia*	Benzene 8020	EOL Benzene (EPA 8260)	TOC - SM5310		EPA 8260	EPA 8270		
										Testing Requested												
1	EOL 10	Routine	1L	2	16-Nov	3:40 AM	G	None	4.0											X		
2	EOL 10	Routine	VOA	2	16-Nov	3:40 AM	G	HCL	4.0										X			
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Samples Prepared By: [signature] 11/16/17 0830 Date/Time D. Johnston Print Name T=6.3°C

Relinquished By: [signature] 11/16/17 09:22 Date/Time Received By: Chelsea Feeney 11/16/17 09:22

To: Lin, Sharon[Lin.Sharon@epa.gov]
Cc: Cuffel, Donald[Don.Cuffel@valero.com]; Ronan, Kimberly A[Kim.Ronan@valero.com]; Bourbon, Elizabeth[Elizabeth.Bourbon@valero.com]; Bluntzer, Megan[Megan.Bluntzer@valero.com]
From: Pacheco-Mendez, Marisol
Sent: Mon 11/27/2017 4:31:02 PM
Subject: Valero Benicia Refinery -EOL-10 Data from November 17
R1711068_11-17 Benzene EOL10.pdf

Morning Sharon,

Hope you had a nice Thanksgiving holiday.

Pursuant to item 63 of the Consent Agreement and Final Order negotiated between EPA and Valero (RCRA EPA ID No. CAD063001770, TRI ID No. 94510XXNCS3400E), please see attached for end of line (EOL) sampling point EOL-10 data collected on November 17, 2017. This data was received from the contractor laboratory on November 22, 2017.

Please confirm receipt of this email.

Please contact me if you have any questions.

Regards,

Marisol Pacheco-Mendez

Valero Benicia Refinery

Staff Environmental Engineer

707-745-7573

Delta
Environmental Laboratories
685 Stone Road Ste. 9 - 12
Benicia, CA 94510
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November 22, 2017

Analytical Report

Client: **Valero**
3400 East Second St
Benicia, CA 94510

Attn: **Marisol Pacheco-Mendez**

Work Order #: 1711068

Project: Delta Benzene

Project #: [none]

P.O. Number: 4503805062-10

Project Received: November 17, 2017 11:38

Project Reported: November 22, 2017 13:48

Sincerely,

Timea Majoros

Timea Majoros, Ph.D.
Laboratory Director / President

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WORK ORDER: 1711068 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Summary

Lab ID	Sample	Matrix	Date Sampled	Date Received
1711068-01	EOL 10	Aqueous	November 17, 2017 9:35	November 17, 2017 11:38

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WORK ORDER: 1711068 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results

Sample Date: November 17, 2017 9:

Sample: EOL 10
1711068-01 (Aqueous) **Sample Type:** Grab **Prep Date:** November 20, 2017 10:

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds								
Benzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Bromobenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Methylene Chloride	5.00		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Bromochloromethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Bromodichloromethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Bromoform	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Bromomethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
n-Butylbenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
sec-Butylbenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
tert-Butylbenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Chlorobenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Chloroethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Chloroform	0.500		**8.86**	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Chloromethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
2-Chlorotoluene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
4-Chlorotoluene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Dibromochloromethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,2-Dibromo-3-chloropropane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,2-Dibromoethane (EDB)	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Dibromomethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Dichlorodifluoromethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT

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WORK ORDER: 1711068 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: November 17, 2017 9:

Sample: EOL 10 (Continued)
1711068-01 (Aqueous) **Sample Type:** Grab **Prep Date:** November 20, 2017 10:

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds (Continued)								
cis-1,2-Dichloroethene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,3-Dichloropropane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
2,2-Dichloropropane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,1-Dichloropropene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Ethylbenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Hexachlorobutadiene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Isopropylbenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
p-Isopropyltoluene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Naphthalene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
n-Propylbenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Styrene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,1,1,2-Tetrachloroethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Tetrachloroethene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Toluene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,2,3-Trichlorobenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,2,4-Trichlorobenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Trichloroethene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Trichlorofluoromethane	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,2,3-Trichloropropane, TCP	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,2,4-Trimethylbenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
1,3,5-Trimethylbenzene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Vinyl Chloride	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
o-Xylene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT

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WORK ORDER: 1711068 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: November 17, 2017 9:

Sample: EOL 10 (Continued)
1711068-01 (Aqueous) **Sample Type:** Grab **Prep Date:** November 20, 2017 10:

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds (Continued)								
m,p-Xylenes	1.00		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Butanone (Methyl Ethyl Ketone)			0.00	ug/L	1	11/20/17	EPA 8260 B	17K0113/ZT
Surrogate: Dibromofluoromethane	70-130		88.5%			11/20/17	EPA 8260 B	17K0113/ZT
Surrogate: Toluene-d8	70-130		104%			11/20/17	EPA 8260 B	17K0113/ZT
Surrogate: 4-Bromofluorobenzene	70-130		89.5%			11/20/17	EPA 8260 B	17K0113/ZT

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Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control

Volatile Organic Compounds

Prepared & Analyzed: Nov-20-17

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17K0113										**Analyst:** ZT
Blank (17K0113-BLK1)										
Benzene		**ND**		0.500	ug/L					
Bromobenzene		**ND**		0.500	ug/L					
Methylene Chloride		**ND**		5.00	ug/L					
Bromochloromethane		**ND**		0.500	ug/L					
Bromodichloromethane		**ND**		0.500	ug/L					
Bromoform		**ND**		0.500	ug/L					
Bromomethane		**ND**		0.500	ug/L					
n-Butylbenzene		**ND**		0.500	ug/L					
sec-Butylbenzene		**ND**		0.500	ug/L					
tert-Butylbenzene		**ND**		0.500	ug/L					
Carbon Tetrachloride		**ND**		0.500	ug/L					
Chlorobenzene		**ND**		0.500	ug/L					
Chloroethane		**ND**		0.500	ug/L					
Chloroform		**ND**		0.500	ug/L					
Chloromethane		**ND**		0.500	ug/L					
2-Chlorotoluene		**ND**		0.500	ug/L					
4-Chlorotoluene		**ND**		0.500	ug/L					
Dibromochloromethane		**ND**		0.500	ug/L					
1,2-Dibromo-3-chloropropane		**ND**		0.500	ug/L					
1,2-Dibromoethane (EDB)		**ND**		0.500	ug/L					
Dibromomethane		**ND**		0.500	ug/L					
1,2-Dichlorobenzene		**ND**		0.500	ug/L					
1,3-Dichlorobenzene		**ND**		0.500	ug/L					
1,4-Dichlorobenzene		**ND**		0.500	ug/L					
Dichlorodifluoromethane		**ND**		0.500	ug/L					
1,1-Dichloroethane		**ND**		0.500	ug/L					
1,2-Dichloroethane		**ND**		0.500	ug/L					
1,1-Dichloroethene		**ND**		0.500	ug/L					
cis-1,2-Dichloroethene		**ND**		0.500	ug/L					
trans-1,2-Dichloroethene		**ND**		0.500	ug/L					

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WORK ORDER: 1711068 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Volatile Organic Compounds (Continued) **Prepared & Analyzed: Nov-20-17**

Batch: 17K0113 (Continued) **Analyst:** ZT

Blank (17K0113-BLK1)

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
1,2-Dichloropropane		ND		0.500	ug/L					
1,3-Dichloropropane		ND		0.500	ug/L					
2,2-Dichloropropane		ND		0.500	ug/L					
1,1-Dichloropropene		ND		0.500	ug/L					
Ethylbenzene		ND		0.500	ug/L					
Hexachlorobutadiene		ND		0.500	ug/L					
Isopropylbenzene		ND		0.500	ug/L					
p-Isopropyltoluene		ND		0.500	ug/L					
Naphthalene		ND		0.500	ug/L					
n-Propylbenzene		ND		0.500	ug/L					
Styrene		ND		0.500	ug/L					
1,1,1,2-Tetrachloroethane		ND		0.500	ug/L					
1,1,2,2-Tetrachloroethane		ND		0.500	ug/L					
Tetrachloroethene		ND		0.500	ug/L					
Toluene		ND		0.500	ug/L					
1,2,3-Trichlorobenzene		ND		0.500	ug/L					
1,2,4-Trichlorobenzene		ND		0.500	ug/L					
1,1,1-Trichloroethane		ND		0.500	ug/L					
1,1,2-Trichloroethane		ND		0.500	ug/L					
Trichloroethene		ND		0.500	ug/L					
Trichlorofluoromethane		ND		0.500	ug/L					
1,2,3-Trichloropropane, TCP		ND		0.500	ug/L					
1,2,4-Trimethylbenzene		ND		0.500	ug/L					
1,3,5-Trimethylbenzene		ND		0.500	ug/L					
Vinyl Chloride		ND		0.500	ug/L					
o-Xylene		ND		0.500	ug/L					
m,p-Xylenes		ND		1.00	ug/L					
cis-1,3-Dichloropropene		ND		0.500	ug/L					
trans-1,3-Dichloropropene		ND		0.500	ug/L					
Methyl-tert-butyl ether (MTBE)		ND		0.500	ug/L					

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WORK ORDER: 1711068 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Prepared & Analyzed: Nov-20-17

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17K0113 (Continued)										**Analyst:** ZT
Blank (17K0113-BLK1)										
Butanone (Methyl Ethyl Ketone)		**0.00**			ug/L					
Surrogate: Dibromofluoromethane		20.2			ug/L	20.0	101	70-130		
Surrogate: Toluene-d8		20.9			ug/L	20.0	104	70-130		
Surrogate: 4-Bromofluorobenzene		18.7			ug/L	20.0	93.5	70-130		
LCS (17K0113-BS1)										
Benzene		**19.1**		0.500	ug/L	20.0	95.5	80-120		
Chlorobenzene		**16.2**		0.500	ug/L	20.0	81.0	80-120		
1,1-Dichloroethene		**20.9**		0.500	ug/L	20.0	104	80-120		
Toluene		**19.8**		0.500	ug/L	20.0	99.0	80-120		
Trichloroethene		**20.5**		0.500	ug/L	20.0	102	80-120		
Surrogate: Dibromofluoromethane		20.2			ug/L	20.0	101	70-130		
Surrogate: Toluene-d8		21.3			ug/L	20.0	106	70-130		
Surrogate: 4-Bromofluorobenzene		19.4			ug/L	20.0	97.0	70-130		

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25 YEARS
Trusted Service Testing
Air + Water + Soil

Delta Environmental Laboratories
685 Stone Road Ste. 9 - 12
Benicia, CA 94510
T: 707.747.6081
F: 707.361.5689
www.deltaenvironmentallab.com

WORK ORDER: 1711068 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Notes and Definitions

Item	Definition
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
%REC	Percent Recovery
DF	Dilution Factor
LCS	Lab Control Sample
LCSD	Lab Control Sample Duplicate
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated

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25 YEARS
Trusted Service Testing
Air + Water + Soil

Valero Benicia Refinery
Bioassay Laboratory

Sample Destination: Delta

Date: 17-Nov-17

Report Results To: Marisol.Pacheco-Mendez@Valero.com

Phone: 745-7573

David.Johnston@Valero.com

PO# Delta Benzene - 4503805062-10

1711068

Sample Notes or Special Instructions

#	Sample ID	Turn Around	Sample Size	# of Samples	Date	Time	GRAB COMP	Preserve	Temp.	Total Se 200.7	Oil & Grease EPA 1664	NH3 as N SM 4500 -NH3	CA 17 Metals EPA 200.7	Chronic *Mysidopsis bahia*	Benzene 8020	EOL Benzene (EPA 8260)	TOC - SM5310		EPA 8260	EPA 8270			
										Testing Requested													
1	EOL 10	Routine	VOA	2	17-Nov	9:35 AM	G	HCl	4.0										X				
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Samples Prepared By: 11/17/17 0935 D. Johnston
Date/Time Print Name

T: 5.3°C

Relinquished By: 11/17/17 1138 Received By:
Date/Time

EOL 1(-17-17

ED_001593_00018260

To: Lin, Sharon[Lin.Sharon@epa.gov]
Cc: Ronan, Kimberly A[Kim.Ronan@valero.com]; Suhami, Iren[Iren.Suhami@valero.com]; Cuffel, Donald[Don.Cuffel@valero.com]; Bourbon, Elizabeth[Elizabeth.Bourbon@valero.com]; Bluntzer, Megan[Megan.Bluntzer@valero.com]
From: Pacheco-Mendez, Marisol
Sent: Wed 4/5/2017 12:03:23 AM
Subject: Valero Benicia Refinery-EOL-10 data from March
2017-3-20-EOL#10_R1703100.pdf

Hello Sharon,

Pursuant to item 63 of the Consent Agreement and Final Order negotiated between EPA and Valero (RCRA EPA ID No. CAD063001770, TRI ID No. 94510XXNCS3400E), please see attached for end of line (EOL) sampling point EOL-10 data collected on March 20, 21 and 22, 2017. This data was received from the contractor laboratory on March 31, 2017.

The self-diversion was a result of a high intensity rain that has been ongoing during the month of March, 2017.

Please confirm receipt of this email.

Please contact me if you have any questions.

Regards,

Marisol Pacheco-Mendez

Valero Benicia Refinery

Staff Environmental Engineer

707-745-7573

March 31, 2017

Analytical Report

Client:	**Valero** 3400 East Second St Benicia, CA 94510
Attn:	**Marisol Pacheco-Mendez**

Work Order #:	1703100
Project:	Delta Benzene
Project #:	[none]
P.O. Number:	4503805062-10
Project Received:	March 24, 2017 14:00
Project Reported:	March 31, 2017 13:39

Sincerely,

Hossein Khoshkhoo

H. Khoshkhoo, Ph.D.
Laboratory Director / President

WORK ORDER: 1703100

COC Number:

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Summary

Lab ID	Sample	Matrix	Date Sampled	Date Received
1703100-01	EOL 10	Aqueous	March 20, 2017 10:45	March 24, 2017 14:00
1703100-02	EOL 10	Aqueous	March 20, 2017 10:45	March 24, 2017 14:00
1703100-03	EOL 10	Aqueous	March 21, 2017 12:00	March 24, 2017 14:00
1703100-04	EOL 10	Aqueous	March 22, 2017 12:00	March 24, 2017 14:00

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WORK ORDER: 1703100 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results

Sample Date: March 20, 2017 10:45

Sample: EOL 10
1703100-01 (Aqueous) **Sample Type:** Grab **Prep Date:** March 28, 2017 9:15

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625								
Dimethyl Phthalate	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Acenaphthene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Acenaphthylene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Anthracene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Benzidine	100		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Benzoic Acid	100		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Benzo (a) anthracene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Benzo (b) fluoranthene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Benzo (k) fluoranthene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Benzo (g,h,i) perylene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Benzo (a) pyrene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Benzyl Alcohol	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Bis (2-chloroethoxy) methane	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Bis (2-chloroethyl) Ether	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Bis (2-chloroisopropyl) Ether	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Bis (2-ethylhexy) Phthalate	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
4-Bromophenyl Phenyl Ether	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Butylbenzyl Phthalate	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
4-Chloroaniline	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
2-Chloronaphthalene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
4-Chlorophenyl Phenyl Ether	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Chrysene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Dibenzo (a,h) anthracene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Dibenzofuran	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Di-n-butyl Phthalate	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
1,2-Dichlorobenzene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
1,3-Dichlorobenzene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
1,4-Dichlorobenzene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
3,3'-Dichlorobenzidine	50.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Diethyl Phthalate	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
2,4-Dinitrotoluene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT

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WORK ORDER: 1703100 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: March 20, 2017 10:45

Sample: EOL 10 (Continued)
1703100-01 (Aqueous) **Sample Type:** Grab **Prep Date:** March 28, 2017 9:15

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625 (Continued)								
2,6-Dinitrotoluene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Di-n-octyl Phthalate	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Fluoranthene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Fluorene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Hexachlorobenzene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Hexachlorobutadiene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Hexachlorocyclopentadiene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Hexachloroethane	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Indeno (1,2,3-cd) pyrene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Isophorone	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
2-Methylnaphthalene	25.0		**133**	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Naphthalene	25.0		**52.5**	ug/L	5	3/28/17	EPA 625	17C0163/ZT
2-Nitroaniline	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
3-Nitroaniline	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
4-Nitroaniline	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Nitrobenzene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
N-Nitrosodiphenylamine	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
N-Nitrosodi-n-propylamine	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Phenanthrene	25.0	J	**24.4**	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Pyrene	25.0		**43.6**	ug/L	5	3/28/17	EPA 625	17C0163/ZT
1,2,4-Trichlorobenzene	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
4-Chloro-3-methylphenol	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
2-Chlorophenol	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
2,4-Dichlorophenol	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
2,4-Dimethylphenol	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
4,6-Dinitro-2-methylphenol	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
2,4-Dinitrophenol	100		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
2-Methylphenol	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
4-Methylphenol	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
2-Nitrophenol	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
4-Nitrophenol	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT

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WORK ORDER: 1703100 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: March 20, 2017 10:45

Sample: EOL 10 (Continued)
1703100-01 (Aqueous) **Sample Type:** Grab **Prep Date:** March 28, 2017 9:15

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625 (Continued)								
Pentachlorophenol	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Phenol	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
2,4,5-Trichlorophenol	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
2,4,6-Trichlorophenol	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
1,2-Diphenylhydrazine	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
N-Nitrosodimethylamine	25.0		ND	ug/L	5	3/28/17	EPA 625	17C0163/ZT
Surrogate: 2-Fluorophenol	23-91		76.5%			3/28/17	EPA 625	17C0163/ZT
Surrogate: Phenol-d6	5-93		36.8%			3/28/17	EPA 625	17C0163/ZT
Surrogate: Nitrobenzene-d5	34-141		108%			3/28/17	EPA 625	17C0163/ZT
Surrogate: 2-Fluorobiphenyl	32-144		114%			3/28/17	EPA 625	17C0163/ZT
Surrogate: 2,4,6-Tribromophenol	22-154		144%			3/28/17	EPA 625	17C0163/ZT
Surrogate: p-Terphenyl-d14	29-157		130%			3/28/17	EPA 625	17C0163/ZT

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WORK ORDER: 1703100 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: March 20, 2017 10:45

Sample: EOL 10
1703100-02 (Aqueous) **Sample Type:** Grab **Prep Date:** March 31, 2017 11:50

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	5.00		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Acrylonitrile	2.00		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Benzene	0.500		**8.40**	ug/L	1	3/31/17	EPA 624	17C0189/HK
Bromodichloromethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Bromoform	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Bromomethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Carbon Tetrachloride	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Chlorobenzene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Chloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Chloroform	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Chloromethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Dibromochloromethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,2-Dichlorobenzene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,3-Dichlorobenzene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,4-Dichlorobenzene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1-Dichloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,2-Dichloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1-Dichloroethene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,2-Dichloropropane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Ethylbenzene	0.500		**150**	ug/L	1	3/31/17	EPA 624	17C0189/HK
Methylene Chloride	0.500		**133**	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Tetrachloroethene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Toluene	0.500		**163**	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1,1-Trichloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1,2-Trichloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Trichloroethene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK

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WORK ORDER: 1703100 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: March 20, 2017 10:45

Sample: EOL 10 (Continued)
1703100-02 (Aqueous) **Sample Type:** Grab **Prep Date:** March 31, 2017 11:50

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Vinyl Chloride	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Ethylenedibromide, EDB	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Surrogate: Dibromofluoromethane	70-130					3/31/17	EPA 624	17C0189/HK
Surrogate: Toluene-d8	70-130					3/31/17	EPA 624	17C0189/HK
Surrogate: 4-Bromofluorobenzene	70-130					3/31/17	EPA 624	17C0189/HK

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WORK ORDER: 1703100 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: March 21, 2017 12:00

Sample: EOL 10
1703100-03 (Aqueous) **Sample Type:** Grab **Prep Date:** March 31, 2017 11:50

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	5.00		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Acrylonitrile	2.00		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Benzene	0.500		**6.80**	ug/L	1	3/31/17	EPA 624	17C0189/HK
Bromodichloromethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Bromoform	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Bromomethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Carbon Tetrachloride	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Chlorobenzene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Chloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Chloroform	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Chloromethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Dibromochloromethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,2-Dichlorobenzene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,3-Dichlorobenzene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,4-Dichlorobenzene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1-Dichloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,2-Dichloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1-Dichloroethene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,2-Dichloropropane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Ethylbenzene	0.500		**38.4**	ug/L	1	3/31/17	EPA 624	17C0189/HK
Methylene Chloride	0.500		**119**	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Tetrachloroethene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Toluene	0.500		**89.0**	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1,1-Trichloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1,2-Trichloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Trichloroethene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK

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WORK ORDER: 1703100 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: March 21, 2017 12:00

Sample: EOL 10 (Continued)
1703100-03 (Aqueous) **Sample Type:** Grab **Prep Date:** March 31, 2017 11:50

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Vinyl Chloride	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Ethylenedibromide, EDB	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Surrogate: Dibromofluoromethane	70-130					3/31/17	EPA 624	17C0189/HK
Surrogate: Toluene-d8	70-130					3/31/17	EPA 624	17C0189/HK
Surrogate: 4-Bromofluorobenzene	70-130					3/31/17	EPA 624	17C0189/HK

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WORK ORDER: 1703100 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: March 22, 2017 12:00

Sample: EOL 10
1703100-04 (Aqueous) **Sample Type:** Grab **Prep Date:** March 31, 2017 11:50

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	5.00		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Acrylonitrile	2.00		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Benzene	0.500		**16.6**	ug/L	1	3/31/17	EPA 624	17C0189/HK
Bromodichloromethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Bromoform	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Bromomethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Carbon Tetrachloride	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Chlorobenzene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Chloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Chloroform	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Chloromethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Dibromochloromethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,2-Dichlorobenzene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,3-Dichlorobenzene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,4-Dichlorobenzene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1-Dichloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,2-Dichloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1-Dichloroethene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,2-Dichloropropane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Ethylbenzene	0.500		**20.8**	ug/L	1	3/31/17	EPA 624	17C0189/HK
Methylene Chloride	0.500		**125**	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Tetrachloroethene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Toluene	0.500		**64.8**	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1,1-Trichloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
1,1,2-Trichloroethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Trichloroethene	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK

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WORK ORDER: 1703100 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: March 22, 2017 12:00

Sample: EOL 10 (Continued)
1703100-04 (Aqueous) **Sample Type:** Grab **Prep Date:** March 31, 2017 11:50

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Vinyl Chloride	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Ethylenedibromide, EDB	0.500		ND	ug/L	1	3/31/17	EPA 624	17C0189/HK
Surrogate: Dibromofluoromethane	70-130					3/31/17	EPA 624	17C0189/HK
Surrogate: Toluene-d8	70-130					3/31/17	EPA 624	17C0189/HK
Surrogate: 4-Bromofluorobenzene	70-130					3/31/17	EPA 624	17C0189/HK

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WORK ORDER: 1703100 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control

Semi-Volatile Organic Compounds by EPA 625 **Prepared & Analyzed: Mar-28-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17C0163										**Analyst:** ZT
Blank (17C0163-BLK1)										
Dimethyl Phthalate		**ND**		5.00	ug/L					
Acenaphthene		**ND**		5.00	ug/L					
Acenaphthylene		**ND**		5.00	ug/L					
Anthracene		**ND**		5.00	ug/L					
Benzidine		**ND**		20.0	ug/L					
Benzoic Acid		**ND**		20.0	ug/L					
Benzo (a) anthracene		**ND**		5.00	ug/L					
Benzo (b) fluoranthene		**ND**		5.00	ug/L					
Benzo (k) fluoranthene		**ND**		5.00	ug/L					
Benzo (g,h,i) perylene		**ND**		5.00	ug/L					
Benzo (a) pyrene		**ND**		5.00	ug/L					
Benzyl Alcohol		**ND**		5.00	ug/L					
Bis (2-chloroethoxy) methane		**ND**		5.00	ug/L					
Bis (2-chloroethyl) Ether		**ND**		5.00	ug/L					
Bis (2-chloroisopropyl) Ether		**ND**		5.00	ug/L					
Bis (2-ethylhexy) Phthalate		**ND**		5.00	ug/L					
4-Bromophenyl Phenyl Ether		**ND**		5.00	ug/L					
Butylbenzyl Phthalate		**ND**		5.00	ug/L					
4-Chloroaniline		**ND**		5.00	ug/L					
2-Chloronaphthalene		**ND**		5.00	ug/L					
4-Chlorophenyl Phenyl Ether		**ND**		5.00	ug/L					
Chrysene		**ND**		5.00	ug/L					
Dibenzo (a,h) anthracene		**ND**		5.00	ug/L					
Dibenzofuran		**ND**		5.00	ug/L					
Di-n-butyl Phthalate		**ND**		5.00	ug/L					
1,2-Dichlorobenzene		**ND**		5.00	ug/L					
1,3-Dichlorobenzene		**ND**		5.00	ug/L					
1,4-Dichlorobenzene		**ND**		5.00	ug/L					
3,3'-Dichlorobenzidine		**ND**		10.0	ug/L					
Diethyl Phthalate		**ND**		5.00	ug/L					
2,4-Dinitrotoluene		**ND**		5.00	ug/L					
2,6-Dinitrotoluene		**ND**		5.00	ug/L					
Di-n-octyl Phthalate		**ND**		5.00	ug/L					
Fluoranthene		**ND**		5.00	ug/L					

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WORK ORDER: 1703100 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 625 (Continued) **Prepared & Analyzed: Mar-28-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17C0163 (Continued)										**Analyst:** ZT
Blank (17C0163-BLK1)										
Fluorene		**ND**		5.00	ug/L					
Hexachlorobenzene		**ND**		5.00	ug/L					
Hexachlorobutadiene		**ND**		5.00	ug/L					
Hexachlorocyclopentadiene		**ND**		5.00	ug/L					
Hexachloroethane		**ND**		5.00	ug/L					
Indeno (1,2,3-cd) pyrene		**ND**		5.00	ug/L					
Isophorone		**ND**		5.00	ug/L					
2-Methylnaphthalene		**ND**		5.00	ug/L					
Naphthalene		**ND**		5.00	ug/L					
2-Nitroaniline		**ND**		5.00	ug/L					
3-Nitroaniline		**ND**		5.00	ug/L					
4-Nitroaniline		**ND**		5.00	ug/L					
Nitrobenzene		**ND**		5.00	ug/L					
N-Nitrosodiphenylamine		**ND**		5.00	ug/L					
N-Nitrosodi-n-propylamine		**ND**		5.00	ug/L					
Phenanthrene		**ND**		5.00	ug/L					
Pyrene		**ND**		5.00	ug/L					
1,2,4-Trichlorobenzene		**ND**		5.00	ug/L					
4-Chloro-3-methylphenol		**ND**		5.00	ug/L					
2-Chlorophenol		**ND**		5.00	ug/L					
2,4-Dichlorophenol		**ND**		5.00	ug/L					
2,4-Dimethylphenol		**ND**		5.00	ug/L					
4,6-Dinitro-2-methylphenol		**ND**		5.00	ug/L					
2,4-Dinitrophenol		**ND**		20.0	ug/L					
2-Methylphenol		**ND**		5.00	ug/L					
4-Methylphenol		**ND**		5.00	ug/L					
2-Nitrophenol		**ND**		5.00	ug/L					
4-Nitrophenol		**ND**		5.00	ug/L					
Pentachlorophenol		**ND**		5.00	ug/L					
Phenol		**ND**		5.00	ug/L					
2,4,5-Trichlorophenol		**ND**		5.00	ug/L					
2,4,6-Trichlorophenol		**ND**		5.00	ug/L					
1,2-Diphenylhydrazine		**ND**		5.00	ug/L					
N-Nitrosodimethylamine		**ND**		5.00	ug/L					

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WORK ORDER: 1703100 **COC Number:**

Valero
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Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 625 (Continued)

Prepared & Analyzed: Mar-28-17

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17C0163 (Continued)										**Analyst:** ZT
Blank (17C0163-BLK1)										
Surrogate: 2-Fluorophenol		145			ug/L	200	72.5	23-91		
Surrogate: Phenol-d6		119			ug/L	200	59.5	5-93		
Surrogate: Nitrobenzene-d5		79.3			ug/L	100	79.3	34-141		
Surrogate: 2-Fluorobiphenyl		105			ug/L	100	105	32-144		
Surrogate: 2,4,6-Tribromophenol		205			ug/L	200	102	22-154		
Surrogate: p-Terphenyl-d14		81.2			ug/L	100	81.2	29-157		
LCS (17C0163-BS1)										
Acenaphthene		**46.5**		5.00	ug/L	50.0	93.0	31-123		
1,4-Dichlorobenzene		**37.6**		5.00	ug/L	50.0	75.2	27-113		
2,4-Dinitrotoluene		**44.9**		5.00	ug/L	50.0	89.8	34-128		
N-Nitrosodi-n-propylamine		**42.3**		5.00	ug/L	50.0	84.6	30-139		
Pyrene		**33.6**		5.00	ug/L	50.0	67.2	27-136		
1,2,4-Trichlorobenzene		**46.6**		5.00	ug/L	50.0	93.2	29-105		
4-Chloro-3-methylphenol		**45.0**		5.00	ug/L	50.0	90.0	28-125		
2-Chlorophenol		**42.6**		5.00	ug/L	50.0	85.2	29-104		
4-Nitrophenol		**34.4**		5.00	ug/L	50.0	68.8	0-112		
Pentachlorophenol		**47.7**		5.00	ug/L	50.0	95.4	0-165		
Phenol		**23.9**		5.00	ug/L	50.0	47.8	0.4-70		
Surrogate: 2-Fluorophenol		142			ug/L	200	71.0	23-92		
Surrogate: Phenol-d6		114			ug/L	200	57.0	5-93		
Surrogate: Nitrobenzene-d5		82.5			ug/L	100	82.5	34-141		
Surrogate: 2-Fluorobiphenyl		99.6			ug/L	100	99.6	32-144		
Surrogate: 2,4,6-Tribromophenol		213			ug/L	200	106	22-154		
Surrogate: p-Terphenyl-d14		83.9			ug/L	100	83.9	29-157		

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WORK ORDER: 1703100 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Volatile Organic Compounds by EPA 624 **Prepared & Analyzed: Mar-31-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17C0189										**Analyst:** HK
Blank (17C0189-BLK1)										
Acrolein		**ND**		5.00	ug/L					
Acrylonitrile		**ND**		2.00	ug/L					
Benzene		**ND**		0.500	ug/L					
Bromodichloromethane		**ND**		0.500	ug/L					
Bromoform		**ND**		0.500	ug/L					
Bromomethane		**ND**		0.500	ug/L					
Carbon Tetrachloride		**ND**		0.500	ug/L					
Chlorobenzene		**ND**		0.500	ug/L					
Chloroethane		**ND**		0.500	ug/L					
Chloroform		**ND**		0.500	ug/L					
Chloromethane		**ND**		0.500	ug/L					
Dibromochloromethane		**ND**		0.500	ug/L					
1,2-Dichlorobenzene		**ND**		0.500	ug/L					
1,3-Dichlorobenzene		**ND**		0.500	ug/L					
1,4-Dichlorobenzene		**ND**		0.500	ug/L					
1,1-Dichloroethane		**ND**		0.500	ug/L					
1,2-Dichloroethane		**ND**		0.500	ug/L					
1,1-Dichloroethene		**ND**		0.500	ug/L					
trans-1,2-Dichloroethene		**ND**		0.500	ug/L					
1,2-Dichloropropane		**ND**		0.500	ug/L					
cis-1,3-Dichloropropene		**ND**		0.500	ug/L					
trans-1,3-Dichloropropene		**ND**		0.500	ug/L					
2-Chloroethylvinyl ether		**ND**		0.500	ug/L					
Ethylbenzene		**ND**		0.500	ug/L					
Methylene Chloride		**ND**		0.500	ug/L					
1,1,2,2-Tetrachloroethane		**ND**		0.500	ug/L					
Tetrachloroethene		**ND**		0.500	ug/L					
Toluene		**ND**		0.500	ug/L					
1,1,1-Trichloroethane		**ND**		0.500	ug/L					
1,1,2-Trichloroethane		**ND**		0.500	ug/L					
Trichloroethene		**ND**		0.500	ug/L					
Trichlorofluoromethane		**ND**		0.500	ug/L					
Vinyl Chloride		**ND**		0.500	ug/L					
Methyl-tert-butyl ether (MTBE)		**ND**		0.500	ug/L					

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WORK ORDER: 1703100 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Volatile Organic Compounds by EPA 624 (Continued)

Prepared & Analyzed: Mar-31-17

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17C0189 (Continued)										**Analyst:** HK
Blank (17C0189-BLK1)										
Ethylenedibromide, EDB		**ND**		0.500	ug/L					
Surrogate: Dibromofluoromethane		20.0			ug/L			70-130		
Surrogate: Toluene-d8		20.0			ug/L			70-130		
Surrogate: 4-Bromofluorobenzene		20.0			ug/L			70-130		
LCS (17C0189-BS1)										
Benzene		**19.8**		0.500	ug/L	20.0	99.0	80-120		
Chlorobenzene		**21.0**		0.500	ug/L	20.0	105	80-120		
1,1-Dichloroethene		**23.0**		0.500	ug/L	20.0	115	80-120		
Trichloroethene		**17.0**		0.500	ug/L	20.0	85.0	80-120		
Methyl-tert-butyl ether (MTBE)		**20.0**		0.500	ug/L	20.0	100	80-120		
Surrogate: Dibromofluoromethane		26.0			ug/L			70-130		
Surrogate: Toluene-d8		21.0			ug/L			70-130		
Surrogate: 4-Bromofluorobenzene		21.0			ug/L			70-130		

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WORK ORDER: 1703100 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number: 4503805062-10
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Notes and Definitions

Item	Definition
J	The result is less than the reporting limit, but greater than the MDL.
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
%REC	Percent Recovery
DF	Dilution Factor
LCS	Lab Control Sample
LCSD	Lab Control Sample Duplicate
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated
J	Results > MDL but < MRL

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Valero Benicia Refinery
Bioassay Laboratory

Sample Destination: Delta

Date: 24-Mar-17

Report Results To: Marisol.Pacheco-Mendez@Valero.com

Phone: 745-7573

David.Johnston@Valero.com

PO# Delta Benzene - 4503805062-10

1703100

Sample Notes or Special Instructions

#	Sample ID	Turn Around	Sample Size	# of Samples	Date	Time	GRAB COMP	Preserve	Temp.	Total Se 200.7	Oil & Grease EPA 1664	NH3 as N SM 4500 -NH3	CA 17 Metals EPA 200.7	Chronic *Mysidopsis bahia*	Benzene 8020	EOL Benzene (EPA 8260)	TOC - SM5310		EPA 624	EPA 625			
										Testing Requested													
1	EOL 10	Routine	1L	2	20-Mar	10:45 PM	G	None	4.0											X			
2	EOL 10	Routine	VOA	2	20-Mar	10:45 PM	G	HCL	4.0										X				
3	EOL 10	Routine	VOA	2	21-Mar	12:00 AM	G	HCL	4.0										X				
4	EOL 10	Routine	VOA	2	22-Mar	12:00 AM	G	HCL	4.0										X				
5																							
6																							
7																							
8																							
9																							
10																							

Samples Prepared By: 3/24/17 Date/Time D. Johnston Print Name

Relinquished By: 3/24/17 1900 Date/Time Received By: Prabhjot Dhillon

T=8.5°C

EOL 10 3-24-17

ED_001593_00018262

To: Lin, Sharon[Lin.Sharon@epa.gov]
Cc: Ronan, Kimberly A[Kim.Ronan@valero.com]; Bourbon, Elizabeth[Elizabeth.Bourbon@valero.com]; Cuffel, Donald[Don.Cuffel@valero.com]
From: Pacheco-Mendez, Marisol
Sent: Fri 6/30/2017 2:43:07 PM
Subject: Valero Benicia EOL_10 Data
Self Divertion_11-27 and 28-2016_R1611097.pdf
SelfDiversion to RP_R1701028.pdf
Self Diversion_R1701114.pdf
2017-2-7 EOL10_R1702055.pdf
Self Diversion_R1702034F.pdf

Hi Sharon,

In reviewing our records, we do not have confirmation that you received these files. Pursuant to item 63 of the Consent Agreement and Final Order negotiated between EPA and Valero (RCRA EPA ID No. CAD063001770, TRI ID No. 94510XXNCS3400E), please see attached for end of line (EOL) sampling point EOL-10 data collected on November 27-28, 2016, January 4,5,7,9,10,24, 2017 and February 7, 22,23,2017. This data was received from the contractor laboratory on December 1, 2016, January 12, 2017, February 8, 2017 and February 23, 2017 respectively.

Please confirm receipt of this email.

Please contact me if you have any questions.

Marisol Pacheco-Mendez

Valero Benicia Refinery

Staff Environmental Engineer

707-745-7573

February 23, 2017

Analytical Report

Client:	**Valero** 3400 East Second St Benicia, CA 94510
Attn:	**David Johnston**

Work Order #:	1702055
Project:	Wastewater
Project #:	[none]
P.O. Number:	4503523772
Project Received:	February 14, 2017 9:45
Project Reported:	February 23, 2017 17:25

Sincerely,

Hossein Khoshkhoo

H. Khoshkhoo, Ph.D.
Laboratory Director / President

WORK ORDER: 1702055

COC Number:

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Summary

Lab ID	Sample	Matrix	Date Sampled	Date Received
1702055-01	Retention Pond to CFRP	Aqueous	February 8, 2017 6:30	February 14, 2017 9:45
1702055-02	Retention Pond to CFRP	Aqueous	February 8, 2017 6:30	February 14, 2017 9:45
1702055-03	Retention Pond to CFRP	Aqueous	February 9, 2017 12:00	February 14, 2017 9:45
1702055-04	Retention Pond to CFRP	Aqueous	February 10, 2017 12:00	February 14, 2017 9:45
1702055-05	EOL 10	Aqueous	February 8, 2017 12:00	February 14, 2017 9:45
1702055-06	EOL 10	Aqueous	February 7, 2017 12:00	February 14, 2017 9:45
1702055-07	EOL 10	Aqueous	February 10, 2017 12:00	February 14, 2017 9:45
1702055-08	EOL 10	Aqueous	February 11, 2017 12:00	February 14, 2017 9:45

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results

Sample Date: February 8, 2017 6:30

Sample: **Retention Pond to CFRP**
1702055-01 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 12:49

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625								
Dimethyl Phthalate	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Acenaphthene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Acenaphthylene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Anthracene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Benzidine	20.0		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Benzoic Acid	20.0		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Benzo (a) anthracene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Benzo (b) fluoranthene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Benzo (k) fluoranthene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Benzo (g,h,i) perylene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Benzo (a) pyrene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Benzyl Alcohol	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Bis (2-chloroethoxy) methane	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Bis (2-chloroethyl) Ether	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Bis (2-chloroisopropyl) Ether	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Bis (2-ethylhexy) Phthalate	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
4-Bromophenyl Phenyl Ether	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Butylbenzyl Phthalate	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
4-Chloroaniline	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
2-Chloronaphthalene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
4-Chlorophenyl Phenyl Ether	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Chrysene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Dibenzo (a,h) anthracene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Dibenzofuran	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Di-n-butyl Phthalate	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
1,2-Dichlorobenzene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
1,3-Dichlorobenzene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
1,4-Dichlorobenzene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
3,3'-Dichlorobenzidine	10.0		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Diethyl Phthalate	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
2,4-Dinitrotoluene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 8, 2017 6:30

Sample: Retention Pond to CFRP (Continued)
1702055-01 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 12:49

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625 (Continued)								
2,6-Dinitrotoluene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Di-n-octyl Phthalate	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Fluoranthene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Fluorene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Hexachlorobenzene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Hexachlorobutadiene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Hexachlorocyclopentadiene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Hexachloroethane	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Indeno (1,2,3-cd) pyrene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Isophorone	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
2-Methylnaphthalene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Naphthalene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
2-Nitroaniline	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
3-Nitroaniline	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
4-Nitroaniline	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Nitrobenzene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
N-Nitrosodiphenylamine	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
N-Nitrosodi-n-propylamine	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Phenanthrene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Pyrene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
1,2,4-Trichlorobenzene	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
4-Chloro-3-methylphenol	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
2-Chlorophenol	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
2,4-Dichlorophenol	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
2,4-Dimethylphenol	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
4,6-Dinitro-2-methylphenol	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
2,4-Dinitrophenol	20.0		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
2-Methylphenol	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
4-Methylphenol	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
2-Nitrophenol	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
4-Nitrophenol	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 8, 2017 6:30

Sample: Retention Pond to CFRP (Continued)
1702055-01 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 12:49

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625 (Continued)								
Pentachlorophenol	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Phenol	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
2,4,5-Trichlorophenol	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
2,4,6-Trichlorophenol	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
1,2-Diphenylhydrazine	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
N-Nitrosodimethylamine	5.00		ND	ug/L	1	2/20/17	EPA 625	17B0110/ZT
Surrogate: 2-Fluorophenol	23-91		62.0%			2/20/17	EPA 625	17B0110/ZT
Surrogate: Phenol-d6	5-93		48.3%			2/20/17	EPA 625	17B0110/ZT
Surrogate: Nitrobenzene-d5	34-141		101%			2/20/17	EPA 625	17B0110/ZT
Surrogate: 2-Fluorobiphenyl	32-144		105%			2/20/17	EPA 625	17B0110/ZT
Surrogate: 2,4,6-Tribromophenol	22-154		103%			2/20/17	EPA 625	17B0110/ZT
Surrogate: p-Terphenyl-d14	29-157		110%			2/20/17	EPA 625	17B0110/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 8, 2017 6:30

Sample: **Retention Pond to CFRP**
1702055-02 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 10:43

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Benzene	0.500		**7.95**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromodichloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromoform	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromomethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloroform	0.500		**0.920**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloromethane	0.500		**2.26**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Dibromochloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Ethylbenzene	0.500		**1.85**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Methylene Chloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Tetrachloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Toluene	0.500		**9.49**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Trichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Trichlorofluoromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Vinyl Chloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 8, 2017 6:30

Sample: Retention Pond to CFRP (Continued)
1702055-02 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 10:43

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Surrogate: Dibromofluoromethane	70-130		100%			2/18/17	EPA 624	17B0103/ZT
Surrogate: Toluene-d8	70-130		102%			2/18/17	EPA 624	17B0103/ZT
Surrogate: 4-Bromofluorobenzene	70-130		90.5%			2/18/17	EPA 624	17B0103/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 9, 2017 12:00

Sample: **Retention Pond to CFRP**
1702055-03 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 10:43

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Benzene	0.500		**5.76**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromodichloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromoform	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromomethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloroform	0.500		**0.810**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Dibromochloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Ethylbenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Methylene Chloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Tetrachloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Toluene	0.500		**4.96**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Trichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Trichlorofluoromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Vinyl Chloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 9, 2017 12:00

Sample: Retention Pond to CFRP (Continued)
1702055-03 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 10:43

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Surrogate: Dibromofluoromethane	70-130		100%			2/18/17	EPA 624	17B0103/ZT
Surrogate: Toluene-d8	70-130		101%			2/18/17	EPA 624	17B0103/ZT
Surrogate: 4-Bromofluorobenzene	70-130		87.0%			2/18/17	EPA 624	17B0103/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 10, 2017 12:00

Sample: **Retention Pond to CFRP**
1702055-04 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 10:43

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Benzene	0.500		**20.5**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromodichloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromoform	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromomethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloroform	0.500		**0.830**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Dibromochloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Ethylbenzene	0.500		**0.720**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Methylene Chloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Tetrachloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Toluene	0.500		**16.9**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Trichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Trichlorofluoromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Vinyl Chloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 10, 2017 12:00

Sample: Retention Pond to CFRP (Continued)
1702055-04 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 10:43

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Surrogate: Dibromofluoromethane	70-130		98.0%			2/18/17	EPA 624	17B0103/ZT
Surrogate: Toluene-d8	70-130		99.0%			2/18/17	EPA 624	17B0103/ZT
Surrogate: 4-Bromofluorobenzene	70-130		89.5%			2/18/17	EPA 624	17B0103/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 8, 2017 12:00

Sample: EOL 10
1702055-05 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 10:43

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Benzene	0.500		**2.93**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromodichloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromoform	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromomethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloroform	0.500		**2.28**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Dibromochloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Ethylbenzene	0.500		**11.6**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Methylene Chloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Tetrachloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Toluene	0.500		**24.0**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Trichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Trichlorofluoromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Vinyl Chloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 8, 2017 12:00

Sample: EOL 10 (Continued)
1702055-05 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 10:43

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Surrogate: Dibromofluoromethane	70-130		100%			2/18/17	EPA 624	17B0103/ZT
Surrogate: Toluene-d8	70-130		100%			2/18/17	EPA 624	17B0103/ZT
Surrogate: 4-Bromofluorobenzene	70-130		99.5%			2/18/17	EPA 624	17B0103/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 7, 2017 12:00

Sample: EOL 10
1702055-06 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 10:43

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Benzene	0.500		**45.6**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromodichloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromoform	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromomethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloroform	0.500		**2.44**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Dibromochloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Ethylbenzene	0.500		**10.3**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Methylene Chloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Tetrachloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Toluene	0.500		**59.8**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Trichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Trichlorofluoromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Vinyl Chloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 7, 2017 12:00

Sample: EOL 10 (Continued)
1702055-06 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 10:43

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Surrogate: Dibromofluoromethane	70-130		98.0%			2/18/17	EPA 624	17B0103/ZT
Surrogate: Toluene-d8	70-130		99.5%			2/18/17	EPA 624	17B0103/ZT
Surrogate: 4-Bromofluorobenzene	70-130		94.5%			2/18/17	EPA 624	17B0103/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 10, 2017 12:00

Sample: EOL 10
1702055-07 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 10:43

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Benzene	0.500		**60.6**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromodichloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromoform	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromomethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloroform	0.500		**1.42**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Dibromochloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Ethylbenzene	0.500		**13.1**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Methylene Chloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Tetrachloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Toluene	0.500		**82.4**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Trichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Trichlorofluoromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Vinyl Chloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 10, 2017 12:00

Sample: EOL 10 (Continued)
1702055-07 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 10:43

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Surrogate: Dibromofluoromethane	70-130		94.5%			2/18/17	EPA 624	17B0103/ZT
Surrogate: Toluene-d8	70-130		100%			2/18/17	EPA 624	17B0103/ZT
Surrogate: 4-Bromofluorobenzene	70-130		96.5%			2/18/17	EPA 624	17B0103/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 11, 2017 12:00

Sample: EOL 10
1702055-08 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 10:43

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Benzene	0.500		**31.4**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromodichloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromoform	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Bromomethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloroform	0.500		**1.58**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Chloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Dibromochloromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Ethylbenzene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Methylene Chloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Tetrachloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Toluene	0.500		**15.2**	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Trichloroethene	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Trichlorofluoromethane	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT
Vinyl Chloride	0.500		ND	ug/L	1	2/18/17	EPA 624	17B0103/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: February 11, 2017 12:00

Sample: EOL 10 (Continued)
1702055-08 (Aqueous) **Sample Type:** Grab **Prep Date:** February 17, 2017 10:43

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Surrogate: Dibromofluoromethane	70-130		97.0%			2/18/17	EPA 624	17B0103/ZT
Surrogate: Toluene-d8	70-130		104%			2/18/17	EPA 624	17B0103/ZT
Surrogate: 4-Bromofluorobenzene	70-130		93.0%			2/18/17	EPA 624	17B0103/ZT

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Quality Control

Semi-Volatile Organic Compounds by EPA 625

Prepared: Feb-17-17 Analyzed: Feb-20-17

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17B0110										**Analyst:** ZT
Blank (17B0110-BLK1)										
Dimethyl Phthalate		**ND**		5.00	ug/L					
Acenaphthene		**ND**		5.00	ug/L					
Acenaphthylene		**ND**		5.00	ug/L					
Anthracene		**ND**		5.00	ug/L					
Benzidine		**ND**		20.0	ug/L					
Benzoic Acid		**ND**		20.0	ug/L					
Benzo (a) anthracene		**ND**		5.00	ug/L					
Benzo (b) fluoranthene		**ND**		5.00	ug/L					
Benzo (k) fluoranthene		**ND**		5.00	ug/L					
Benzo (g,h,i) perylene		**ND**		5.00	ug/L					
Benzo (a) pyrene		**ND**		5.00	ug/L					
Benzyl Alcohol		**ND**		5.00	ug/L					
Bis (2-chloroethoxy) methane		**ND**		5.00	ug/L					
Bis (2-chloroethyl) Ether		**ND**		5.00	ug/L					
Bis (2-chloroisopropyl) Ether		**ND**		5.00	ug/L					
Bis (2-ethylhexy) Phthalate		**ND**		5.00	ug/L					
4-Bromophenyl Phenyl Ether		**ND**		5.00	ug/L					
Butylbenzyl Phthalate		**ND**		5.00	ug/L					
4-Chloroaniline		**ND**		5.00	ug/L					
2-Chloronaphthalene		**ND**		5.00	ug/L					
4-Chlorophenyl Phenyl Ether		**ND**		5.00	ug/L					
Chrysene		**ND**		5.00	ug/L					
Dibenzo (a,h) anthracene		**ND**		5.00	ug/L					
Dibenzofuran		**ND**		5.00	ug/L					
Di-n-butyl Phthalate		**ND**		5.00	ug/L					
1,2-Dichlorobenzene		**ND**		5.00	ug/L					
1,3-Dichlorobenzene		**ND**		5.00	ug/L					
1,4-Dichlorobenzene		**ND**		5.00	ug/L					
3,3'-Dichlorobenzidine		**ND**		10.0	ug/L					
Diethyl Phthalate		**ND**		5.00	ug/L					
2,4-Dinitrotoluene		**ND**		5.00	ug/L					
2,6-Dinitrotoluene		**ND**		5.00	ug/L					
Di-n-octyl Phthalate		**ND**		5.00	ug/L					
Fluoranthene		**ND**		5.00	ug/L					

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 625 (Continued) **Prepared: Feb-17-17 Analyzed: Feb-20-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17B0110 (Continued)										**Analyst:** ZT
Blank (17B0110-BLK1)										
Fluorene		**ND**		5.00	ug/L					
Hexachlorobenzene		**ND**		5.00	ug/L					
Hexachlorobutadiene		**ND**		5.00	ug/L					
Hexachlorocyclopentadiene		**ND**		5.00	ug/L					
Hexachloroethane		**ND**		5.00	ug/L					
Indeno (1,2,3-cd) pyrene		**ND**		5.00	ug/L					
Isophorone		**ND**		5.00	ug/L					
2-Methylnaphthalene		**ND**		5.00	ug/L					
Naphthalene		**ND**		5.00	ug/L					
2-Nitroaniline		**ND**		5.00	ug/L					
3-Nitroaniline		**ND**		5.00	ug/L					
4-Nitroaniline		**ND**		5.00	ug/L					
Nitrobenzene		**ND**		5.00	ug/L					
N-Nitrosodiphenylamine		**ND**		5.00	ug/L					
N-Nitrosodi-n-propylamine		**ND**		5.00	ug/L					
Phenanthrene		**ND**		5.00	ug/L					
Pyrene		**ND**		5.00	ug/L					
1,2,4-Trichlorobenzene		**ND**		5.00	ug/L					
4-Chloro-3-methylphenol		**ND**		5.00	ug/L					
2-Chlorophenol		**ND**		5.00	ug/L					
2,4-Dichlorophenol		**ND**		5.00	ug/L					
2,4-Dimethylphenol		**ND**		5.00	ug/L					
4,6-Dinitro-2-methylphenol		**ND**		5.00	ug/L					
2,4-Dinitrophenol		**ND**		20.0	ug/L					
2-Methylphenol		**ND**		5.00	ug/L					
4-Methylphenol		**ND**		5.00	ug/L					
2-Nitrophenol		**ND**		5.00	ug/L					
4-Nitrophenol		**ND**		5.00	ug/L					
Pentachlorophenol		**ND**		5.00	ug/L					
Phenol		**ND**		5.00	ug/L					
2,4,5-Trichlorophenol		**ND**		5.00	ug/L					
2,4,6-Trichlorophenol		**ND**		5.00	ug/L					
1,2-Diphenylhydrazine		**ND**		5.00	ug/L					
N-Nitrosodimethylamine		**ND**		5.00	ug/L					

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 625 (Continued)

Prepared: Feb-17-17 Analyzed: Feb-20-17

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17B0110 (Continued)										**Analyst:** ZT
Blank (17B0110-BLK1)										
Surrogate: 2-Fluorophenol		195			ug/L	200	97.5	23-91		
Surrogate: Phenol-d6		199			ug/L	200	99.5	5-93		
Surrogate: Nitrobenzene-d5		105			ug/L	100	105	34-141		
Surrogate: 2-Fluorobiphenyl		107			ug/L	100	107	32-144		
Surrogate: 2,4,6-Tribromophenol		173			ug/L	200	86.5	22-154		
Surrogate: p-Terphenyl-d14		103			ug/L	100	103	29-157		
LCS (17B0110-BS1)										
Acenaphthene		**42.1**		5.00	ug/L	50.0	84.2	31-123		
1,4-Dichlorobenzene		**42.9**		5.00	ug/L	50.0	85.8	27-113		
2,4-Dinitrotoluene		**38.1**		5.00	ug/L	50.0	76.2	34-128		
N-Nitrosodi-n-propylamine		**44.3**		5.00	ug/L	50.0	88.6	30-139		
Pyrene		**30.7**		5.00	ug/L	50.0	61.4	27-136		
1,2,4-Trichlorobenzene		**43.1**		5.00	ug/L	50.0	86.2	29-105		
4-Chloro-3-methylphenol		**36.3**		5.00	ug/L	50.0	72.6	28-125		
2-Chlorophenol		**36.3**		5.00	ug/L	50.0	72.6	29-104		
4-Nitrophenol		**31.8**		5.00	ug/L	50.0	63.6	0-112		
Pentachlorophenol		**33.4**		5.00	ug/L	50.0	66.8	0-165		
Phenol		**36.2**		5.00	ug/L	50.0	72.4	0.4-70		
Surrogate: 2-Fluorophenol		186			ug/L	200	93.0	23-92		
Surrogate: Phenol-d6		191			ug/L	200	95.5	5-93		
Surrogate: Nitrobenzene-d5		109			ug/L	100	109	34-141		
Surrogate: 2-Fluorobiphenyl		110			ug/L	100	110	32-144		
Surrogate: 2,4,6-Tribromophenol		186			ug/L	200	93.0	22-154		
Surrogate: p-Terphenyl-d14		109			ug/L	100	109	29-157		

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Quality Control
(Continued)

Volatile Organic Compounds by EPA 624 **Prepared: Feb-17-17 Analyzed: Feb-18-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17B0103										**Analyst:** ZT
Blank (17B0103-BLK1)										
Benzene		**ND**		0.500	ug/L					
Bromodichloromethane		**ND**		0.500	ug/L					
Bromoform		**ND**		0.500	ug/L					
Bromomethane		**ND**		0.500	ug/L					
Carbon Tetrachloride		**ND**		0.500	ug/L					
Chlorobenzene		**ND**		0.500	ug/L					
Chloroethane		**ND**		0.500	ug/L					
Chloroform		**ND**		0.500	ug/L					
Chloromethane		**ND**		0.500	ug/L					
Dibromochloromethane		**ND**		0.500	ug/L					
1,2-Dichlorobenzene		**ND**		0.500	ug/L					
1,3-Dichlorobenzene		**ND**		0.500	ug/L					
1,4-Dichlorobenzene		**ND**		0.500	ug/L					
1,1-Dichloroethane		**ND**		0.500	ug/L					
1,2-Dichloroethane		**ND**		0.500	ug/L					
1,1-Dichloroethene		**ND**		0.500	ug/L					
trans-1,2-Dichloroethene		**ND**		0.500	ug/L					
1,2-Dichloropropane		**ND**		0.500	ug/L					
cis-1,3-Dichloropropene		**ND**		0.500	ug/L					
trans-1,3-Dichloropropene		**ND**		0.500	ug/L					
2-Chloroethylvinyl ether		**ND**		0.500	ug/L					
Ethylbenzene		**ND**		0.500	ug/L					
Methylene Chloride		**ND**		0.500	ug/L					
1,1,2,2-Tetrachloroethane		**ND**		0.500	ug/L					
Tetrachloroethene		**ND**		0.500	ug/L					
Toluene		**ND**		0.500	ug/L					
1,1,1-Trichloroethane		**ND**		0.500	ug/L					
1,1,2-Trichloroethane		**ND**		0.500	ug/L					
Trichloroethene		**ND**		0.500	ug/L					
Trichlorofluoromethane		**ND**		0.500	ug/L					
Vinyl Chloride		**ND**		0.500	ug/L					
Surrogate: Dibromofluoromethane		19.8			ug/L	20.0	99.0	70-130		
Surrogate: Toluene-d8		19.1			ug/L	20.0	95.5	70-130		

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Quality Control
(Continued)

Volatile Organic Compounds by EPA 624 (Continued)

Prepared: Feb-17-17 Analyzed: Feb-18-17

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17B0103 (Continued)										**Analyst:** ZT
Blank (17B0103-BLK1)										
Surrogate: 4-Bromofluorobenzene		15.4			ug/L	20.0	77.0	70-130		
LCS (17B0103-BS1)										
Benzene		**19.9**		0.500	ug/L	20.0	99.5	80-120		
Chlorobenzene		**20.5**		0.500	ug/L	20.0	102	80-120		
1,1-Dichloroethene		**19.9**		0.500	ug/L	20.0	99.5	80-120		
Toluene		**19.7**		0.500	ug/L	20.0	98.5	80-120		
Trichloroethene		**20.2**		0.500	ug/L	20.0	101	80-120		
Surrogate: Dibromofluoromethane		19.5			ug/L	20.0	97.5	70-130		
Surrogate: Toluene-d8		19.7			ug/L	20.0	98.5	70-130		
Surrogate: 4-Bromofluorobenzene		19.8			ug/L	20.0	99.0	70-130		
LCS Dup (17B0103-BSD1)										
Benzene		**21.3**		0.500	ug/L	20.0	106	80-120	6.80	20
Chlorobenzene		**21.4**		0.500	ug/L	20.0	107	80-120	4.30	20
1,1-Dichloroethene		**21.8**		0.500	ug/L	20.0	109	80-120	9.11	20
Toluene		**22.5**		0.500	ug/L	20.0	112	80-120	13.3	20
Trichloroethene		**22.3**		0.500	ug/L	20.0	112	80-120	9.88	20
Surrogate: Dibromofluoromethane		19.7			ug/L	20.0	98.5	70-130		
Surrogate: Toluene-d8		20.8			ug/L	20.0	104	70-130		
Surrogate: 4-Bromofluorobenzene		19.8			ug/L	20.0	99.0	70-130		

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WORK ORDER: 1702055 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Notes and Definitions

Item	Definition
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
%REC	Percent Recovery
DF	Dilution Factor
LCS	Lab Control Sample
LCSD	Lab Control Sample Duplicate
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated
J	Results > MDL but < MRL

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
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Valero Benicia Refinery
Bioassay Laboratory

Date: 14-Feb-17

Sample Destination: Delta

Report Results To: Marisol.Pacheco-Mendez@Valero.com

David.Johnston@Valero.com

Phone: _____

1702055

PO# Delta Benzene - 4503805062-10

Sample Notes or Special Instructions

#	Sample ID	Turn Around	Sample Size	# of Samples	Date	Time	GRAB COMP	Preserve	Temp.	Total Se 200.7	Oil & Grease EPA 1664	NH3 as N SM 4500 -NH3	CA 17 Metals EPA 200.7	Chronic *Mysidopsis bahia*	Benzene 8020	EOL Benzene (EPA 8260)	TOC - SM5310		EPA 624	EPA 625			
										Testing Requested													
1	Retention Pond to CFRP	Routine	1L	2	8-Feb	6:30 PM	g	None	4.0											X			
2	Retention Pond to CFRP	Routine	VOA	2	8-Feb	6:30 PM	G	HCl	4.0										X				
3	Retention Pond to CFRP	Routine	VOA	2	9-Feb	12:00 AM	G	HCl	4.0										X				
4	Retention Pond to CFRP	Routine	VOA	2	10-Feb	12:00 AM	G	HCl	4.0										X				
5	EOL 10	Routine	VOA	2	8-Feb	12:00 AM	G	HCl	4.0										X				
6	EOL 10	Routine	VOA	2	7-Feb	12:00 AM	G	HCl	4.0										X				
7	EOL 10	Routine	VOA	2	10-Feb	12:00 AM	G	HCl	4.0										X				
8	EOL 10	Routine	VOA	2	11-Feb	12:00 AM	G	HCl	4.0										X				
9																							
10																							

Samples Prepared By: [signature] 2/14/17 0930 D. Johnston
Date/Time Print Name

T07 A'C

Relinquished By: [signature] 2/14/17 0935 Received By: Chelsea Feeney 2/14/17 @ 9:45
Date/Time

EOL 10 2-14-17

February 08, 2017

Analytical Report

Client:	**Valero** 3400 East Second St Benicia, CA 94510
Attn:	**David Johnston**

Work Order #:	1701114
Project:	Wastewater
Project #:	[none]
P.O. Number:	4503523772
Project Received:	January 31, 2017 11:20
Project Reported:	February 8, 2017 10:22

Sincerely,

Hossein Khoshkhoo

H. Khoshkhoo, Ph.D.
Laboratory Director / President

WORK ORDER: 1701114

COC Number:

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Summary

Lab ID	Sample	Matrix	Date Sampled	Date Received
1701114-01	EOL 1 Diversion Inlet	Aqueous	January 27, 2017 4:00	January 31, 2017 11:20
1701114-02	EOL 2 T-2831 Btms	Aqueous	January 20, 2017 3:00	January 31, 2017 11:20
1701114-03	EOL 10 Self Diversion to RP	Aqueous	January 24, 2017 12:00	January 31, 2017 11:20

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WORK ORDER: 1701114 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results

Sample Date: January 27, 2017 4:00

Sample: **EOL 1 Diversion Inlet**
1701114-01 (Aqueous) **Sample Type:** Grab **Prep Date:** February 8, 2017 9:47

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
BTEX Analysis by EPA 8020								
Benzene	0.001		**0.04**	mg/L	1	2/8/17	EPA 8020	17B0032/HK

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WORK ORDER: 1701114 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: January 20, 2017 3:00

Sample: EOL 2 T-2831 Btms
1701114-02 (Aqueous) **Sample Type:** Grab **Prep Date:** February 1, 2017 9:47

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
BTEX Analysis by EPA 8020								
Benzene	0.001		**0.03**	mg/L	1	2/8/17	EPA 8020	17B0032/HK

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WORK ORDER: 1701114 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Sample Results
(Continued)

Sample Date: January 24, 2017 12:00

Sample: **EOL 10 Self Diversion to RP**
1701114-03 (Aqueous) **Sample Type:** Grab **Prep Date:** February 1, 2017 9:47

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
BTEX Analysis by EPA 8020								
Benzene	0.001		**0.006**	mg/L	1	2/8/17	EPA 8020	17B0032/HK

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WORK ORDER: 1701114 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Quality Control

BTEX Analysis by EPA 8020 **Prepared & Analyzed: Feb-08-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17B0032										**Analyst:** HK
Blank (17B0032-BLK1)										
Benzene		**ND**		0.001	mg/L					
LCS (17B0032-BS1)										
Benzene		**0.02**		0.001	mg/L	0.0200	110	80-120		

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WORK ORDER: 1701114 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: David Johnston
Project #:[none]

Notes and Definitions

Item	Definition
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
%REC	Percent Recovery
DF	Dilution Factor
LCS	Lab Control Sample
LCSD	Lab Control Sample Duplicate
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated
J	Results > MDL but < MRL

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
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ED_001593_00018281

Valero Benicia Refinery
Bioassay Laboratory

Sample Destination: Delta

Date: 31-Jan-17

Report Results To: Marisol.Pacheco-Mendez@Valero.com

Phone:

1701114

PO# Delta Benzene - 4503805062-10

Sample Notes or Special Instructions

#	Sample ID	Turn Around	Sample Size	# of Samples	Date	Time	GRAB COMP	Preserve	Temp.	Total Se 200.7	Oil & Grease EPA 1664	NH3 as N SM 4500 -NH3	CA 17 Metals EPA 200.7	Chronic *Mysidopsis bahia*	Benzene 8020	EOL Benzene (EPA 8260) BOLD	TOC - SM5310		EPA 624	EPA 625			
										Testing Requested													
1	EOL 1 Diversion Inlet	**Routine**	VOA	2	27-Jan	4:00 PM	G	HCl	4.0							X							
2	EOL 2 T-2831 Btms	**Routine**	VOA	2	20-Jan	3:00 PM	G	HCl	4.0							X							
3	EOL 10 Self Diversion to RP	**Routine**	VOA	2	24-Jan	12:00 AM	G	HCl	4.0							X							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Samples Prepared By: 1/31/17 1030 Date/Time D. Sokosh Print Name

Relinquished By: 1/31/17 1050 Date/Time Received By: Chelsea Feeney 1-31-17 @ 11:20 T=5.1°C

February 08, 2017

Analytical Report

Client:	**Valero** 3400 East Second St Benicia, CA 94510
Attn:	**Marisol Pacheco-Mendez**

Work Order #:	1702034
Project:	Wastewater
Project #:	[none]
P.O. Number:	4503523772
Project Received:	February 7, 2017 10:04
Project Reported:	February 8, 2017 14:38

Sincerely,

Hossein Khoshkhoo

H. Khoshkhoo, Ph.D.
Laboratory Director / President

WORK ORDER: 1702034

COC Number:

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Summary

Lab ID	Sample	Matrix	Date Sampled	Date Received
1702034-01	Self Diversion to RP	Aqueous	February 7, 2017 1:45	February 7, 2017 10:04
1702034-02	Self Diverson to RP	Aqueous	February 7, 2017 1:45	February 7, 2017 10:04
1702034-03	Self Diversion to CFRP (sump)	Aqueous	February 7, 2017 9:00	February 7, 2017 10:04
1702034-04	Self Diversion to FP	Aqueous	February 7, 2017 9:00	February 7, 2017 10:04

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results

Sample Date: February 7, 2017 1:45

Sample: **Self Diversion to RP**
1702034-01 (Aqueous) **Sample Type:** Grab **Prep Date:** February 8, 2017 8:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625								
Dimethyl Phthalate	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Acenaphthene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Acenaphthylene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Anthracene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Benzidine	20.0		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Benzoic Acid	20.0		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Benzo (a) anthracene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Benzo (b) fluoranthene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Benzo (k) fluoranthene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Benzo (g,h,i) perylene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Benzo (a) pyrene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Benzyl Alcohol	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Bis (2-chloroethoxy) methane	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Bis (2-chloroethyl) Ether	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Bis (2-chloroisopropyl) Ether	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Bis (2-ethylhexy) Phthalate	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
4-Bromophenyl Phenyl Ether	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Butylbenzyl Phthalate	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
4-Chloroaniline	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
2-Chloronaphthalene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
4-Chlorophenyl Phenyl Ether	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Chrysene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Dibenzo (a,h) anthracene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Dibenzofuran	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Di-n-butyl Phthalate	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
1,2-Dichlorobenzene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
1,3-Dichlorobenzene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
1,4-Dichlorobenzene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
3,3'-Dichlorobenzidine	10.0		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Diethyl Phthalate	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
2,4-Dinitrotoluene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: February 7, 2017 1:45

Sample: Self Diversion to RP (Continued)
1702034-01 (Aqueous) **Sample Type:** Grab **Prep Date:** February 8, 2017 8:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625 (Continued)								
2,6-Dinitrotoluene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Di-n-octyl Phthalate	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Fluoranthene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Fluorene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Hexachlorobenzene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Hexachlorobutadiene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Hexachlorocyclopentadiene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Hexachloroethane	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Indeno (1,2,3-cd) pyrene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Isophorone	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
2-Methylnaphthalene	5.00		**29.8**	ug/L	1	2/8/17	EPA 625	17B0036/HK
Naphthalene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
2-Nitroaniline	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
3-Nitroaniline	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
4-Nitroaniline	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Nitrobenzene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
N-Nitrosodiphenylamine	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
N-Nitrosodi-n-propylamine	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Phenanthrene	5.00		**12.2**	ug/L	1	2/8/17	EPA 625	17B0036/HK
Pyrene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
1,2,4-Trichlorobenzene	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
4-Chloro-3-methylphenol	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
2-Chlorophenol	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
2,4-Dichlorophenol	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
2,4-Dimethylphenol	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
4,6-Dinitro-2-methylphenol	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
2,4-Dinitrophenol	20.0		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
2-Methylphenol	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
4-Methylphenol	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
2-Nitrophenol	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
4-Nitrophenol	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: February 7, 2017 1:45

Sample: Self Diversion to RP (Continued)
1702034-01 (Aqueous) **Sample Type:** Grab **Prep Date:** February 8, 2017 8:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625 (Continued)								
Pentachlorophenol	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Phenol	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
2,4,5-Trichlorophenol	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
2,4,6-Trichlorophenol	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
1,2-Diphenylhydrazine	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
N-Nitrosodimethylamine	5.00		ND	ug/L	1	2/8/17	EPA 625	17B0036/HK
Surrogate: 2-Fluorophenol	23-91		59.0%			2/8/17	EPA 625	17B0036/HK
Surrogate: Phenol-d6	5-93		37.4%			2/8/17	EPA 625	17B0036/HK
Surrogate: Nitrobenzene-d5	34-141		111%			2/8/17	EPA 625	17B0036/HK
Surrogate: 2-Fluorobiphenyl	32-144		119%			2/8/17	EPA 625	17B0036/HK
Surrogate: 2,4,6-Tribromophenol	22-154		114%			2/8/17	EPA 625	17B0036/HK
Surrogate: p-Terphenyl-d14	29-157		114%			2/8/17	EPA 625	17B0036/HK

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Results

Sample Date: February 7, 2017 1:45

Sample: **Self Diverson to RP**
1702034-02 (Aqueous) **Sample Type:** Grab

Data Analyzed by: MAI
Prep Date: February 7, 2017 0:00

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
E624 (VOCs)								
Benzene	2.5		**19**	ug/L	5	2/7/17	E624	133825/HK
Bromodichloromethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Bromoform	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Bromomethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Carbon tetrachloride	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Chlorobenzene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Chloroethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Chloroform	2.5		**2.7**	ug/L	5	2/7/17	E624	133825/HK
Chloromethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Dibromochloromethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,2-Dichlorobenzene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,3-Dichlorobenzene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,4-Dichlorobenzene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,1-Dichloroethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,2-Dichloroethane (1,2-DCA)	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,1-Dichloroethene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
trans-1,2-Dichloroethene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,2-Dichloropropane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
cis-1,3-Dichloropropene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
trans-1,3-Dichloropropene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Ethylbenzene	2.5		**53**	ug/L	5	2/7/17	E624	133825/HK
Methyl-t-butyl ether (MTBE)	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Methylene chloride	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Styrene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,1,2,2-Tetrachloroethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Tetrachloroethene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Toluene	2.5		**150**	ug/L	5	2/7/17	E624	133825/HK
1,1,1-Trichloroethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,1,2-Trichloroethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: February 7, 2017 1:45

Sample: **Self Diverson to RP (Continued)**
1702034-02 (Aqueous) **Sample Type:** Grab

Data Analyzed by: MAI
Prep Date: February 7, 2017 0:00

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
E624 (VOCs) (Continued)								
Trichloroethene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Trichlorofluoromethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Vinyl chloride	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Surrogate: Dibromofluoromethane	70-130		101%			2/7/17	E624	133825/HK
Surrogate: Toluene-d8	70-130		102%			2/7/17	E624	133825/HK
Surrogate: 4-BFB	70-130		110%			2/7/17	E624	133825/HK

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: February 7, 2017 9:00

Sample: **Self Diversion to CFRP (sump)**
1702034-03 (Aqueous) **Sample Type:** Grab

Data Analyzed by: MAI
Prep Date: February 7, 2017 0:00

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
E624 (VOCs)								
Benzene	2.5		**3.9**	ug/L	5	2/7/17	E624	133825/HK
Bromodichloromethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Bromoform	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Bromomethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Carbon tetrachloride	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Chlorobenzene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Chloroethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Chloroform	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Chloromethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Dibromochloromethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,2-Dichlorobenzene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,3-Dichlorobenzene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,4-Dichlorobenzene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,1-Dichloroethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,2-Dichloroethane (1,2-DCA)	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,1-Dichloroethene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
trans-1,2-Dichloroethene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,2-Dichloropropane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
cis-1,3-Dichloropropene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
trans-1,3-Dichloropropene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Ethylbenzene	2.5		**18**	ug/L	5	2/7/17	E624	133825/HK
Methyl-t-butyl ether (MTBE)	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Methylene chloride	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Styrene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,1,2,2-Tetrachloroethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Tetrachloroethene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Toluene	2.5		**35**	ug/L	5	2/7/17	E624	133825/HK
1,1,1-Trichloroethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
1,1,2-Trichloroethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Trichloroethene	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Trichlorofluoromethane	2.5		ND	ug/L	5	2/7/17	E624	133825/HK

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: February 7, 2017 9:00

Sample: **Self Diversion to CFRP (sump) (Continued)**
1702034-03 (Aqueous) **Sample Type:** Grab

Data Analyzed by: MAI
Prep Date: February 7, 2017 0:00

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
E624 (VOCs) (Continued)								
Vinyl chloride	2.5		ND	ug/L	5	2/7/17	E624	133825/HK
Surrogate: Dibromofluoromethane	70-130		100%			2/7/17	E624	133825/HK
Surrogate: Toluene-d8	70-130		111%			2/7/17	E624	133825/HK
Surrogate: 4-BFB	70-130		116%			2/7/17	E624	133825/HK

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: February 7, 2017 9:00

Sample: **Self Diversion to FP**
1702034-04 (Aqueous) **Sample Type:** Grab

Data Analyzed by: MAI
Prep Date: February 7, 2017 0:00

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
E624 (VOCs)								
Benzene	1		**2**	ug/L	2	2/7/17	E624	133825/AK
Bromodichloromethane	1		ND	ug/L	2	2/7/17	E624	133825/AK
Bromoform	1		ND	ug/L	2	2/7/17	E624	133825/AK
Bromomethane	1		ND	ug/L	2	2/7/17	E624	133825/AK
Carbon tetrachloride	1		ND	ug/L	2	2/7/17	E624	133825/AK
Chlorobenzene	1		ND	ug/L	2	2/7/17	E624	133825/AK
Chloroethane	1		ND	ug/L	2	2/7/17	E624	133825/AK
Chloroform	1		ND	ug/L	2	2/7/17	E624	133825/AK
Chloromethane	1		ND	ug/L	2	2/7/17	E624	133825/AK
Dibromochloromethane	1		ND	ug/L	2	2/7/17	E624	133825/AK
1,2-Dichlorobenzene	1		ND	ug/L	2	2/7/17	E624	133825/AK
1,3-Dichlorobenzene	1		ND	ug/L	2	2/7/17	E624	133825/AK
1,4-Dichlorobenzene	1		ND	ug/L	2	2/7/17	E624	133825/AK
1,1-Dichloroethane	1		ND	ug/L	2	2/7/17	E624	133825/AK
1,2-Dichloroethane (1,2-DCA)	1		ND	ug/L	2	2/7/17	E624	133825/AK
1,1-Dichloroethene	1		ND	ug/L	2	2/7/17	E624	133825/AK
trans-1,2-Dichloroethene	1		ND	ug/L	2	2/7/17	E624	133825/AK
1,2-Dichloropropane	1		ND	ug/L	2	2/7/17	E624	133825/AK
cis-1,3-Dichloropropene	1		ND	ug/L	2	2/7/17	E624	133825/AK
trans-1,3-Dichloropropene	1		ND	ug/L	2	2/7/17	E624	133825/AK
Ethylbenzene	1		**4.9**	ug/L	2	2/7/17	E624	133825/AK
Methyl-t-butyl ether (MTBE)	1		ND	ug/L	2	2/7/17	E624	133825/AK
Methylene chloride	1		ND	ug/L	2	2/7/17	E624	133825/AK
Styrene	1		ND	ug/L	2	2/7/17	E624	133825/AK
1,1,2,2-Tetrachloroethane	1		ND	ug/L	2	2/7/17	E624	133825/AK
Tetrachloroethene	1		ND	ug/L	2	2/7/17	E624	133825/AK
Toluene	1		**13**	ug/L	2	2/7/17	E624	133825/AK
1,1,1-Trichloroethane	1		ND	ug/L	2	2/7/17	E624	133825/AK
1,1,2-Trichloroethane	1		ND	ug/L	2	2/7/17	E624	133825/AK
Trichloroethene	1		ND	ug/L	2	2/7/17	E624	133825/AK
Trichlorofluoromethane	1		ND	ug/L	2	2/7/17	E624	133825/AK

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: February 7, 2017 9:00

Sample: **Self Diversion to FP (Continued)**
1702034-04 (Aqueous) **Sample Type:** Grab

Data Analyzed by: MAI
Prep Date: February 7, 2017 0:00

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
E624 (VOCs) (Continued)								
Vinyl chloride	1		ND	ug/L	2	2/7/17	E624	133825/AK
Surrogate: Dibromofluoromethane	70-130		100%			2/7/17	E624	133825/AK
Surrogate: Toluene-d8	70-130		111%			2/7/17	E624	133825/AK
Surrogate: 4-BFB	70-130		117%			2/7/17	E624	133825/AK

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control

Semi-Volatile Organic Compounds by EPA 625

Prepared & Analyzed: Feb-08-17

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17B0036										**Analyst:** HK
Blank (17B0036-BLK1)										
Dimethyl Phthalate		**ND**		5.00	ug/L					
Acenaphthene		**ND**		5.00	ug/L					
Acenaphthylene		**ND**		5.00	ug/L					
Anthracene		**ND**		5.00	ug/L					
Benzidine		**ND**		20.0	ug/L					
Benzoic Acid		**ND**		20.0	ug/L					
Benzo (a) anthracene		**ND**		5.00	ug/L					
Benzo (b) fluoranthene		**ND**		5.00	ug/L					
Benzo (k) fluoranthene		**ND**		5.00	ug/L					
Benzo (g,h,i) perylene		**ND**		5.00	ug/L					
Benzo (a) pyrene		**ND**		5.00	ug/L					
Benzyl Alcohol		**ND**		5.00	ug/L					
Bis (2-chloroethoxy) methane		**ND**		5.00	ug/L					
Bis (2-chloroethyl) Ether		**ND**		5.00	ug/L					
Bis (2-chloroisopropyl) Ether		**ND**		5.00	ug/L					
Bis (2-ethylhexy) Phthalate		**ND**		5.00	ug/L					
4-Bromophenyl Phenyl Ether		**ND**		5.00	ug/L					
Butylbenzyl Phthalate		**ND**		5.00	ug/L					
4-Chloroaniline		**ND**		5.00	ug/L					
2-Chloronaphthalene		**ND**		5.00	ug/L					
4-Chlorophenyl Phenyl Ether		**ND**		5.00	ug/L					
Chrysene		**ND**		5.00	ug/L					
Dibenzo (a,h) anthracene		**ND**		5.00	ug/L					
Dibenzofuran		**ND**		5.00	ug/L					
Di-n-butyl Phthalate		**ND**		5.00	ug/L					
1,2-Dichlorobenzene		**ND**		5.00	ug/L					
1,3-Dichlorobenzene		**ND**		5.00	ug/L					
1,4-Dichlorobenzene		**ND**		5.00	ug/L					
3,3'-Dichlorobenzidine		**ND**		10.0	ug/L					
Diethyl Phthalate		**ND**		5.00	ug/L					
2,4-Dinitrotoluene		**ND**		5.00	ug/L					
2,6-Dinitrotoluene		**ND**		5.00	ug/L					
Di-n-octyl Phthalate		**ND**		5.00	ug/L					
Fluoranthene		**ND**		5.00	ug/L					

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WORK ORDER: 1702034 **COC Number:**

Valero
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Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 625 (Continued) **Prepared & Analyzed: Feb-08-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17B0036 (Continued)										**Analyst:** HK
Blank (17B0036-BLK1)										
Fluorene		**ND**		5.00	ug/L					
Hexachlorobenzene		**ND**		5.00	ug/L					
Hexachlorobutadiene		**ND**		5.00	ug/L					
Hexachlorocyclopentadiene		**ND**		5.00	ug/L					
Hexachloroethane		**ND**		5.00	ug/L					
Indeno (1,2,3-cd) pyrene		**ND**		5.00	ug/L					
Isophorone		**ND**		5.00	ug/L					
2-Methylnaphthalene		**ND**		5.00	ug/L					
Naphthalene		**ND**		5.00	ug/L					
2-Nitroaniline		**ND**		5.00	ug/L					
3-Nitroaniline		**ND**		5.00	ug/L					
4-Nitroaniline		**ND**		5.00	ug/L					
Nitrobenzene		**ND**		5.00	ug/L					
N-Nitrosodiphenylamine		**ND**		5.00	ug/L					
N-Nitrosodi-n-propylamine		**ND**		5.00	ug/L					
Phenanthrene		**ND**		5.00	ug/L					
Pyrene		**ND**		5.00	ug/L					
1,2,4-Trichlorobenzene		**ND**		5.00	ug/L					
4-Chloro-3-methylphenol		**ND**		5.00	ug/L					
2-Chlorophenol		**ND**		5.00	ug/L					
2,4-Dichlorophenol		**ND**		5.00	ug/L					
2,4-Dimethylphenol		**ND**		5.00	ug/L					
4,6-Dinitro-2-methylphenol		**ND**		5.00	ug/L					
2,4-Dinitrophenol		**ND**		20.0	ug/L					
2-Methylphenol		**ND**		5.00	ug/L					
4-Methylphenol		**ND**		5.00	ug/L					
2-Nitrophenol		**ND**		5.00	ug/L					
4-Nitrophenol		**ND**		5.00	ug/L					
Pentachlorophenol		**ND**		5.00	ug/L					
Phenol		**ND**		5.00	ug/L					
2,4,5-Trichlorophenol		**ND**		5.00	ug/L					
2,4,6-Trichlorophenol		**ND**		5.00	ug/L					
1,2-Diphenylhydrazine		**ND**		5.00	ug/L					
N-Nitrosodimethylamine		**ND**		5.00	ug/L					

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 625 (Continued) **Prepared & Analyzed: Feb-08-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17B0036 (Continued)										**Analyst:** HK
Blank (17B0036-BLK1)										
Surrogate: 2-Fluorophenol		165			ug/L	200	82.5	23-91		
Surrogate: Phenol-d6		159			ug/L	200	79.5	5-93		
Surrogate: Nitrobenzene-d5		100			ug/L	100	100	34-141		
Surrogate: 2-Fluorobiphenyl		106			ug/L	100	106	32-144		
Surrogate: 2,4,6-Tribromophenol		184			ug/L	200	92.0	22-154		
Surrogate: p-Terphenyl-d14		118			ug/L	100	118	29-157		
LCS (17B0036-BS1)										
Acenaphthene		**38.6**		5.00	ug/L	50.0	77.2	31-123		
1,4-Dichlorobenzene		**41.3**		5.00	ug/L	50.0	82.6	27-113		
2,4-Dinitrotoluene		**42.6**		5.00	ug/L	50.0	85.2	34-128		
N-Nitrosodi-n-propylamine		**50.5**		5.00	ug/L	50.0	101	30-139		
Pyrene		**34.5**		5.00	ug/L	50.0	69.0	27-136		
1,2,4-Trichlorobenzene		**47.4**		5.00	ug/L	50.0	94.8	29-105		
4-Chloro-3-methylphenol		**40.7**		5.00	ug/L	50.0	81.4	28-125		
2-Chlorophenol		**37.9**		5.00	ug/L	50.0	75.8	29-104		
4-Nitrophenol		**23.6**		5.00	ug/L	50.0	47.2	0-112		
Pentachlorophenol		**35.4**		5.00	ug/L	50.0	70.8	0-165		
Phenol		**31.6**		5.00	ug/L	50.0	63.2	0.4-70		
Surrogate: 2-Fluorophenol		167			ug/L	200	83.5	23-92		
Surrogate: Phenol-d6		156			ug/L	200	78.0	5-93		
Surrogate: Nitrobenzene-d5		106			ug/L	100	106	34-141		
Surrogate: 2-Fluorobiphenyl		119			ug/L	100	119	32-144		
Surrogate: 2,4,6-Tribromophenol		195			ug/L	200	97.5	22-154		
Surrogate: p-Terphenyl-d14		114			ug/L	100	114	29-157		

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

E624 (VOCs) **Prepared & Analyzed: Feb-07-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 133825										**Analyst:** HK
LCS (LCS-133825)										
Benzene		**19.1**		0.5	ug/L	20	95	37-151		
Bromodichloromethane		**20.9**		0.5	ug/L	20	105	35-155		
Bromoform		**18.3**		0.5	ug/L	20	91	45-169		
Bromomethane		**17.9**		0.5	ug/L	20	89	1-242		
Carbon tetrachloride		**21.1**		0.5	ug/L	20	106	70-140		
Chlorobenzene		**19.3**		0.5	ug/L	20	97	37-160		
Chloroethane		**14.8**		0.5	ug/L	20	74	14-230		
Chloroform		**18.7**		0.5	ug/L	20	93	51-138		
Chloromethane		**15.4**		0.5	ug/L	20	77	1-273		
Dibromochloromethane		**18.6**		0.5	ug/L	20	93	53-149		
1,2-Dichlorobenzene		**19.6**		0.5	ug/L	20	98	18-190		
1,3-Dichlorobenzene		**19.2**		0.5	ug/L	20	96	59-156		
1,4-Dichlorobenzene		**19.4**		0.5	ug/L	20	97	18-190		
1,1-Dichloroethane		**18.4**		0.5	ug/L	20	92	70-130		
1,2-Dichloroethane (1,2-DCA)		**18.8**		0.5	ug/L	20	94	49-155		
1,1-Dichloroethene		**16.7**		0.5	ug/L	20	84	1-234		
trans-1,2-Dichloroethene		**18.8**		0.5	ug/L	20	94	54-156		
1,2-Dichloropropane		**19.3**		0.5	ug/L	20	96	1-210		
cis-1,3-Dichloropropene		**21**		0.5	ug/L	20	105	1-227		
trans-1,3-Dichloropropene		**21.9**		0.5	ug/L	20	109	17-183		
Ethylbenzene		**19.4**		0.5	ug/L	20	97	37-162		
Methyl-t-butyl ether (MTBE)		**19.3**		0.5	ug/L	20	97	70-130		
Methylene chloride		**18.1**		0.5	ug/L	20	91	1-221		
Styrene		**20.7**		0.5	ug/L	20	104	70-130		
1,1,2,2-Tetrachloroethane		**19.2**		0.5	ug/L	20	96	46-157		
Tetrachloroethene		**18.9**		0.5	ug/L	20	95	64-148		
Toluene		**19.3**		0.5	ug/L	20	96	47-150		
1,1,1-Trichloroethane		**19.9**		0.5	ug/L	20	99	52-162		
1,1,2-Trichloroethane		**19.3**		0.5	ug/L	20	97	52-150		
Trichloroethene		**19.8**		0.5	ug/L	20	99	71-157		
Trichlorofluoromethane		**15.5**		0.5	ug/L	20	77	17-181		
Vinyl chloride		**15.7**		0.5	ug/L	20	79	1-251		
Surrogate: Dibromofluoromethane		25.2			ug/L	25	101	70-130		

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

E624 (VOCs) (Continued)

Prepared & Analyzed: Feb-07-17

Batch: 133825 (Continued) **Analyst:** HK

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
LCS (LCS-133825)										
Surrogate: Toluene-d8		26.8			ug/L	25	107	70-130		
Surrogate: 4-BFB		2.79			ug/L	2.5	111	70-130		
LCSD (LCSD-133825)										
Benzene		**18.8**		0.5	ug/L	20	94	37-151	1.53	20
Bromodichloromethane		**21**		0.5	ug/L	20	105	35-155	0	20
Bromoform		**18.3**		0.5	ug/L	20	92	45-169	0.384	20
Bromomethane		**18.8**		0.5	ug/L	20	94	1-242	4.92	20
Carbon tetrachloride		**20.6**		0.5	ug/L	20	103	70-140	2.38	20
Chlorobenzene		**19.4**		0.5	ug/L	20	97	37-160	0	20
Chloroethane		**14.4**		0.5	ug/L	20	72	14-230	2.73	20
Chloroform		**18.7**		0.5	ug/L	20	93	51-138	0	20
Chloromethane		**15.4**		0.5	ug/L	20	77	1-273	0	20
Dibromochloromethane		**18.7**		0.5	ug/L	20	94	53-149	0.691	20
1,2-Dichlorobenzene		**19.4**		0.5	ug/L	20	97	18-190	0.993	20
1,3-Dichlorobenzene		**18.9**		0.5	ug/L	20	94	59-156	1.59	20
1,4-Dichlorobenzene		**19.2**		0.5	ug/L	20	96	18-190	0.553	20
1,1-Dichloroethane		**18.4**		0.5	ug/L	20	92	70-130	0	20
1,2-Dichloroethane (1,2-DCA)		**18.8**		0.5	ug/L	20	94	49-155	0	20
1,1-Dichloroethene		**16.4**		0.5	ug/L	20	82	1-234	2.38	20
trans-1,2-Dichloroethene		**18.8**		0.5	ug/L	20	94	54-156	0	20
1,2-Dichloropropane		**19.3**		0.5	ug/L	20	96	1-210	0	20
cis-1,3-Dichloropropene		**22.1**		0.5	ug/L	20	111	1-227	5.2	20
trans-1,3-Dichloropropene		**22.3**		0.5	ug/L	20	112	17-183	2.03	20
Ethylbenzene		**19.4**		0.5	ug/L	20	97	37-162	0	20
Methyl-t-butyl ether (MTBE)		**19.7**		0.5	ug/L	20	98	70-130	1.87	20
Methylene chloride		**18.3**		0.5	ug/L	20	91	1-221	0	20
Styrene		**20.7**		0.5	ug/L	20	103	70-130	0.24	20
1,1,2,2-Tetrachloroethane		**20.7**		0.5	ug/L	20	103	46-157	7.56	20
Tetrachloroethene		**18.6**		0.5	ug/L	20	93	64-148	1.8	20
Toluene		**19.3**		0.5	ug/L	20	97	47-150	0.201	20
1,1,1-Trichloroethane		**19.8**		0.5	ug/L	20	99	52-162	0	20
1,1,2-Trichloroethane		**19.5**		0.5	ug/L	20	97	52-150	0	20
Trichloroethene		**19.3**		0.5	ug/L	20	96	71-157	2.53	20

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

E624 (VOCs) (Continued) **Prepared & Analyzed: Feb-07-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 133825 (Continued)										**Analyst:** HK
LCSD (LCSD-133825)										
Trichlorofluoromethane		**14.8**		0.5	ug/L	20	74	17-181	4.43	20
Vinyl chloride		**15.4**		0.5	ug/L	20	77	1-251	2.16	20
Surrogate: Dibromofluoromethane		25.1			ug/L	25	100	70-130		
Surrogate: Toluene-d8		26.9			ug/L	25	108	70-130		
Surrogate: 4-BFB		2.87			ug/L	2.5	115	70-130		
MBLK (MB-133825)										
Benzene		**ND**		0.5	ug/L			-		
Bromodichloromethane		**ND**		0.5	ug/L			-		
Bromoform		**ND**		0.5	ug/L			-		
Bromomethane		**ND**		0.5	ug/L			-		
Carbon tetrachloride		**ND**		0.5	ug/L			-		
Chlorobenzene		**ND**		0.5	ug/L			-		
Chloroethane		**ND**		0.5	ug/L			-		
Chloroform		**ND**		0.5	ug/L			-		
Chloromethane		**ND**		0.5	ug/L			-		
Dibromochloromethane		**ND**		0.5	ug/L			-		
1,2-Dichlorobenzene		**ND**		0.5	ug/L			-		
1,3-Dichlorobenzene		**ND**		0.5	ug/L			-		
1,4-Dichlorobenzene		**ND**		0.5	ug/L			-		
1,1-Dichloroethane		**ND**		0.5	ug/L			-		
1,2-Dichloroethane (1,2-DCA)		**ND**		0.5	ug/L			-		
1,1-Dichloroethene		**ND**		0.5	ug/L			-		
trans-1,2-Dichloroethene		**ND**		0.5	ug/L			-		
1,2-Dichloropropane		**ND**		0.5	ug/L			-		
cis-1,3-Dichloropropene		**ND**		0.5	ug/L			-		
trans-1,3-Dichloropropene		**ND**		0.5	ug/L			-		
Ethylbenzene		**ND**		0.5	ug/L			-		
Methyl-t-butyl ether (MTBE)		**ND**		0.5	ug/L			-		
Methylene chloride		**ND**		0.5	ug/L			-		
Styrene		**ND**		0.5	ug/L			-		
1,1,2,2-Tetrachloroethane		**ND**		0.5	ug/L			-		
Tetrachloroethene		**ND**		0.5	ug/L			-		
Toluene		**ND**		0.5	ug/L			-		

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

E624 (VOCs) (Continued) **Prepared & Analyzed: Feb-07-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 133825 (Continued)										**Analyst:** HK
MBLK (MB-133825)										
1,1,1-Trichloroethane		**ND**		0.5	ug/L			-		
1,1,2-Trichloroethane		**ND**		0.5	ug/L			-		
Trichloroethene		**ND**		0.5	ug/L			-		
Trichlorofluoromethane		**ND**		0.5	ug/L			-		
Vinyl chloride		**ND**		0.5	ug/L			-		
Surrogate: Dibromofluoromethane		25.5			ug/L	25	102	70-130		
Surrogate: Toluene-d8		26.5			ug/L	25	106	70-130		
Surrogate: 4-BFB		2.56			ug/L	2.5	102	70-130		

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WORK ORDER: 1702034 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Wastewater
PO Number: 4503523772
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Notes and Definitions

Item	Definition
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
%REC	Percent Recovery
DF	Dilution Factor
LCS	Lab Control Sample
LCSD	Lab Control Sample Duplicate
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated
J	Results > MDL but < MRL

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Valero Benicia Refinery
Bioassay Laboratory

Date: 7-Feb-17

Sample Destination: Delta

Report Results To: Marisol.Pacheco-Mendez@Valero.com
David.Johnston@Valero.com

Phone: 745-7573

1702034

PO# Delta Benzene - 4503805062-10

Sample Notes or Special Instructions

#	Sample ID	Turn Around	Sample Size	# of Samples	Date	Time	GRAB COMP	Preserve	Temp.	Total Se 200.7	Oil & Grease EPA 1664	NH3 as N SM 4500 -NH3	CA 17 Metals EPA 200.7	Chronic *Mysidopsis bahia*	Benzene 8020	EOL Benzene (EPA 8260)	TOC - SM5310		EPA 624	EPA 625			
										Testing Requested													
1	Self Diversion to RP	48 hrs	1L	2	7-Feb	1:45 AM	G	None	4.0											X			
2	Self Diversion to RP	ASAP	VOA	2	7-Feb	1:45 AM	G	HCl	4.0										X				
3	Self Diversion to CFRP (sump)	ASAP	VOA	2	7-Feb	9:00 AM	G	HCl	4.0										X				
4	Self Diversion to FP	ASAP	VOA	2	7-Feb	9:00 AM	G	HCl	4.0										X				
5																							
6																							
7																							
8																							
9																							
10																							

Samples Prepared By: [signature] 2/7/17 0900 Date/Time D. Johnson Print Name

Relinquished By: [signature] 2/7/17 1600 Date/Time Received By: Chelsea Feeney 2/7/17 @10:05

Self Diversion 2-7-17 RUSH

ED_001593_00018282

December 01, 2016

Analytical Report

Client:	**Valero** 3400 East Second St Benicia, CA 94510
Attn:	**Kimberly Ronan**

Work Order #:	1611097
Project:	Valero NESHAP
Project#:	[none]
P.O. Number:	4503499083
Project Received:	November 29, 2016 11:46
Project Reported:	December 1, 2016 10:31

Sincerely,

Hossein Khoshkhoo

H. Khoshkhoo, Ph.D.
Laboratory Director / President

WORK ORDER: 1611097

COC Number:

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
1611097-01	Self Divert to RP	Aqueous	November 27, 2016 3:00	November 29, 2016 11:46
1611097-02	Self Divert to RP	Aqueous	November 27, 2016 3:00	November 29, 2016 11:46
1611097-03	Self Divert to RP	Aqueous	November 28, 2016 0:01	November 29, 2016 11:46

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Sample Results

Sample: **Self Divert to RP**
1611097-01 (Aqueous)

Sample Type: Grab

Sample Date: November 27, 2016

Prep Date: November 29, 2016 13:30

Analyte	MDL	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 8270									
Dimethyl Phthalate	0.6	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Acenaphthene	1.1	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Acenaphthylene	0.2	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Anthracene	0.5	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Benzidine	3.3	20.0	ND	20.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Benzoic Acid	3.2	20.0	ND	20.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Benzo (a) anthracene	0.2	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Benzo (b) fluoranthene	0.5	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Benzo (k) fluoranthene	0.8	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Benzo (g,h,i) perylene	1.3	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Benzo (a) pyrene	0.6	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Benzyl Alcohol	2.1	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Bis (2-chloroethoxy) methane	0.7	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Bis (2-chloroethyl) Ether	0.6	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Bis (2-chloroisopropyl) Ether	2.6	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Bis (2-ethylhexy) Phthalate	0.7	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
4-Bromophenyl Phenyl Ether	0.7	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Butylbenzyl Phthalate	0.8	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
4-Chloroaniline	0.7	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
2-Chloronaphthalene	0.005	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
4-Chlorophenyl Phenyl Ether	0.4	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Chrysene	0.3	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Dibenzo (a,h) anthracene	1.1	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Dibenzofuran	0.3	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Di-n-butyl Phthalate	0.7	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
1,2-Dichlorobenzene	0.7	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
1,3-Dichlorobenzene	0.6	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
1,4-Dichlorobenzene	0.3	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
3,3'-Dichlorobenzidine	0.6	10.0	ND	10.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK

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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Sample Results
(Continued)

Sample: **Self Divert to RP (Continued)**
1611097-01 (Aqueous)

Sample Type: Grab

Sample Date: November 27, 2016

Prep Date: November 29, 2016 13:30

Analyte	MDL	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 8270 (Continued)									
Diethyl Phthalate	0.9	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
2,4-Dinitrotoluene	1.2	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
2,6-Dinitrotoluene	0.5	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Di-n-octyl Phthalate	0.7	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Fluoranthene	1.3	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Fluorene	0.7	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Hexachlorobenzene	1.2	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Hexachlorobutadiene	0.8	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Hexachlorocyclopentadiene	1.4	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Hexachloroethane	0.01	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Indeno (1,2,3-cd) pyrene	1.1	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Isophorone	0.8	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
2-Methylnaphthalene	0.01	5.0		**44.3**	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Naphthalene	0.4	5.0		**46.7**	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
2-Nitroaniline	1.1	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
3-Nitroaniline	1.3	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
4-Nitroaniline	0.8	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Nitrobenzene	0.4	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
N-Nitrosodiphenylamine	0.8	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
N-Nitrosodi-n-propylamine	1.7	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Phenanthrene	0.3	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Pyrene	1.2	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
1,2,4-Trichlorobenzene	0.5	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
4-Chloro-3-methylphenol	1.1	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
2-Chlorophenol	0.9	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
2,4-Dichlorophenol	0.4	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
2,4-Dimethylphenol	0.4	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
4,6-Dinitro-2-methylphenol	0.7	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
2,4-Dinitrophenol	2.6	10.0	ND	10.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK

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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Sample Results
(Continued)

Sample: **Self Divert to RP (Continued)**
1611097-01 (Aqueous)

Sample Type: Grab

Sample Date: November 27, 2016

Prep Date: November 29, 2016 13:30

Analyte	MDL	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 8270 (Continued)									
2-Methylphenol	2.0	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
4-Methylphenol	1.2	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
2-Nitrophenol	0.6	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
4-Nitrophenol	0.9	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Pentachlorophenol	4.1	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Phenol	0.5	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
2,4,5-Trichlorophenol	0.5	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
2,4,6-Trichlorophenol	0.3	5.0	ND	5.0	ug/L	1	11/29/16	EPA 8270C	16K0185/HK
Surrogate: 2-Fluorobiphenyl		32-144		101%			11/29/16	EPA 8270C	16K0185/HK
Surrogate: Phenol-d6		5-93		54.0%			11/29/16	EPA 8270C	16K0185/HK
Surrogate: Nitrobenzene-d5		34-141		90.8%			11/29/16	EPA 8270C	16K0185/HK
Surrogate: 2-Fluorophenol		23-92		77.5%			11/29/16	EPA 8270C	16K0185/HK
Surrogate: 2,4,6-Tribromophenol		22-154		84.0%			11/29/16	EPA 8270C	16K0185/HK
Surrogate: p-Terphenyl-d14		28-157		98.4%			11/29/16	EPA 8270C	16K0185/HK

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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Sample Results
(Continued)

Sample: **Self Divert to RP**
1611097-02 (Aqueous)

Sample Type: Grab

Sample Date: November 27, 2016

Prep Date: November 29, 2016 13:55

Analyte	MDL	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds									
Benzene	0.0600	0.500		**24.8**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Bromobenzene	0.190	0.500	ND	0.190	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Methylene Chloride	0.310	2.00	ND	0.310	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Bromochloromethane	0.0900	0.500	ND	0.0900	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Bromodichloromethane	0.120	0.500		**0.400**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Bromoform	0.120	0.500	ND	0.120	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Bromomethane	0.280	0.500	ND	0.280	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
n-Butylbenzene	0.300	0.500		**8.49**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
sec-Butylbenzene	0.140	0.500		**2.00**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
tert-Butylbenzene	0.140	0.500	ND	0.140	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Carbon Tetrachloride	0.100	0.500		**2.88**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Chlorobenzene	0.130	0.500	ND	0.130	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Chloroethane	0.210	0.500	ND	0.210	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Chloroform	0.120	0.500		**8.78**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Chloromethane	0.320	0.500	ND	0.320	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
2-Chlorotoluene	0.220	0.500	ND	0.220	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
4-Chlorotoluene	0.110	0.500	ND	0.110	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Dibromochloromethane	0.0800	0.500	ND	0.0800	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2-Dibromo-3-chloropropane	0.270	0.500	ND	0.270	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2-Dibromoethane	0.150	0.500	ND	0.150	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Dibromomethane	0.150	0.500	ND	0.150	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2-Dichlorobenzene	0.110	0.500	ND	0.110	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,3-Dichlorobenzene	0.100	0.500	ND	0.100	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,4-Dichlorobenzene	0.100	0.500	ND	0.100	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Dichlorodifluoromethane	0.200	0.500	ND	0.200	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,1-Dichloroethane	0.160	0.500	ND	0.160	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2-Dichloroethane	0.210	0.500	ND	0.210	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,1-Dichloroethene	0.200	0.500	ND	0.200	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
cis-1,2-Dichloroethene	0.140	0.500	ND	0.140	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
trans-1,2-Dichloroethene	0.160	0.500	ND	0.160	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK

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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Sample Results
(Continued)

Sample: **Self Divert to RP (Continued)**
1611097-02 (Aqueous)

Sample Type: Grab

Sample Date: November 27, 2016

Prep Date: November 29, 2016 13:55

Analyte	MDL	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds (Continued)									
1,2-Dichloropropane	0.130	0.500	ND	0.130	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,3-Dichloropropane	0.0900	0.500	ND	0.0900	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
2,2-Dichloropropane	0.160	0.500	ND	0.160	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,1-Dichloropropene	0.130	0.500	ND	0.130	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Ethylbenzene	0.0800	0.500		**21.6**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Hexachlorobutadiene	0.430	0.500	ND	0.430	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Isopropylbenzene	0.0800	0.500		**2.83**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
p-Isopropyltoluene	0.160	0.500		**6.52**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Naphthalene	0.460	0.500		**29.4**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
n-Propylbenzene	0.130	0.500		**6.98**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Styrene	0.140	0.500	ND	0.140	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,1,1,2-Tetrachloroethane	0.100	0.500	ND	0.100	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,1,2,2-Tetrachloroethane	0.230	0.500	ND	0.230	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Tetrachloroethene	0.160	0.500		**6.22**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Toluene	0.120	0.500		**79.9**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2,3-Trichlorobenzene	0.280	0.500	ND	0.280	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2,4-Trichlorobenzene	0.290	0.500	ND	0.290	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,1,1-Trichloroethane	0.160	0.500	ND	0.160	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,1,2-Trichloroethane	0.120	0.500	ND	0.120	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Trichloroethene	0.160	0.500	ND	0.160	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Trichlorofluoromethane	0.230	0.500	ND	0.230	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2,3-Trichloropropane, TCP	0.250	0.500	ND	0.250	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2,4-Trimethylbenzene	0.300	0.500		**88.3**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,3,5-Trimethylbenzene	0.200	0.500		**18.9**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Vinyl Chloride	0.270	0.500	ND	0.270	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
o-Xylene	0.160	0.500		**42.0**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
m,p-Xylenes	0.300	1.00		**76.4**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
cis-1,3-Dichloropropene	0.120	0.500	ND	0.120	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
trans-1,3-Dichloropropene	0.0900	0.500	ND	0.0900	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Methyl-tert-butyl ether (MTBE)	0.140	0.500	ND	0.140	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK

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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Sample Results
(Continued)

Sample: **Self Divert to RP (Continued)**
1611097-02 (Aqueous)

Sample Type: Grab

Sample Date: November 27, 2016

Prep Date: November 29, 2016 13:55

Analyte	MDL	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds (Continued)									
Surrogate: Dibromofluoromethane		70-130		101%			11/29/16	EPA 8260 B	16K0184/HK
Surrogate: Toluene-d8		70-130		105%			11/29/16	EPA 8260 B	16K0184/HK
Surrogate: 4-Bromofluorobenzene		70-130		102%			11/29/16	EPA 8260 B	16K0184/HK

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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Sample Results
(Continued)

Sample: **Self Divert to RP**
1611097-03 (Aqueous)

Sample Type: Grab

Sample Date: November 28, 2016

Prep Date: November 29, 2016 13:55

Analyte	MDL	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds									
Benzene	0.0600	0.500		**19.3**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Bromobenzene	0.190	0.500	ND	0.190	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Methylene Chloride	0.310	2.00	ND	0.310	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Bromochloromethane	0.0900	0.500	ND	0.0900	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Bromodichloromethane	0.120	0.500		**0.290**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Bromoform	0.120	0.500	ND	0.120	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Bromomethane	0.280	0.500	ND	0.280	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
n-Butylbenzene	0.300	0.500		**7.36**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
sec-Butylbenzene	0.140	0.500		**1.53**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
tert-Butylbenzene	0.140	0.500	ND	0.140	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Carbon Tetrachloride	0.100	0.500		**2.30**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Chlorobenzene	0.130	0.500	ND	0.130	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Chloroethane	0.210	0.500	ND	0.210	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Chloroform	0.120	0.500		**7.21**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Chloromethane	0.320	0.500	ND	0.320	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
2-Chlorotoluene	0.220	0.500	ND	0.220	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
4-Chlorotoluene	0.110	0.500	ND	0.110	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Dibromochloromethane	0.0800	0.500	ND	0.0800	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2-Dibromo-3-chloropropane	0.270	0.500	ND	0.270	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2-Dibromoethane	0.150	0.500	ND	0.150	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Dibromomethane	0.150	0.500	ND	0.150	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2-Dichlorobenzene	0.110	0.500	ND	0.110	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,3-Dichlorobenzene	0.100	0.500	ND	0.100	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,4-Dichlorobenzene	0.100	0.500	ND	0.100	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Dichlorodifluoromethane	0.200	0.500	ND	0.200	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,1-Dichloroethane	0.160	0.500	ND	0.160	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2-Dichloroethane	0.210	0.500	ND	0.210	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,1-Dichloroethene	0.200	0.500	ND	0.200	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
cis-1,2-Dichloroethene	0.140	0.500	ND	0.140	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
trans-1,2-Dichloroethene	0.160	0.500	ND	0.160	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK

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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Sample Results
(Continued)

Sample: **Self Divert to RP (Continued)**
1611097-03 (Aqueous)

Sample Type: Grab

Sample Date: November 28, 2016

Prep Date: November 29, 2016 13:55

Analyte	MDL	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds (Continued)									
1,2-Dichloropropane	0.130	0.500	ND	0.130	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,3-Dichloropropane	0.0900	0.500	ND	0.0900	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
2,2-Dichloropropane	0.160	0.500	ND	0.160	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,1-Dichloropropene	0.130	0.500	ND	0.130	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Ethylbenzene	0.0800	0.500		**17.4**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Hexachlorobutadiene	0.430	0.500	ND	0.430	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Isopropylbenzene	0.0800	0.500		**2.32**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
p-Isopropyltoluene	0.160	0.500		**5.20**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Naphthalene	0.460	0.500		**26.9**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
n-Propylbenzene	0.130	0.500		**5.66**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Styrene	0.140	0.500	ND	0.140	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,1,1,2-Tetrachloroethane	0.100	0.500	ND	0.100	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,1,2,2-Tetrachloroethane	0.230	0.500	ND	0.230	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Tetrachloroethene	0.160	0.500		**5.86**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Toluene	0.120	0.500		**61.9**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2,3-Trichlorobenzene	0.280	0.500	ND	0.280	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2,4-Trichlorobenzene	0.290	0.500	ND	0.290	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,1,1-Trichloroethane	0.160	0.500	ND	0.160	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,1,2-Trichloroethane	0.120	0.500	ND	0.120	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Trichloroethene	0.160	0.500	ND	0.160	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Trichlorofluoromethane	0.230	0.500	ND	0.230	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2,3-Trichloropropane, TCP	0.250	0.500	ND	0.250	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,2,4-Trimethylbenzene	0.300	0.500		**78.5**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
1,3,5-Trimethylbenzene	0.200	0.500		**16.9**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Vinyl Chloride	0.270	0.500	ND	0.270	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
o-Xylene	0.160	0.500		**36.4**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
m,p-Xylenes	0.300	1.00		**64.6**	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
cis-1,3-Dichloropropene	0.120	0.500	ND	0.120	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
trans-1,3-Dichloropropene	0.0900	0.500	ND	0.0900	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK
Methyl-tert-butyl ether (MTBE)	0.140	0.500	ND	0.140	ug/L	1	11/29/16	EPA 8260 B	16K0184/HK

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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Sample Results
(Continued)

Sample: **Self Divert to RP (Continued)**
1611097-03 (Aqueous)

Sample Type: Grab

Sample Date: November 28, 2016

Prep Date: November 29, 2016 13:55

Analyte	MDL	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds (Continued)									
Surrogate: Dibromofluoromethane		70-130		98.0%			11/29/16	EPA 8260 B	16K0184/HK
Surrogate: Toluene-d8		70-130		102%			11/29/16	EPA 8260 B	16K0184/HK
Surrogate: 4-Bromofluorobenzene		70-130		99.5%			11/29/16	EPA 8260 B	16K0184/HK

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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Quality Control

Volatile Organic Compounds

Prepared & Analyzed: Nov-29-16

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 16K0184										**Analyst:** HK
Blank (16K0184-BLK1)										
Benzene		**ND**		0.500	ug/L					
Methylene Chloride		**ND**		2.00	ug/L					
Bromobenzene		**ND**		0.500	ug/L					
Bromochloromethane		**ND**		0.500	ug/L					
Bromodichloromethane		**ND**		0.500	ug/L					
Bromoform		**ND**		0.500	ug/L					
Bromomethane		**ND**		0.500	ug/L					
n-Butylbenzene		**ND**		0.500	ug/L					
sec-Butylbenzene		**ND**		0.500	ug/L					
tert-Butylbenzene		**ND**		0.500	ug/L					
Carbon Tetrachloride		**ND**		0.500	ug/L					
Chlorobenzene		**ND**		0.500	ug/L					
Chloroethane		**ND**		0.500	ug/L					
Chloroform		**ND**		0.500	ug/L					
Chloromethane		**ND**		0.500	ug/L					
2-Chlorotoluene		**ND**		0.500	ug/L					
4-Chlorotoluene		**ND**		0.500	ug/L					
Dibromochloromethane		**ND**		0.500	ug/L					
1,2-Dibromo-3-chloropropane		**ND**		0.500	ug/L					
1,2-Dibromoethane		**ND**		0.500	ug/L					
Dibromomethane		**ND**		0.500	ug/L					
1,2-Dichlorobenzene		**ND**		0.500	ug/L					
1,3-Dichlorobenzene		**ND**		0.500	ug/L					
1,4-Dichlorobenzene		**ND**		0.500	ug/L					
Dichlorodifluoromethane		**ND**		0.500	ug/L					
1,1-Dichloroethane		**ND**		0.500	ug/L					
1,2-Dichloroethane		**ND**		0.500	ug/L					
1,1-Dichloroethene		**ND**		0.500	ug/L					
cis-1,2-Dichloroethene		**ND**		0.500	ug/L					
trans-1,2-Dichloroethene		**ND**		0.500	ug/L					
1,2-Dichloropropane		**ND**		0.500	ug/L					
1,3-Dichloropropane		**ND**		0.500	ug/L					
2,2-Dichloropropane		**ND**		0.500	ug/L					
1,1-Dichloropropene		**ND**		0.500	ug/L					
Ethylbenzene		**ND**		0.500	ug/L					
Hexachlorobutadiene		**ND**		0.500	ug/L					

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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Prepared & Analyzed: Nov-29-16

Batch: 16K0184 (Continued) **Analyst:** HK

Blank (16K0184-BLK1)

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Isopropylbenzene		ND		0.500	ug/L					
p-Isopropyltoluene		ND		0.500	ug/L					
Naphthalene		ND		0.500	ug/L					
n-Propylbenzene		ND		0.500	ug/L					
Styrene		ND		0.500	ug/L					
1,1,1,2-Tetrachloroethane		ND		0.500	ug/L					
1,1,2,2-Tetrachloroethane		ND		0.500	ug/L					
Tetrachloroethene		ND		0.500	ug/L					
Toluene		ND		0.500	ug/L					
1,2,3-Trichlorobenzene		ND		0.500	ug/L					
1,2,4-Trichlorobenzene		ND		0.500	ug/L					
1,1,1-Trichloroethane		ND		0.500	ug/L					
1,1,2-Trichloroethane		ND		0.500	ug/L					
Trichloroethene		ND		0.500	ug/L					
Trichlorofluoromethane		ND		0.500	ug/L					
1,2,3-Trichloropropane, TCP		ND		0.500	ug/L					
1,2,4-Trimethylbenzene		ND		0.500	ug/L					
1,3,5-Trimethylbenzene		ND		0.500	ug/L					
Vinyl Chloride		ND		0.500	ug/L					
o-Xylene		ND		0.500	ug/L					
m,p-Xylenes		ND		1.00	ug/L					
cis-1,3-Dichloropropene		ND		0.500	ug/L					
trans-1,3-Dichloropropene		ND		0.500	ug/L					
Methyl-tert-butyl ether (MTBE)		ND		0.500	ug/L					
Surrogate: Dibromofluoromethane		20.0			ug/L	20.0	100	70-130		
Surrogate: Toluene-d8		20.5			ug/L	20.0	102	70-130		
Surrogate: 4-Bromofluorobenzene		17.2			ug/L	20.0	86.0	70-130		

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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Prepared & Analyzed: Nov-29-16

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 16K0184 (Continued)										**Analyst:** HK
LCS (16K0184-BS1)										
Benzene		**18.9**		0.500	ug/L	20.0	94.5	80-120		
Chlorobenzene		**18.1**		0.500	ug/L	20.0	90.5	80-120		
1,1-Dichloroethene		**17.9**		0.500	ug/L	20.0	89.5	80-120		
Toluene		**17.3**		0.500	ug/L	20.0	86.5	80-120		
Trichloroethene		**18.5**		0.500	ug/L	20.0	92.5	80-120		
Surrogate: Dibromofluoromethane		19.7			ug/L	20.0	98.5	70-130		
Surrogate: Toluene-d8		21.9			ug/L	20.0	110	70-130		
Surrogate: 4-Bromofluorobenzene		22.4			ug/L	20.0	112	70-130		
LCS Dup (16K0184-BSD1)										
Benzene		**19.7**		0.500	ug/L	20.0	98.5	80-120	4.15	20
Chlorobenzene		**19.5**		0.500	ug/L	20.0	97.5	80-120	7.45	20
1,1-Dichloroethene		**18.6**		0.500	ug/L	20.0	93.0	80-120	3.84	20
Toluene		**18.1**		0.500	ug/L	20.0	90.5	80-120	4.52	20
Trichloroethene		**18.7**		0.500	ug/L	20.0	93.5	80-120	1.08	20
Surrogate: Dibromofluoromethane		20.8			ug/L	20.0	104	70-130		
Surrogate: Toluene-d8		21.8			ug/L	20.0	109	70-130		
Surrogate: 4-Bromofluorobenzene		21.5			ug/L	20.0	108	70-130		

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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 8270

Prepared & Analyzed: Nov-29-16

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 16K0185										**Analyst:** HK
Blank (16K0185-BLK1)										
Dimethyl Phthalate		ND		5.0	ug/L					
Acenaphthene		ND		5.0	ug/L					
Acenaphthylene		ND		5.0	ug/L					
Anthracene		ND		5.0	ug/L					
Benzidine		ND		20.0	ug/L					
Benzoic Acid		ND		20.0	ug/L					
Benzo (a) anthracene		ND		5.0	ug/L					
Benzo (b) fluoranthene		ND		5.0	ug/L					
Benzo (k) fluoranthene		ND		5.0	ug/L					
Benzo (g,h,i) perylene		ND		5.0	ug/L					
Benzo (a) pyrene		ND		5.0	ug/L					
Benzyl Alcohol		ND		5.0	ug/L					
Bis (2-chloroethoxy) methane		ND		5.0	ug/L					
Bis (2-chloroethyl) Ether		ND		5.0	ug/L					
Bis (2-chloroisopropyl) Ether		ND		5.0	ug/L					
Bis (2-ethylhexy) Phthalate		ND		5.0	ug/L					
4-Bromophenyl Phenyl Ether		ND		5.0	ug/L					
Butylbenzyl Phthalate		ND		5.0	ug/L					
4-Chloroaniline		ND		5.0	ug/L					
2-Chloronaphthalene		ND		5.0	ug/L					
4-Chlorophenyl Phenyl Ether		ND		5.0	ug/L					
Chrysene		ND		5.0	ug/L					
Dibenzo (a,h) anthracene		ND		5.0	ug/L					
Dibenzofuran		ND		5.0	ug/L					
Di-n-butyl Phthalate		ND		5.0	ug/L					
1,2-Dichlorobenzene		ND		5.0	ug/L					
1,3-Dichlorobenzene		ND		5.0	ug/L					
1,4-Dichlorobenzene		ND		5.0	ug/L					
3,3'-Dichlorobenzidine		ND		10.0	ug/L					
Diethyl Phthalate		ND		5.0	ug/L					
2,4-Dinitrotoluene		ND		5.0	ug/L					
2,6-Dinitrotoluene		ND		5.0	ug/L					
Di-n-octyl Phthalate		ND		5.0	ug/L					
Fluoranthene		ND		5.0	ug/L					
Fluorene		ND		5.0	ug/L					
Hexachlorobenzene		ND		5.0	ug/L					

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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 8270 (Continued **Prepared & Analyzed: Nov-29-16**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 16K0185 (Continued)										**Analyst:** HK
Blank (16K0185-BLK1)										
Hexachlorobutadiene		**ND**		5.0	ug/L					
Hexachlorocyclopentadiene		**ND**		5.0	ug/L					
Hexachloroethane		**ND**		5.0	ug/L					
Indeno (1,2,3-cd) pyrene		**ND**		5.0	ug/L					
Isophorone		**ND**		5.0	ug/L					
2-Methylnaphthalene		**ND**		5.0	ug/L					
Naphthalene		**ND**		5.0	ug/L					
2-Nitroaniline		**ND**		5.0	ug/L					
3-Nitroaniline		**ND**		5.0	ug/L					
4-Nitroaniline		**ND**		5.0	ug/L					
Nitrobenzene		**ND**		5.0	ug/L					
N-Nitrosodiphenylamine		**ND**		5.0	ug/L					
N-Nitrosodi-n-propylamine		**ND**		5.0	ug/L					
Phenanthrene		**ND**		5.0	ug/L					
Pyrene		**ND**		5.0	ug/L					
1,2,4-Trichlorobenzene		**ND**		5.0	ug/L					
4-Chloro-3-methylphenol		**ND**		5.0	ug/L					
2-Chlorophenol		**ND**		5.0	ug/L					
2,4-Dichlorophenol		**ND**		5.0	ug/L					
2,4-Dimethylphenol		**ND**		5.0	ug/L					
4,6-Dinitro-2-methylphenol		**ND**		5.0	ug/L					
2,4-Dinitrophenol		**ND**		10.0	ug/L					
2-Methylphenol		**ND**		5.0	ug/L					
4-Methylphenol		**ND**		5.0	ug/L					
2-Nitrophenol		**ND**		5.0	ug/L					
4-Nitrophenol		**ND**		5.0	ug/L					
Pentachlorophenol		**ND**		5.0	ug/L					
Phenol		**ND**		5.0	ug/L					
2,4,5-Trichlorophenol		**ND**		5.0	ug/L					
2,4,6-Trichlorophenol		**ND**		5.0	ug/L					
Surrogate: 2-Fluorobiphenyl		96.4			ug/L	100	96.4	32-144		
Surrogate: Phenol-d6		128			ug/L	200	64.0	5-93		
Surrogate: Nitrobenzene-d5		96.8			ug/L	100	96.8	34-141		
Surrogate: 2-Fluorophenol		113			ug/L	200	56.5	23-92		
Surrogate: 2,4,6-Tribromophenol		116			ug/L	200	58.0	22-154		
Surrogate: p-Terphenyl-d14		96.0			ug/L	100	96.0	28-157		

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WORK ORDER: 1611097 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 8270 (Continued

Prepared & Analyzed: Nov-29-16

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 16K0185 (Continued)										**Analyst:** HK
LCS (16K0185-BS1)										
Acenaphthene		**45.5**		5.0	ug/L	50.0	91.0	31-123		
1,4-Dichlorobenzene		**41.6**		5.0	ug/L	50.0	83.2	26-113		
2,4-Dinitrotoluene		**37.4**		5.0	ug/L	50.0	74.8	34-128		
N-Nitrosodi-n-propylamine		**43.6**		5.0	ug/L	50.0	87.2	30-139		
Pyrene		**35.9**		5.0	ug/L	50.0	71.8	27-136		
1,2,4-Trichlorobenzene		**33.6**		5.0	ug/L	50.0	67.2	29-105		
4-Chloro-3-methylphenol		**37.4**		5.0	ug/L	50.0	74.8	28-125		
2-Chlorophenol		**39.7**		5.0	ug/L	50.0	79.4	29-104		
4-Nitrophenol		**35.7**		5.0	ug/L	50.0	71.4	0.4-90		
Pentachlorophenol		**23.2**		5.0	ug/L	50.0	46.4	1-165		
Phenol		**40.8**		5.0	ug/L	50.0	81.6	1-90		
Surrogate: 2-Fluorobiphenyl		86.3			ug/L	100	86.3	32-144		
Surrogate: Phenol-d6		167			ug/L	200	83.5	5-93		
Surrogate: Nitrobenzene-d5		84.1			ug/L	100	84.1	33-141		
Surrogate: 2-Fluorophenol		164			ug/L	200	82.0	23-92		
Surrogate: 2,4,6-Tribromophenol		166			ug/L	200	83.0	22-154		
Surrogate: p-Terphenyl-d14		102			ug/L	100	102	28-157		
LCS Dup (16K0185-BSD1)										
Acenaphthene		**45.1**		5.0	ug/L	50.0	90.2	31-123	0.883	20
1,4-Dichlorobenzene		**40.5**		5.0	ug/L	50.0	81.0	26-113	2.68	20
2,4-Dinitrotoluene		**36.6**		5.0	ug/L	50.0	73.2	34-128	2.16	20
N-Nitrosodi-n-propylamine		**42.6**		5.0	ug/L	50.0	85.2	30-139	2.32	20
Pyrene		**36.9**		5.0	ug/L	50.0	73.8	27-136	2.75	20
1,2,4-Trichlorobenzene		**33.9**		5.0	ug/L	50.0	67.8	29-105	0.889	20
4-Chloro-3-methylphenol		**36.5**		5.0	ug/L	50.0	73.0	28-125	2.44	20
2-Chlorophenol		**46.4**		5.0	ug/L	50.0	92.8	29-104	15.6	20
4-Nitrophenol		**33.4**		5.0	ug/L	50.0	66.8	0.4-90	6.66	20
Pentachlorophenol		**25.1**		5.0	ug/L	50.0	50.2	1-165	7.87	20
Phenol		**40.0**		5.0	ug/L	50.0	80.0	1-90	1.98	20
Surrogate: 2-Fluorobiphenyl		88.0			ug/L	100	88.0	32-144		
Surrogate: Phenol-d6		168			ug/L	200	84.0	5-93		
Surrogate: Nitrobenzene-d5		82.4			ug/L	100	82.4	33-141		
Surrogate: 2-Fluorophenol		152			ug/L	200	76.0	23-92		
Surrogate: 2,4,6-Tribromophenol		173			ug/L	200	86.5	22-154		
Surrogate: p-Terphenyl-d14		107			ug/L	100	107	28-157		

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WORK ORDER: 1611097

COC Number:

Valero
3400 East Second St
Benicia, CA 94510

Project: Valero NESHAP
PO Number: 4503499083
Project Manager: Kimberly Ronan
Project #: [none]

Notes and Definitions

Item	Definition
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
%REC	Percent Recovery
DF	Dilution Factor
LCS	Lab Control Sample
LCSD	Lab Control Sample Duplicate
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated

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ED_001593_00018283

1611097

Valero Benicia Refinery
Bioassay Laboratory Chain of Custody

Sample Destination: Delta

LabCode: D 16-332

Date: 29-Nov-16

Report Results To: Kimberly.Ronan@valero.com
Marisol.Pacheco-Mendez@Valero.com

Phone:

Fax 1:

e-mail : David.Johnston@Valero.com

Fax 2:

PO# Delta (non-NPDES) 4503523772-10

Cost Center 7319

417190

Sample Notes or Special Instructions

#	Sample ID	Turn Around	Sample Size	# of Samples	Date	Time	GRAB	COMP	Preserve	Temp.	Total Se 200.7	Oil & Grease EPA 1664	NH3 as N SM 4500 -NH3	CA 17 Metals EPA 200.7	Chronic *Mysidopsis bahia*	Benzene 8020	EOL Benzene (EPA 8260)	TOC - SM5310		EPA 8260	EPA 8270				
											Testing Requested														
1	Self Divert to RP	48 hrs	1L	2	27-Nov	3:00	☑	☐	None	4.0											X				
2	Self Divert to RP	48 hrs	VOA	3	27-Nov	3:00	☑	☐	HCl	4.0										X					
3	Self Divert to RP	48 hrs	VOA	3	28-Nov	0:01	☑	☐	HCl	4.0										X					
4							☐	☐																	
5							☐	☐																	
6							☐	☐																	
7							☐	☐																	
8							☐	☐																	
9							☐	☐																	

Samples Prepared By: 11/29/16 0900 Date/Time

David Johnston Print Name

Relinquished By: 11/29/16 0915 Date/Time

Received By: Chelsea Feeney 11/29/16 11:46 Date / Time

T=7.3°C

Delta Self Diversion 11-27

January 12, 2017

Analytical Report

Client:	**Valero** 3400 East Second St Benicia, CA 94510
Attn:	**Marisol Pacheco-Mendez**

Work Order #:	1701028
Project:	Delta Benzene
Project #:	[none]
P.O. Number:	
Project Received:	January 10, 2017 13:05
Project Reported:	January 12, 2017 10:58

Sincerely,

Hossein Khoshkhoo

H. Khoshkhoo, Ph.D.
Laboratory Director / President

WORK ORDER: 1701028

COC Number:

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Summary

Lab ID	Sample	Matrix	Date Sampled	Date Received
1701028-01	Self Diversion to RP	Aqueous	January 4, 2017 2:05	January 10, 2017 13:05
1701028-02	Self Diversion to RP	Aqueous	January 4, 2017 2:05	January 10, 2017 13:05
1701028-03	Self Diversion to RP	Aqueous	January 5, 2017 12:00	January 10, 2017 13:05
1701028-04	Self Diversion to RP	Aqueous	January 7, 2017 10:50	January 10, 2017 13:05
1701028-05	Self Diversion to RP	Aqueous	January 7, 2017 10:50	January 10, 2017 13:05
1701028-06	Self Diversion to RP	Aqueous	January 8, 2017 12:00	January 10, 2017 13:05
1701028-07	Self Diversion to RP	Aqueous	January 9, 2017 12:00	January 10, 2017 13:05
1701028-08	Self Diversion to RP	Aqueous	January 10, 2017 12:00	January 10, 2017 13:05
1701028-09	EOL #1	Aqueous	January 3, 2017 11:00	January 10, 2017 13:05
1701028-10	Retention Pond To CFRP	Aqueous	January 6, 2017 7:40	January 10, 2017 13:05
1701028-11	Retention Pond To CFRP	Aqueous	January 7, 2017 9:30	January 10, 2017 13:05
1701028-12	Retention Pond To CFRP	Aqueous	January 7, 2017 9:30	January 10, 2017 13:05
1701028-13	Retention Pond To CFRP	Aqueous	January 8, 2017 12:00	January 10, 2017 13:05
1701028-14	Retention Pond To CFRP	Aqueous	January 9, 2017 12:00	January 10, 2017 13:05
1701028-15	Retention Pond To CFRP	Aqueous	January 10, 2017 12:00	January 10, 2017 13:05

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results

Sample Date: January 4, 2017 2:05

Sample: **Self Diversion to RP**
1701028-01 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 13:16

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625								
Dimethyl Phthalate	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Acenaphthene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Acenaphthylene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Anthracene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzidine	20.0		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzoic Acid	20.0		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzo (a) anthracene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzo (b) fluoranthene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzo (k) fluoranthene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzo (g,h,i) perylene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzo (a) pyrene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzyl Alcohol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Bis (2-chloroethoxy) methane	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Bis (2-chloroethyl) Ether	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Bis (2-chloroisopropyl) Ether	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Bis (2-ethylhexy) Phthalate	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4-Bromophenyl Phenyl Ether	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Butylbenzyl Phthalate	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4-Chloroaniline	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2-Chloronaphthalene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4-Chlorophenyl Phenyl Ether	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Chrysene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Dibenzo (a,h) anthracene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Dibenzofuran	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Di-n-butyl Phthalate	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
1,2-Dichlorobenzene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
1,3-Dichlorobenzene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
1,4-Dichlorobenzene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
3,3'-Dichlorobenzidine	10.0		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Diethyl Phthalate	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2,4-Dinitrotoluene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 4, 2017 2:05

Sample: Self Diversion to RP (Continued)
1701028-01 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 13:16

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625 (Continued)								
2,6-Dinitrotoluene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Di-n-octyl Phthalate	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Fluoranthene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Fluorene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Hexachlorobenzene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Hexachlorobutadiene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Hexachlorocyclopentadiene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Hexachloroethane	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Indeno (1,2,3-cd) pyrene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Isophorone	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2-Methylnaphthalene	5.00	J	**3.60**	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Naphthalene	5.00	J	**2.00**	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2-Nitroaniline	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
3-Nitroaniline	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4-Nitroaniline	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Nitrobenzene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
N-Nitrosodiphenylamine	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
N-Nitrosodi-n-propylamine	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Phenanthrene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Pyrene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
1,2,4-Trichlorobenzene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4-Chloro-3-methylphenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2-Chlorophenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2,4-Dichlorophenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2,4-Dimethylphenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4,6-Dinitro-2-methylphenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2,4-Dinitrophenol	20.0		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2-Methylphenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4-Methylphenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2-Nitrophenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4-Nitrophenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 4, 2017 2:05

Sample: Self Diversion to RP (Continued)
1701028-01 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 13:16

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625 (Continued)								
Pentachlorophenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Phenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2,4,5-Trichlorophenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2,4,6-Trichlorophenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
1,2-Diphenylhydrazine	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
N-Nitrosodimethylamine	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Surrogate: 2-Fluorophenol	23-91		45.6%			1/11/17	EPA 625	17A0052/ZT
Surrogate: Phenol-d6	5-93		41.0%			1/11/17	EPA 625	17A0052/ZT
Surrogate: Nitrobenzene-d5	34-141		93.5%			1/11/17	EPA 625	17A0052/ZT
Surrogate: 2-Fluorobiphenyl	32-144		113%			1/11/17	EPA 625	17A0052/ZT
Surrogate: 2,4,6-Tribromophenol	22-154		106%			1/11/17	EPA 625	17A0052/ZT
Surrogate: p-Terphenyl-d14	29-157		102%			1/11/17	EPA 625	17A0052/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 4, 2017 2:05

Sample: **Self Diversion to RP**
1701028-02 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	50.0		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Acrylonitrile	20.0		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Benzene	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Bromodichloromethane	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Bromoform	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Bromomethane	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Carbon Tetrachloride	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Chlorobenzene	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Chloroethane	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Chloroform	5.00		**5.40**	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Chloromethane	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Dibromochloromethane	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
1,2-Dichlorobenzene	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
1,3-Dichlorobenzene	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
1,4-Dichlorobenzene	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethane	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloroethane	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethene	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
trans-1,2-Dichloroethene	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloropropane	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
cis-1,3-Dichloropropene	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
trans-1,3-Dichloropropene	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
2-Chloroethylvinyl ether	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Ethylbenzene	5.00	J	**2.90**	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Methylene Chloride	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
1,1,2,2-Tetrachloroethane	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Tetrachloroethene	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Toluene	5.00		**17.6**	ug/L	10	1/10/17	EPA 624	17A0053/ZT
1,1,1-Trichloroethane	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
1,1,2-Trichloroethane	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Trichloroethene	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 4, 2017 2:05

Sample: Self Diversion to RP (Continued)
1701028-02 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Vinyl Chloride	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Methyl-tert-butyl ether (MTBE)	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Ethylenedibromide, EDB	5.00		ND	ug/L	10	1/10/17	EPA 624	17A0053/ZT
Surrogate: Dibromofluoromethane	70-130		84.5%			1/10/17	EPA 624	17A0053/ZT
Surrogate: Toluene-d8	70-130		107%			1/10/17	EPA 624	17A0053/ZT
Surrogate: 4-Bromofluorobenzene	70-130		88.0%			1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 5, 2017 12:00

Sample: **Self Diversion to RP**
1701028-03 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	5.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Acrylonitrile	2.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Benzene	0.500		**1.76**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromodichloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromoform	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromomethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroform	0.500		**3.15**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Dibromochloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylbenzene	0.500		**1.83**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methylene Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Tetrachloroethene	0.500		**1.27**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Toluene	0.500		**7.74**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Trichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 5, 2017 12:00

Sample: Self Diversion to RP (Continued)
1701028-03 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Vinyl Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylenedibromide, EDB	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Surrogate: Dibromofluoromethane	70-130		88.0%			1/10/17	EPA 624	17A0053/ZT
Surrogate: Toluene-d8	70-130		107%			1/10/17	EPA 624	17A0053/ZT
Surrogate: 4-Bromofluorobenzene	70-130		89.0%			1/10/17	EPA 624	17A0053/ZT

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
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685 Stone Road #11 & 12 • Benicia, CA 94510 • (707) 747-6081 • (800) 747-6082 • Fax (707) 747-6082

WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 7, 2017 10:50

Sample: **Self Diversion to RP**
1701028-04 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 13:16

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625								
Dimethyl Phthalate	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Acenaphthene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Acenaphthylene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Anthracene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzidine	20.0		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzoic Acid	20.0		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzo (a) anthracene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzo (b) fluoranthene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzo (k) fluoranthene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzo (g,h,i) perylene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzo (a) pyrene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Benzyl Alcohol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Bis (2-chloroethoxy) methane	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Bis (2-chloroethyl) Ether	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Bis (2-chloroisopropyl) Ether	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Bis (2-ethylhexy) Phthalate	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4-Bromophenyl Phenyl Ether	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Butylbenzyl Phthalate	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4-Chloroaniline	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2-Chloronaphthalene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4-Chlorophenyl Phenyl Ether	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Chrysene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Dibenzo (a,h) anthracene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Dibenzofuran	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Di-n-butyl Phthalate	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
1,2-Dichlorobenzene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
1,3-Dichlorobenzene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
1,4-Dichlorobenzene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
3,3'-Dichlorobenzidine	10.0		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Diethyl Phthalate	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2,4-Dinitrotoluene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT

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685 Stone Road #11 & 12 • Benicia, CA 94510 • (707) 747-6081 • (800) 747-6082 • Fax (707) 747-6082

WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 7, 2017 10:50

Sample: Self Diversion to RP (Continued)
1701028-04 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 13:16

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625 (Continued)								
2,6-Dinitrotoluene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Di-n-octyl Phthalate	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Fluoranthene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Fluorene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Hexachlorobenzene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Hexachlorobutadiene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Hexachlorocyclopentadiene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Hexachloroethane	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Indeno (1,2,3-cd) pyrene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Isophorone	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2-Methylnaphthalene	5.00		**10.5**	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Naphthalene	5.00	J	**4.24**	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2-Nitroaniline	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
3-Nitroaniline	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4-Nitroaniline	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Nitrobenzene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
N-Nitrosodiphenylamine	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
N-Nitrosodi-n-propylamine	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Phenanthrene	5.00	J	**2.69**	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Pyrene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
1,2,4-Trichlorobenzene	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4-Chloro-3-methylphenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2-Chlorophenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2,4-Dichlorophenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2,4-Dimethylphenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4,6-Dinitro-2-methylphenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2,4-Dinitrophenol	20.0		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2-Methylphenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4-Methylphenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2-Nitrophenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
4-Nitrophenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 7, 2017 10:50

Sample: Self Diversion to RP (Continued)
1701028-04 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 13:16

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625 (Continued)								
Pentachlorophenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Phenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2,4,5-Trichlorophenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
2,4,6-Trichlorophenol	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
1,2-Diphenylhydrazine	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
N-Nitrosodimethylamine	5.00		ND	ug/L	1	1/11/17	EPA 625	17A0052/ZT
Surrogate: 2-Fluorophenol	23-91		52.5%			1/11/17	EPA 625	17A0052/ZT
Surrogate: Phenol-d6	5-93		44.4%			1/11/17	EPA 625	17A0052/ZT
Surrogate: Nitrobenzene-d5	34-141		87.7%			1/11/17	EPA 625	17A0052/ZT
Surrogate: 2-Fluorobiphenyl	32-144		110%			1/11/17	EPA 625	17A0052/ZT
Surrogate: 2,4,6-Tribromophenol	22-154		110%			1/11/17	EPA 625	17A0052/ZT
Surrogate: p-Terphenyl-d14	29-157		106%			1/11/17	EPA 625	17A0052/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 7, 2017 10:50

Sample: **Self Diversion to RP**
1701028-05 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	5.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Acrylonitrile	2.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Benzene	0.500		**2.17**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromodichloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromoform	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromomethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroform	0.500		**2.69**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Dibromochloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylbenzene	0.500		**2.36**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methylene Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Tetrachloroethene	0.500		**0.840**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Toluene	0.500		**7.14**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Trichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 7, 2017 10:50

Sample: Self Diversion to RP (Continued)
1701028-05 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Vinyl Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylenedibromide, EDB	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Surrogate: Dibromofluoromethane	70-130		87.0%			1/10/17	EPA 624	17A0053/ZT
Surrogate: Toluene-d8	70-130		108%			1/10/17	EPA 624	17A0053/ZT
Surrogate: 4-Bromofluorobenzene	70-130		87.5%			1/10/17	EPA 624	17A0053/ZT

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
No duplication of this report is allowed, except in its entirety.

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 8, 2017 12:00

Sample: **Self Diversion to RP**
1701028-06 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	5.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Acrylonitrile	2.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Benzene	0.500	J	**0.370**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromodichloromethane	0.500		**0.730**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromoform	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromomethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroform	0.500		**9.96**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Dibromochloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylbenzene	0.500		**3.18**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methylene Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Tetrachloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Toluene	0.500		**5.52**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Trichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 8, 2017 12:00

Sample: Self Diversion to RP (Continued)
1701028-06 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Vinyl Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylenedibromide, EDB	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Surrogate: Dibromofluoromethane	70-130		89.5%			1/10/17	EPA 624	17A0053/ZT
Surrogate: Toluene-d8	70-130		106%			1/10/17	EPA 624	17A0053/ZT
Surrogate: 4-Bromofluorobenzene	70-130		88.5%			1/10/17	EPA 624	17A0053/ZT

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
No duplication of this report is allowed, except in its entirety.

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 9, 2017 12:00

Sample: **Self Diversion to RP**
1701028-07 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	5.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Acrylonitrile	2.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Benzene	0.500		**0.630**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromodichloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromoform	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromomethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroform	0.500		**0.960**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Dibromochloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylbenzene	0.500		**1.31**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methylene Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Tetrachloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Toluene	0.500		**18.7**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Trichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 9, 2017 12:00

Sample: Self Diversion to RP (Continued)
1701028-07 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Vinyl Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylenedibromide, EDB	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Surrogate: Dibromofluoromethane	70-130		84.5%			1/10/17	EPA 624	17A0053/ZT
Surrogate: Toluene-d8	70-130		105%			1/10/17	EPA 624	17A0053/ZT
Surrogate: 4-Bromofluorobenzene	70-130		85.5%			1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 10, 2017 12:00

Sample: **Self Diversion to RP**
1701028-08 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	5.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Acrylonitrile	2.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Benzene	0.500		**1.02**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromodichloromethane	0.500		**0.700**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromoform	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromomethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroform	0.500		**10.1**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Dibromochloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylbenzene	0.500		**0.820**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methylene Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Tetrachloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Toluene	0.500		**4.30**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Trichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 10, 2017 12:00

Sample: Self Diversion to RP (Continued)
1701028-08 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Vinyl Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylenedibromide, EDB	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Surrogate: Dibromofluoromethane	70-130		88.5%			1/10/17	EPA 624	17A0053/ZT
Surrogate: Toluene-d8	70-130		106%			1/10/17	EPA 624	17A0053/ZT
Surrogate: 4-Bromofluorobenzene	70-130		86.0%			1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 3, 2017 11:00

Sample: EOL #1
1701028-09 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	5.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Acrylonitrile	2.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Benzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromodichloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromoform	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromomethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroform	0.500		**5.36**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Dibromochloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylbenzene	0.500	J	**0.390**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methylene Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Tetrachloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Toluene	0.500		**2.74**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Trichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
No duplication of this report is allowed, except in its entirety.

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 3, 2017 11:00

Sample: EOL #1 (Continued)
1701028-09 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Vinyl Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylenedibromide, EDB	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Surrogate: Dibromofluoromethane	70-130		87.5%			1/10/17	EPA 624	17A0053/ZT
Surrogate: Toluene-d8	70-130		104%			1/10/17	EPA 624	17A0053/ZT
Surrogate: 4-Bromofluorobenzene	70-130		83.0%			1/10/17	EPA 624	17A0053/ZT

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
No duplication of this report is allowed, except in its entirety.

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 6, 2017 7:40

Sample: **Retention Pond To CFRP**
1701028-10 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	5.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Acrylonitrile	2.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Benzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromodichloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromoform	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromomethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroform	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Dibromochloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylbenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methylene Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Tetrachloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Toluene	0.500		**1.85**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Trichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 6, 2017 7:40

Sample: Retention Pond To CFRP (Continued)
1701028-10 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Vinyl Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylenedibromide, EDB	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Surrogate: Dibromofluoromethane	70-130		86.0%			1/10/17	EPA 624	17A0053/ZT
Surrogate: Toluene-d8	70-130		104%			1/10/17	EPA 624	17A0053/ZT
Surrogate: 4-Bromofluorobenzene	70-130		83.5%			1/10/17	EPA 624	17A0053/ZT

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
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685 Stone Road #11 & 12 • Benicia, CA 94510 • (707) 747-6081 • (800) 747-6082 • Fax (707) 747-6082

WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 7, 2017 9:30

Sample: **Retention Pond To CFRP**
1701028-11 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 13:16

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625								
Dimethyl Phthalate	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Acenaphthene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Acenaphthylene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Anthracene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Benzidine	40.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Benzoic Acid	40.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Benzo (a) anthracene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Benzo (b) fluoranthene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Benzo (k) fluoranthene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Benzo (g,h,i) perylene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Benzo (a) pyrene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Benzyl Alcohol	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Bis (2-chloroethoxy) methane	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Bis (2-chloroethyl) Ether	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Bis (2-chloroisopropyl) Ether	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Bis (2-ethylhexy) Phthalate	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
4-Bromophenyl Phenyl Ether	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Butylbenzyl Phthalate	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
4-Chloroaniline	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
2-Chloronaphthalene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
4-Chlorophenyl Phenyl Ether	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Chrysene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Dibenzo (a,h) anthracene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Dibenzofuran	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Di-n-butyl Phthalate	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
1,2-Dichlorobenzene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
1,3-Dichlorobenzene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
1,4-Dichlorobenzene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
3,3'-Dichlorobenzidine	20.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Diethyl Phthalate	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
2,4-Dinitrotoluene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
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685 Stone Road #11 & 12 • Benicia, CA 94510 • (707) 747-6081 • (800) 747-6082 • Fax (707) 747-6082

WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 7, 2017 9:30

Sample: Retention Pond To CFRP (Continued)
1701028-11 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 13:16

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625 (Continued)								
2,6-Dinitrotoluene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Di-n-octyl Phthalate	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Fluoranthene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Fluorene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Hexachlorobenzene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Hexachlorobutadiene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Hexachlorocyclopentadiene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Hexachloroethane	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Indeno (1,2,3-cd) pyrene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Isophorone	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
2-Methylnaphthalene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Naphthalene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
2-Nitroaniline	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
3-Nitroaniline	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
4-Nitroaniline	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Nitrobenzene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
N-Nitrosodiphenylamine	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
N-Nitrosodi-n-propylamine	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Phenanthrene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Pyrene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
1,2,4-Trichlorobenzene	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
4-Chloro-3-methylphenol	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
2-Chlorophenol	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
2,4-Dichlorophenol	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
2,4-Dimethylphenol	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
4,6-Dinitro-2-methylphenol	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
2,4-Dinitrophenol	40.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
2-Methylphenol	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
4-Methylphenol	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
2-Nitrophenol	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
4-Nitrophenol	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 7, 2017 9:30

Sample: Retention Pond To CFRP (Continued)
1701028-11 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 13:16

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Semi-Volatile Organic Compounds by EPA 625 (Continued)								
Pentachlorophenol	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Phenol	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
2,4,5-Trichlorophenol	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
2,4,6-Trichlorophenol	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
1,2-Diphenylhydrazine	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
N-Nitrosodimethylamine	10.0		ND	ug/L	2	1/11/17	EPA 625	17A0052/ZT
Surrogate: 2-Fluorophenol	23-91		64.1%			1/11/17	EPA 625	17A0052/ZT
Surrogate: Phenol-d6	5-93		54.1%			1/11/17	EPA 625	17A0052/ZT
Surrogate: Nitrobenzene-d5	34-141		83.0%			1/11/17	EPA 625	17A0052/ZT
Surrogate: 2-Fluorobiphenyl	32-144		101%			1/11/17	EPA 625	17A0052/ZT
Surrogate: 2,4,6-Tribromophenol	22-154		92.5%			1/11/17	EPA 625	17A0052/ZT
Surrogate: p-Terphenyl-d14	29-157		101%			1/11/17	EPA 625	17A0052/ZT

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
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685 Stone Road #11 & 12 • Benicia, CA 94510 • (707) 747-6081 • (800) 747-6082 • Fax (707) 747-6082

WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 7, 2017 9:30

Sample: **Retention Pond To CFRP**
1701028-12 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	5.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Acrylonitrile	2.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Benzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromodichloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromoform	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromomethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroform	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Dibromochloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylbenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methylene Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Tetrachloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Toluene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Trichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 7, 2017 9:30

Sample: Retention Pond To CFRP (Continued)
1701028-12 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Vinyl Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylenedibromide, EDB	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Surrogate: Dibromofluoromethane	70-130		86.0%			1/10/17	EPA 624	17A0053/ZT
Surrogate: Toluene-d8	70-130		106%			1/10/17	EPA 624	17A0053/ZT
Surrogate: 4-Bromofluorobenzene	70-130		82.0%			1/10/17	EPA 624	17A0053/ZT

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
No duplication of this report is allowed, except in its entirety.

685 Stone Road #11 & 12 • Benicia, CA 94510 • (707) 747-6081 • (800) 747-6082 • Fax (707) 747-6082

WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 8, 2017 12:00

Sample: **Retention Pond To CFRP**
1701028-13 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	5.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Acrylonitrile	2.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Benzene	0.500		**1.01**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromodichloromethane	0.500		**0.600**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromoform	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromomethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroform	0.500		**7.58**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Dibromochloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylbenzene	0.500		**3.33**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methylene Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Tetrachloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Toluene	0.500		**6.07**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Trichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 8, 2017 12:00

Sample: Retention Pond To CFRP (Continued)
1701028-13 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Vinyl Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylenedibromide, EDB	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Surrogate: Dibromofluoromethane	70-130		88.0%			1/10/17	EPA 624	17A0053/ZT
Surrogate: Toluene-d8	70-130		104%			1/10/17	EPA 624	17A0053/ZT
Surrogate: 4-Bromofluorobenzene	70-130		88.0%			1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 9, 2017 12:00

Sample: **Retention Pond To CFRP**
1701028-14 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	5.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Acrylonitrile	2.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Benzene	0.500		**1.71**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromodichloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromoform	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromomethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroform	0.500		**2.27**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Dibromochloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylbenzene	0.500		**2.69**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methylene Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Tetrachloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Toluene	0.500		**6.11**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Trichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 9, 2017 12:00

Sample: Retention Pond To CFRP (Continued)
1701028-14 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Vinyl Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylenedibromide, EDB	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Surrogate: Dibromofluoromethane	70-130		87.0%			1/10/17	EPA 624	17A0053/ZT
Surrogate: Toluene-d8	70-130		106%			1/10/17	EPA 624	17A0053/ZT
Surrogate: 4-Bromofluorobenzene	70-130		86.0%			1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 10, 2017 12:00

Sample: **Retention Pond To CFRP**
1701028-15 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624								
Acrolein	5.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Acrylonitrile	2.00		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Benzene	0.500		**0.560**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromodichloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromoform	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Bromomethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Carbon Tetrachloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloroform	0.500		**3.87**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Chloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Dibromochloromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,3-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,4-Dichlorobenzene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,2-Dichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,2-Dichloropropane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
cis-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
trans-1,3-Dichloropropene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
2-Chloroethylvinyl ether	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylbenzene	0.500	J	**0.470**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methylene Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2,2-Tetrachloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Tetrachloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Toluene	0.500		**3.24**	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,1-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
1,1,2-Trichloroethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Trichloroethene	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Sample Results
(Continued)

Sample Date: January 10, 2017 12:00

Sample: Retention Pond To CFRP (Continued)
1701028-15 (Aqueous) **Sample Type:** Grab **Prep Date:** January 10, 2017 10:33

Analyte	Reporting Limit	Qual	Result	Unit	Dilution Factor	Date Analyzed	Method	Batch/ Analyst
Volatile Organic Compounds by EPA 624 (Continued)								
Trichlorofluoromethane	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Vinyl Chloride	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Methyl-tert-butyl ether (MTBE)	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Ethylenedibromide, EDB	0.500		ND	ug/L	1	1/10/17	EPA 624	17A0053/ZT
Surrogate: Dibromofluoromethane	70-130		86.5%			1/10/17	EPA 624	17A0053/ZT
Surrogate: Toluene-d8	70-130		106%			1/10/17	EPA 624	17A0053/ZT
Surrogate: 4-Bromofluorobenzene	70-130		83.5%			1/10/17	EPA 624	17A0053/ZT

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control

Semi-Volatile Organic Compounds by EPA 625 **Prepared: Jan-10-17 Analyzed: Jan-11-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17A0052										**Analyst:** ZT
Blank (17A0052-BLK1)										
Dimethyl Phthalate		**ND**		5.00	ug/L					
Acenaphthene		**ND**		5.00	ug/L					
Acenaphthylene		**ND**		5.00	ug/L					
Anthracene		**ND**		5.00	ug/L					
Benzidine		**ND**		20.0	ug/L					
Benzoic Acid		**ND**		20.0	ug/L					
Benzo (a) anthracene		**ND**		5.00	ug/L					
Benzo (b) fluoranthene		**ND**		5.00	ug/L					
Benzo (k) fluoranthene		**ND**		5.00	ug/L					
Benzo (g,h,i) perylene		**ND**		5.00	ug/L					
Benzo (a) pyrene		**ND**		5.00	ug/L					
Benzyl Alcohol		**ND**		5.00	ug/L					
Bis (2-chloroethoxy) methane		**ND**		5.00	ug/L					
Bis (2-chloroethyl) Ether		**ND**		5.00	ug/L					
Bis (2-chloroisopropyl) Ether		**ND**		5.00	ug/L					
Bis (2-ethylhexy) Phthalate		**ND**		5.00	ug/L					
4-Bromophenyl Phenyl Ether		**ND**		5.00	ug/L					
Butylbenzyl Phthalate		**ND**		5.00	ug/L					
4-Chloroaniline		**ND**		5.00	ug/L					
2-Chloronaphthalene		**ND**		5.00	ug/L					
4-Chlorophenyl Phenyl Ether		**ND**		5.00	ug/L					
Chrysene		**ND**		5.00	ug/L					
Dibenzo (a,h) anthracene		**ND**		5.00	ug/L					
Dibenzofuran		**ND**		5.00	ug/L					
Di-n-butyl Phthalate		**ND**		5.00	ug/L					
1,2-Dichlorobenzene		**ND**		5.00	ug/L					
1,3-Dichlorobenzene		**ND**		5.00	ug/L					
1,4-Dichlorobenzene		**ND**		5.00	ug/L					
3,3'-Dichlorobenzidine		**ND**		10.0	ug/L					
Diethyl Phthalate		**ND**		5.00	ug/L					
2,4-Dinitrotoluene		**ND**		5.00	ug/L					
2,6-Dinitrotoluene		**ND**		5.00	ug/L					
Di-n-octyl Phthalate		**ND**		5.00	ug/L					
Fluoranthene		**ND**		5.00	ug/L					

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WORK ORDER: 1701028 **COC Number:**

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3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 625 (Continued) **Prepared: Jan-10-17 Analyzed: Jan-11-17**

Batch: 17A0052 (Continued) **Analyst:** ZT

Blank (17A0052-BLK1)

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Fluorene		ND		5.00	ug/L					
Hexachlorobenzene		ND		5.00	ug/L					
Hexachlorobutadiene		ND		5.00	ug/L					
Hexachlorocyclopentadiene		ND		5.00	ug/L					
Hexachloroethane		ND		5.00	ug/L					
Indeno (1,2,3-cd) pyrene		ND		5.00	ug/L					
Isophorone		ND		5.00	ug/L					
2-Methylnaphthalene		ND		5.00	ug/L					
Naphthalene		ND		5.00	ug/L					
2-Nitroaniline		ND		5.00	ug/L					
3-Nitroaniline		ND		5.00	ug/L					
4-Nitroaniline		ND		5.00	ug/L					
Nitrobenzene		ND		5.00	ug/L					
N-Nitrosodiphenylamine		ND		5.00	ug/L					
N-Nitrosodi-n-propylamine		ND		5.00	ug/L					
Phenanthrene		ND		5.00	ug/L					
Pyrene		ND		5.00	ug/L					
1,2,4-Trichlorobenzene		ND		5.00	ug/L					
4-Chloro-3-methylphenol		ND		5.00	ug/L					
2-Chlorophenol		ND		5.00	ug/L					
2,4-Dichlorophenol		ND		5.00	ug/L					
2,4-Dimethylphenol		ND		5.00	ug/L					
4,6-Dinitro-2-methylphenol		ND		5.00	ug/L					
2,4-Dinitrophenol		ND		20.0	ug/L					
2-Methylphenol		ND		5.00	ug/L					
4-Methylphenol		ND		5.00	ug/L					
2-Nitrophenol		ND		5.00	ug/L					
4-Nitrophenol		ND		5.00	ug/L					
Pentachlorophenol		ND		5.00	ug/L					
Phenol		ND		5.00	ug/L					
2,4,5-Trichlorophenol		ND		5.00	ug/L					
2,4,6-Trichlorophenol		ND		5.00	ug/L					
1,2-Diphenylhydrazine		ND		5.00	ug/L					
N-Nitrosodimethylamine		ND		5.00	ug/L					

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 625 (Continued) **Prepared: Jan-10-17 Analyzed: Jan-11-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17A0052 (Continued)										**Analyst:** ZT
Blank (17A0052-BLK1)										
Surrogate: 2-Fluorophenol		118			ug/L	200	59.0	23-91		
Surrogate: Phenol-d6		119			ug/L	200	59.5	5-93		
Surrogate: Nitrobenzene-d5		95.8			ug/L	100	95.8	34-141		
Surrogate: 2-Fluorobiphenyl		105			ug/L	100	105	32-144		
Surrogate: 2,4,6-Tribromophenol		120			ug/L	200	60.0	22-154		
Surrogate: p-Terphenyl-d14		96.5			ug/L	100	96.5	29-157		
LCS (17A0052-BS1)										
Acenaphthene		**45.4**		5.00	ug/L	50.0	90.8	31-123		
1,4-Dichlorobenzene		**35.3**		5.00	ug/L	50.0	70.6	27-113		
2,4-Dinitrotoluene		**33.8**		5.00	ug/L	50.0	67.6	34-128		
N-Nitrosodi-n-propylamine		**31.1**		5.00	ug/L	50.0	62.2	30-139		
Pyrene		**37.2**		5.00	ug/L	50.0	74.4	27-136		
1,2,4-Trichlorobenzene		**36.7**		5.00	ug/L	50.0	73.4	29-105		
4-Chloro-3-methylphenol		**42.5**		5.00	ug/L	50.0	85.0	28-125		
2-Chlorophenol		**35.3**		5.00	ug/L	50.0	70.6	29-104		
4-Nitrophenol		**39.5**		5.00	ug/L	50.0	79.0	0-112		
Pentachlorophenol		**33.4**		5.00	ug/L	50.0	66.8	0-165		
Phenol		**14.7**		5.00	ug/L	50.0	29.4	0.4-70		
Surrogate: 2-Fluorophenol		125			ug/L	200	62.5	23-92		
Surrogate: Phenol-d6		125			ug/L	200	62.5	5-93		
Surrogate: Nitrobenzene-d5		92.6			ug/L	100	92.6	34-141		
Surrogate: 2-Fluorobiphenyl		108			ug/L	100	108	32-144		
Surrogate: 2,4,6-Tribromophenol		166			ug/L	200	83.0	22-154		
Surrogate: p-Terphenyl-d14		92.7			ug/L	100	92.7	29-157		
LCS Dup (17A0052-BSD1)										
Acenaphthene		**46.5**		5.00	ug/L	50.0	93.0	31-123	2.39	20
1,4-Dichlorobenzene		**35.4**		5.00	ug/L	50.0	70.8	27-113	0.283	20
2,4-Dinitrotoluene		**36.5**		5.00	ug/L	50.0	73.0	34-128	7.68	20
N-Nitrosodi-n-propylamine		**30.9**		5.00	ug/L	50.0	61.8	30-139	0.645	20
Pyrene		**34.3**		5.00	ug/L	50.0	68.6	27-136	8.11	20
1,2,4-Trichlorobenzene		**37.8**		5.00	ug/L	50.0	75.6	29-105	2.95	20
4-Chloro-3-methylphenol		**46.5**		5.00	ug/L	50.0	93.0	28-125	8.99	20

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Semi-Volatile Organic Compounds by EPA 625 (Continued) **Prepared: Jan-10-17 Analyzed: Jan-11-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17A0052 (Continued)										**Analyst:** ZT
LCS Dup (17A0052-BSD1)										
2-Chlorophenol		**33.3**		5.00	ug/L	50.0	66.6	29-104	5.83	20
4-Nitrophenol		**44.4**		5.00	ug/L	50.0	88.8	0-112	11.7	20
Pentachlorophenol		**36.1**		5.00	ug/L	50.0	72.2	0-165	7.77	20
Phenol		**14.4**		5.00	ug/L	50.0	28.8	0.4-70	2.06	20
Surrogate: 2-Fluorophenol		109			ug/L	200	54.5	23-92		
Surrogate: Phenol-d6		104			ug/L	200	52.0	5-93		
Surrogate: Nitrobenzene-d5		93.7			ug/L	100	93.7	34-141		
Surrogate: 2-Fluorobiphenyl		109			ug/L	100	109	32-144		
Surrogate: 2,4,6-Tribromophenol		193			ug/L	200	96.5	22-154		
Surrogate: p-Terphenyl-d14		86.4			ug/L	100	86.4	29-157		

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Volatile Organic Compounds by EPA 624 **Prepared & Analyzed: Jan-10-17**

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17A0053										**Analyst:** ZT
Blank (17A0053-BLK1)										
Acrolein		**ND**		5.00	ug/L					
Acrylonitrile		**ND**		2.00	ug/L					
Benzene		**ND**		0.500	ug/L					
Bromodichloromethane		**ND**		0.500	ug/L					
Bromoform		**ND**		0.500	ug/L					
Bromomethane		**ND**		0.500	ug/L					
Carbon Tetrachloride		**ND**		0.500	ug/L					
Chlorobenzene		**ND**		0.500	ug/L					
Chloroethane		**ND**		0.500	ug/L					
Chloroform		**ND**		0.500	ug/L					
Chloromethane		**ND**		0.500	ug/L					
Dibromochloromethane		**ND**		0.500	ug/L					
1,2-Dichlorobenzene		**ND**		0.500	ug/L					
1,3-Dichlorobenzene		**ND**		0.500	ug/L					
1,4-Dichlorobenzene		**ND**		0.500	ug/L					
1,1-Dichloroethane		**ND**		0.500	ug/L					
1,2-Dichloroethane		**ND**		0.500	ug/L					
1,1-Dichloroethene		**ND**		0.500	ug/L					
trans-1,2-Dichloroethene		**ND**		0.500	ug/L					
1,2-Dichloropropane		**ND**		0.500	ug/L					
cis-1,3-Dichloropropene		**ND**		0.500	ug/L					
trans-1,3-Dichloropropene		**ND**		0.500	ug/L					
2-Chloroethylvinyl ether		**ND**		0.500	ug/L					
Ethylbenzene		**ND**		0.500	ug/L					
Methylene Chloride		**ND**		0.500	ug/L					
1,1,2,2-Tetrachloroethane		**ND**		0.500	ug/L					
Tetrachloroethene		**ND**		0.500	ug/L					
Toluene		**ND**		0.500	ug/L					
1,1,1-Trichloroethane		**ND**		0.500	ug/L					
1,1,2-Trichloroethane		**ND**		0.500	ug/L					
Trichloroethene		**ND**		0.500	ug/L					
Trichlorofluoromethane		**ND**		0.500	ug/L					
Vinyl Chloride		**ND**		0.500	ug/L					
Methyl-tert-butyl ether (MTBE)		**ND**		0.500	ug/L					

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WORK ORDER: 1701028 **COC Number:**

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Quality Control
(Continued)

Volatile Organic Compounds by EPA 624 (Continued)

Prepared & Analyzed: Jan-10-17

Analyte	Source Result	Result	Qual	Reporting Limit	Unit	Spike Level	% REC	%REC Limits	RPD	RPD Limit
Batch: 17A0053 (Continued)										**Analyst:** ZT
Blank (17A0053-BLK1)										
Ethylenedibromide, EDB		**ND**		0.500	ug/L					
Surrogate: Dibromofluoromethane		16.8			ug/L	20.0	84.0	70-130		
Surrogate: Toluene-d8		21.9			ug/L	20.0	110	70-130		
Surrogate: 4-Bromofluorobenzene		18.6			ug/L	20.0	93.0	70-130		
LCS (17A0053-BS1)										
Benzene		**20.2**		0.500	ug/L	20.0	101	80-120		
Chlorobenzene		**19.8**		0.500	ug/L	20.0	99.0	80-120		
1,1-Dichloroethene		**18.4**		0.500	ug/L	20.0	92.0	80-120		
Toluene		**20.3**		0.500	ug/L	20.0	102	80-120		
Trichloroethene		**22.3**		0.500	ug/L	20.0	112	80-120		
Surrogate: Dibromofluoromethane		16.7			ug/L	20.0	83.5	70-130		
Surrogate: Toluene-d8		21.8			ug/L	20.0	109	70-130		
Surrogate: 4-Bromofluorobenzene		19.6			ug/L	20.0	98.0	70-130		
LCS Dup (17A0053-BSD1)										
Benzene		**20.8**		0.500	ug/L	20.0	104	80-120	2.93	20
Chlorobenzene		**20.6**		0.500	ug/L	20.0	103	80-120	3.96	20
1,1-Dichloroethene		**18.0**		0.500	ug/L	20.0	90.0	80-120	2.20	20
Toluene		**20.2**		0.500	ug/L	20.0	101	80-120	0.494	20
Trichloroethene		**21.3**		0.500	ug/L	20.0	106	80-120	4.59	20
Surrogate: Dibromofluoromethane		17.4			ug/L	20.0	87.0	70-130		
Surrogate: Toluene-d8		21.6			ug/L	20.0	108	70-130		
Surrogate: 4-Bromofluorobenzene		18.9			ug/L	20.0	94.5	70-130		

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WORK ORDER: 1701028

COC Number:

Valero
3400 East Second St
Benicia, CA 94510

Project: Delta Benzene
PO Number:
Project Manager: Marisol Pacheco-Mendez
Project #:[none]

Notes and Definitions

Item	Definition
J	The result is less than the reporting limit, but greater than the MDL.
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
%REC	Percent Recovery
DF	Dilution Factor
LCS	Lab Control Sample
LCSD	Lab Control Sample Duplicate
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated
J	Results > MDL but < MRL

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ED_001593_00018284

Valero Benicia Refinery
Bioassay Laboratory

1701028 1/2

Sample Destination: Delta

Report Results To: Marisol.Pacheco-Mendez@Valero.com

LabCode: D 17-004

Date: 10-Jan-17

Phone: 745-7573

Fax 1:

e-mail : David.Johnston@Valero.com

Fax 2:

PO# Delta Benzene - 4503805062-10

Cost Center 7319

417190

Sample Notes or Special Instructions

#	Sample ID	Turn Around	Sample Size	# of Samples	Date	Time	GRAB	COMP	Preserve	Temp.	Total Se 200.7	Oil & Grease EPA 1664	NH3 as N SM 4500 -NH3	CA 17 Metals EPA 200.7	Chronic *Mysidopsis bahia*	Benzene 8020	EOL Benzene (EPA 8260)	TOC - SM5310		EPA 624	EPA 625						
											Testing Requested																
1	Self Diversion to RP	48 hrs	1L	1	4-Jan	2:05 AM	☑	☐	None	4.0											X						
2	Self Diversion to RP	48 hrs	VOA	3	4-Jan	2:05 AM	☑	☐	HCl	4.0										X							
3	Self Diversion to RP	48 hrs	VOA	3	5-Jan	12:00 AM	☑	☐	HCl	4.0										X							
4	Self Diversion to RP	48 hrs	1L	2	7-Jan	10:50 AM	☑	☐	None	4.0											X						
5	Self Diversion to RP	48 hrs	VOA	2	7-Jan	10:50 AM	☑	☐	HCl	4.0										X							
6	Self Diversion to RP	48 hrs	VOA	2	8-Jan	12:00 AM	☑	☐	HCl	4.0										X							
7	Self Diversion to RP	48 hrs	VOA	2	9-Jan	12:00 AM	☑	☐	HCl	4.0										X							
8	Self Diversion to RP	48 hrs	VOA	2	10-Jan	12:00 AM	☑	☐	HCl	4.0										X							
9	EOL #1	48 hrs	VOA	3	3-Jan	11:00 AM	☑	☐	HCl	4.0										X							

Samples Prepared By: _____ 1/10/17 Date/Time D. Solmet Print Name

Relinquished By: _____ 1/10/17 1030 Date/Time Received By: _____ 1/10/17 13:05 Date / Time

C

Self Diversion to RP 1-10-17

1701028/2/2

Valero Benicia Refinery
Bioassay Laboratory

Sample Destination: Delta

LabCode: D 17-006

Date: 10-Jan-17

Report Results To: Marisol.Pacheco-Mendez@Valero.com

Phone: 745-7573

Fax 1:

e-mail : David.Johnston@Valero.com

Fax 2:

PO# Delta Benzene - 4503805062-10

Cost Center 7319

417190

Sample Notes or Special Instructions

#	Sample ID	Turn Around	Sample Size	# of Samples	Date	Time	GRAB	COMP	Preserve	Temp.	Total Se 200.7	Oil & Grease EPA 1664	NH3 as N SM 4500 -NH3	CA 17 Metals EPA 200.7	Chronic *Mysidopsis bahia*	Benzene 8020	EOL Benzene (EPA 8260)	TOC - SM5310		EPA 624	EPA 625						
											Testing Requested																
1	Retention Pond to CFRP	48 hrs	VOA	3	6-Jan	7:40 PM	☑	☐	HCl	4.0										X							
2	Retention Pond to CFRP	48 hrs	1L	2	7-Jan	9:30 AM	☑	☐	None	4.0											X						
3	Retention Pond to CFRP	48 hrs	VOA	2	7-Jan	9:30 AM	☑	☐	HCl	4.0										X							
4	Retention Pond to CFRP	48 hrs	VOA	2	8-Jan	12:00 AM	☑	☐	HCl	4.0										X							
5	Retention Pond to CFRP	48 hrs	VOA	2	9-Jan	12:00 AM	☑	☐	HCl	4.0										X							
6	Retention Pond to CFRP	48 hrs	VOA	2	10-Jan	12:00 AM	☑	☐	HCl	4.0										X							
7							☐	☐																			
8							☐	☐																			
9							☐	☐																			

10 → 11 → 12 → 13 → 14 → 15 →

Samples Prepared By: [signature] 1/10/17 Date/Time D. Johnston Print Name 13:00

Relinquished By: [signature] 1/10/17 1230 Date/Time Received By: [signature] 1/10/17 Date / Time

Retention Pond to CFRP 1-10-1

ED_001593_00018284

To: Manion, Andrea[Manion.Andrea@epa.gov]; McDaniel, Doug[McDaniel.Doug@epa.gov]
Cc: Aievoli, Jenny@DTSC[Jenny.Aievoli@dtsc.ca.gov]
From: Green, Kristine@DTSC
Sent: Fri 10/31/2014 5:40:34 PM
Subject: Enforcement FR Reviews
DTSC_FRR_Insp_Oct2013-Sept2014.xlsx

Hi,

As requested, attached is a list of the FR reviews that was exported from the Enforcement EnviroStor.

The list of facilities are mainly requested from the Enforcement and Emergency Response Division, but there are 3 facilities on this list that are from the Cleanup Program and were O&M reviews. Those facilities are identified by not having an EPA ID number in that column. If you need anything else, please let me know.

Thanks

-K

Kristine Green

Financial Assurance Unit

Hazardous Waste Management Program

Department of Toxic Substances Control

(916) 255-6404

To: Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]
Cc: Lin, Sharon[Lin.Sharon@epa.gov]; McDaniel, Doug[McDaniel.Doug@epa.gov]
From: Schofield, John
Sent: Tue 11/17/2015 3:54:47 PM
Subject: RE: Request for closure and post closure documents for Shell Martinez Refinery CAD009164021 - RM-17 incinerator + Vessel 482

Thanks

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
(415) 947-3530 (fax)
schofield.john@epa.gov
****

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From: Soria, Maria@DTSC [mailto:Maria.Soria@dtsc.ca.gov]
Sent: Monday, November 16, 2015 5:15 PM
To: Schofield, John <Schofield.John@epa.gov>
Cc: Lin, Sharon <Lin.Sharon@epa.gov>; McDaniel, Doug <McDaniel.Doug@epa.gov>
Subject: RE: Request for closure and post closure documents for Shell Martinez Refinery CAD009164021 - RM-17 incinerator + Vessel 482

We're on it. The permit writer is Waqar Ahmad and I've sent him an email request with a cc to Sharon. Sharon, if you don't hear back within a reasonable time frame, please let me know.

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Monday, November 16, 2015 1:51 PM
To: Soria, Maria@DTSC
Cc: Lin, Sharon; McDaniel, Doug

Subject: Request for closure and post closure documents for Shell Martinez Refinery CAD009164021 - RM-17 incinerator + Vessel 482

Maria,

As part of completing our inspection of the Shell Martinez facility, EPA is requesting the following information: closure report and any post-closure documents for the following closed Shell Martinez Refinery units: RM-17 and Vessel 482.

The RM-17 incinerator was closed on December 27, 1996. Vessel 482 hazardous waste storage tank was closed on April 3, 1997. The RCRAInfo database indicated a clean closure verification date of 2/3//97 for both units. The attached permit contains detailed descriptions of the units.

Could you please forward this request to the appropriate DTSC person that could help us with obtaining this information?

For any questions concerning this request, please have the person contact Sharon Lin at 415-972-3346.

Thank you for your assistance in helping us obtain the information.

regards,

John

****

John Schofield
U. S. Environmental Protection Agency
Region 9

Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
(415) 947-3530 (fax)
schofield.john@epa.gov
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To: McDaniel, Doug[McDaniel.Doug@epa.gov]
Cc: Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]; Lin, Sharon[Lin.Sharon@epa.gov]
From: Kihara, Keith@DTSC
Sent: Thur 3/23/2017 9:11:49 PM
Subject: Re: Torrance Refinery

Thanks.

Sent from my iPhone

On Mar 23, 2017, at 1:55 PM, McDaniel, Doug <McDaniel.Doug@epa.gov> wrote:

Hi Keith –

Attached is a very brief summary of the December 2016 PBF Torrance Refinery RCRA inspection (we have to work through CBI issues before we can release the report itself). Brian Wu of your staff accompanied. EPA hopes DTSC will take the lead on appropriate follow up enforcement, as the case involves potential California-only violations in addition to potential RCRA violations. Please let me know who on your staff is the appropriate contact for Sharon Lin, our inspector. We will provide the full report when available (2-3 weeks).

Doug

Douglas K. McDaniel

Chief, Waste and Chemical Section

Enforcement Division

U.S. EPA Region 9

(415) 947-4106

<PBF Report Summary 3-23-17.doc>

To: Schofield, John[Schofield.John@epa.gov]; Saenz, Diana[Saenz.Diana@epa.gov]
Cc: Sugerman, Rebecca[Sugerman.Rebecca@epa.gov]; McDaniel, Doug[McDaniel.Doug@epa.gov]; Vega, Jackie[Vega.Jackie@epa.gov]
From: Lin, Sharon
Sent: Wed 1/13/2016 6:11:32 PM
Subject: RE: R9 Valero case
Final Report VP1080 ValeroBenicia.pdf

;;;;;
Hi, Diana,

I presume you were referring to the May 2014 NEIC multimedia inspection at Valero Benicia. Region 9 had a RCRA case against the same facility in 2005.

The NEIC inspection was a RCRA and EPCRA multi-media investigation. The investigation didn't include 112(r). Jackie Vega was the NEIC RCRA inspector.

Attached is the NEIC report (without the appendices). The facility confirmed there is no CBI in the attached document.

Please let me know if you need anything else. Thanks.

Sharon Lin, P.E.

U.S. Environmental Protection Agency Region 9

Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street

San Francisco, CA 94105

Tel: (415) 972-3446

Email: Lin.Sharon@epa.gov

From: Schofield, John
Sent: Wednesday, January 13, 2016 9:58 AM
To: Lin, Sharon
Cc: Sugerman, Rebecca ; McDaniel, Doug
Subject: FW: R9 Valero case

Sharon,

Will you respond to Diana's e-mail?

Thank you,

John

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
(415) 947-3530 (fax)
schofield.john@epa.gov
****

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From: Saenz, Diana
Sent: Wednesday, January 13, 2016 9:57 AM
To: Schofield, John <Schofield.John@epa.gov>
Subject: R9 Valero case

John - - I remember you talking about the inspection at a Valero refinery in R9 and that there were RCRA violations. Were there any 112(r) violations as well?

Do you have an inspection report you could share?

Thank you very much

Diana

Diana J. Saenz

Acting Associate Director

Waste and Chemical Enforcement Division

Office of Civil Enforcement/ U.S. EPA

1200 Pennsylvania Ave., N.W.

Mailcode 2249A

Washington, D.C. 20460

Phone: (202) 564-4209

Fax: (202) 564-0022

Saenz.Diana@epa.gov

To: Bellot, Michael[Bellot.Michael@epa.gov]; Saenz, Diana[Saenz.Diana@epa.gov]; Russell, Bethany[Russell.Bethany@epa.gov]
Cc: McDaniel, Doug[McDaniel.Doug@epa.gov]; Vega, Jackie[Vega.Jackie@epa.gov]
From: Lin, Sharon
Sent: Fri 7/31/2015 12:08:17 AM
Subject: Valero Benicia Refinery Show Cause Letter
ShowCauseLetterJuly302015.pdf

;;
Hi, Diana, Mike and Bethany,

We sent out the combined RCRA/EPCRA show cause letter for Valero Benicia Refinery today. Our Region 9 EPCRA contact told me that it is their program practice for regions to send their show cause letters to OECA for the purpose of information sharing. I don't know if RCRA program has the same practice. Since you folks are in the same division, I am forwarding this on as FYI. Thanks.

Sharon

Sharon Lin, P.E.

U.S. Environmental Protection Agency Region 9

Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street

San Francisco, CA 94105

Tel: (415) 972-3446

Email: Lin.Sharon@epa.gov

To: Parker, David[Parker.David@epa.gov]
Cc: Anderson, Julie[Anderson.Julie@epa.gov]; Vega, Jackie[Vega.Jackie@epa.gov]; Lin, Sharon[Lin.Sharon@epa.gov]; ROLLINS, CHRISTOPHER[rollins.christopher@epa.gov]
From: McDaniel, Doug
Sent: Tue 7/14/2015 9:30:52 PM
Subject: Chevron HI
NEIC Hawaii Proposal July 2015.docx

Hi David –

This proposal for NEIC support at the Chevron Hawaii refinery is part of the FY15 funding cycle – I am told that a placeholder from OECA was put in. We and the State of Hawaii very much appreciate your help in this capacity building effort.

Doug

Douglas K. McDaniel

Chief, Waste and Chemical Section

Enforcement Division

U.S. EPA Region 9

(415) 947-4106

Region 9 Project Proposal for
RCRA Process Based Inspection
Hawaii Chevron Refinery

FY 2015 NEIC Civil & Next Gen Enforcement Projects
NEIC Project #VP1146

Request:

A RCRA process based inspection at the Hawaii Chevron petroleum refinery in 2016. The inspection will also serve as a training opportunity for Hawaii State Department of Health enforcement personnel.

Location:

Hawaii Refinery, Chevron Products Company (HIT 160 010 005)

Scope:

Conduct a thorough RCRA process based inspection, including investigation of surface impoundments and potential hazardous waste storage, treatment and disposal units; investigation of potential impact to groundwater and surface water (ocean); and investigation of hazardous waste treatment methods/practices.

Objectives:

1. State capacity building:
   - Hawaii has sought assistance from Region 9 to address RCRA surface impoundment issues at industrial facilities in the state;
   - Hawaii inspectors requested training on how to conduct RCRA process based inspections at complex facilities.
2. Multi-media environmental issue:
   This facility has been cited for violations by several Region 9 enforcement programs and the associated enforcement actions are currently underway:
   - TRI inspection (June 2014): approximately 48 counts of non-reporting and/or under-reporting violations;
   - NPDES inspection (April 2012): unpermitted discharge of refinery drainage leading to the ocean constitutes; violations of permit limits; wastewater treatment ponds lack capacity; associated process controls.
   - CAA: violated consent decree for SEMS downtime and LDAR failure reports; PSD permit violations for 2 boilers in 2011.
3. Potential RCRA issues (similar to the Valero Benicia refinery):
   - Surface impoundment;
   - Land treatment unit;
   - Potential environmental release including groundwater and surface water impact;
   - Waste determination.

Environmental Justice Area:

- 10 of 12 EJ SCREEN base indices triggered.
- >60% in neighboring blocks for all 10 triggered indices.
- >80% for proximity to Superfund NPL sites, RMP, TSDF, and Wastewater Dischargers.

Priorities:

- Process based inspections are a Region 9 RCRA enforcement priority;
- OECA Office of Compliance Pesticides, Waste and Toxics Branch supports process based RCRA investigations at refineries, including technical assistance/capacity building for the states.

Anticipated Sampling and Analysis:

Yes. Surface impoundment(s) for TCLP analysis.

Requested Timing of this Inspection:

March 2016. Targeting for wet weather rainy season, typically November to March in Hawaii.

Other Information (see attachments):

- RCRA waste description/quantity from 2001, 2003, 2005, 2007, 2009, 2011, 2013 biennial report.
- Facility's 2011 Annual report for Benzene Waste Operations NESHAP
- Clean Water Act Inspection Report

To: Crossland, Andy[Crossland.Andy@epa.gov]
From: McDaniel, Doug
Sent: Thur 8/17/2017 1:55:07 PM
Subject: Shell show cause letter
Shell Oil Products US Martinez Refinery.pdf

Going out today, attached

Douglas K. McDaniel

Chief, Waste and Chemical Section

Enforcement Division

U.S. EPA Region 9

(415) 947-4106

AUG 1 6 2017

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Certified Mail
7005 2570 0001 6436 6136

Mr. Tom Rizzo
Shell Oil Products US, Martinez Refinery
PO Box 711
Martinez, California 94553

RE: **Notice of Potential Enforcement Action for Apparent Violations of Section 112(r)(7) of the Clean Air Act, Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act, Section 304 of the Emergency Planning and Community Right-to-Know Act, Section 3008(a) of the Resource Conservation and Recovery Act, and Section 311 of the Clean Water Act**

Dear Mr. Rizzo:

This letter is to notify you that the U.S. Environmental Protection Agency ("the EPA" or "the Agency") is preparing to bring a civil administrative action against Equilon Enterprises LLC d/b/a Shell Oil Products US (the "Company") to ensure compliance and assess penalties, at its facility located at 3485 Pacheco Boulevard, Martinez, California, 94553. The allegations being considered include violations of Section 112(r)(7) of the Clean Air Act ("CAA"), 42 U.S.C. § 7412(r)(7) and the Risk Management Program ("RMP") requirements promulgated thereunder at 40 C.F.R. Part 68; Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), as amended, 42 U.S.C. § 9603; Section 304 of the Emergency Planning and Community Right-to-Know Act ("EPCRA"), 42 U.S.C. § 11004; Section 3008(a) of the Resource Conservation and Recovery Act ("RCRA"), as amended, 42 U.S.C. §§ 6921-6939e; and Section 311 of the Clean Water Act ("CWA"), 42 U.S.C. § 1321. This action is for violations discovered during routine compliance evaluation inspections performed November 17-20, 2014 (CAA, CERCLA, EPCRA), March 23-27 and 30, 2015 (RCRA) and November 15, 2016 (CWA).

Specifically, as previously communicated to the Company, EPA is considering the following allegations:

1. Failure to analyze and report in its RMP a release from the worst-case release scenario ("WCS") in violation of CAA Section 112(r)(7) and 40 C.F.R. § 68.25;
2. Failure to ensure the Piping and Instrumentation Diagrams ("P&IDs") accurately reflect the design of a covered process as installed in the field, in violation of CAA Section 112(r)(7) and 40 C.F.R. § 68.65(d)(ii);

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3. Failure to immediately notify the National Response Center ("NRC") of a release of sulfuric acid above the applicable Reportable Quantity ("RQ") on December 14, 2013, in violation of CERCLA Section 103 and 40 C.F.R. § 302.6;

4. Failure to immediately notify the California Office of Emergency Services ("CalOES") of a release of sulfuric acid above the applicable RQ on December 14, 2013, in violation of EPCRA Section 304 and 40 C.F.R. §§ 355.33 - 355.43;

5. Failure to make a waste determination for spent paint wastes at the paint shop and wastewater/stormwater streams discharging into surface impoundments, in violation of RCRA Section 3008(a) and 22 CCR § 66262.11 [40 C.F.R. § 262.11];

6. Storage and treatment of hazardous wastes generated from its Quality Assurance Laboratory, Crack Product Field Laboratory, Heat Exchanger Bundle and paint shop without a permit, in violation of RCRA Section 3008(a) and 22 CCR § 66270.1(c) [40 C.F.R. § 270.1(c)];

7. Failure to minimize the release of hazardous waste carbon monoxide boiler ("COB") fly ash (K048 and D010) at the bag house area near the COBs, in violation of RCRA Section 3008(a) and 22 CCR § 66265.31, as referenced by § 66262.34(a)(4) Maintenance and Operation of Facility [40 C.F.R. § 265.31, as referenced by § 262.34(a)(4)];

8. Failure to transport a full satellite accumulation container within three days of being filled to the facility's less than 90-day accumulation area, in violation of RCRA Section 3008(a) and 22 CCR § 66262.34(e)(3) [40 C.F.R. § 262.34(c)(2)];

9. Failure to comply with the required container management standards for hazardous waste generators, in violation of RCRA Section 3008(a) and 22 CCR §§ 66262.34(a)(1)(A); 66262.34(a)(2); 66262.34(a)(3); 66265.173(a) [40 C.F.R. §§ 262.34(a)(2); 262.34(a)(3); 265.173(a)];

10. Improper use of a 6400-gallon mobile refueler tank, in violation of CWA Section 311 and 40 C.F.R. Part 112 (Spill Prevention, Control, and Countermeasure Requirements); and

11. Failure to utilize the correct volume of the largest aboveground storage container at the facility for determining the worst-case discharge ("WCD") volume for response planning purposes, in violation of CWA Section 311 and 40 C.F.R. Part 112 (Facility Response Plan Requirements).

Before filing a Determination of Violation, Compliance Order, and Notice of Right to Request a Hearing ("Complaint"), EPA is extending to you the opportunity to advise EPA of any other information that we should consider. Relevant information may include any evidence of your reliance on compliance assistance, additional compliance tasks performed subsequent to the investigation, or financial factors bearing on your ability to pay a civil penalty.

Your response to this letter must be made by a letter, signed by a person or persons duly authorized to represent the Company. Please send your response by certified mail, return receipt requested, addressed to:

Rebekah Reynolds (ORC-3)

Assistant Regional Counsel
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco CA 94105

Please provide any information that EPA should consider so that it is *received by* September 15, 2017. EPA anticipates filing a Complaint in this matter on or about September 15, 2017, unless the Company first advises EPA, with supporting information, of substantial reasons not to proceed as planned.

Even if you are unaware of any mitigating or exculpatory factors, we are extending to you the opportunity to commence settlement discussions concerning the above-described violations. Any penalty discussed in settlement negotiations for violations of the CAA and its implementing regulations will be calculated pursuant to EPA's June 2012 "Combined Enforcement Policy for Clean Air Act Sections 112(r)(1), 112(r)(7), and 40 CFR Part 68."[1] Any penalty discussed in settlement negotiations for violations of CERCLA, EPCRA, and their respective implementing regulations will be calculated pursuant to EPA's "Enforcement Response Policy for Sections 304, 311, and 312 of the Emergency Planning and Community Right-to-Know Act and Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act."[2] Any penalty discussed in settlement negotiations for violations of RCRA, and its implementing regulations, will be calculated pursuant to EPA's June 2003 "RCRA Civil Penalty Policy."[3] Finally, any penalty discussed in settlement negotiations for violations of the CWA and its implementing regulations will be calculated pursuant to EPA's 1998 "Penalty Policy for Sections 311(b) and (j) of the Clean Water Act."[4] These penalty policies are subject to inflation adjustments under the applicable Civil Monetary Penalty Inflation Adjustment Rule, as well as potential changes in EPA guidance. Also, civil penalties may be mitigated under the EPA "Supplemental Environmental Projects Policy,"[5] which describes the terms under which a commitment to perform an environmental project may mitigate, in part, a civil penalty.

Please note that, pursuant to regulations located at 40 C.F.R. Part 2, Subpart B, you are entitled to assert a business confidentiality claim covering any part of the submitted information as defined in 40 C.F.R. § 2.201(c). Asserting a business confidentiality claim does not relieve you from the obligation to respond fully to this letter. Failure to assert such a claim makes the submitted information subject to public disclosure upon request and without further notice to you, pursuant to the Freedom of Information Act, 5 U.S.C. § 552. Information subject to a business confidentiality claim may be available to the public only to the extent set forth in the above-cited regulation. EPA has authority to use the information requested herein in an administrative, civil, or criminal action.

Enclosed for your information are requirements of the Securities and Exchange Commission (SEC) for "registrants" to provide information on environmental legal proceedings to the public. To determine the applicability of these requirements to your company you should seek competent legal counsel as described in the enclosed SEC Notice.

EPA encourages the Company to explore the possibility of settlement. If you are interested in commencing settlement negotiations or have any questions regarding this notice, please have your

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[1] https://www.epa.gov/sites/production/files/documents/112rcep062012.pdf
[2] https://www.epa.gov/sites/production/files/documents/epcra304.pdf
[3] https://www.epa.gov/sites/production/files/documents/rcpp2003-fnl.pdf
[4] http://www.epa.gov/sites/production/files/documents/311pen.pdf
[5] https://www.epa.gov/sites/production/files/2015-04/documents/sepupdatedpolicy15.pdf

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counsel contact Rebekah Reynolds, Assistant Regional Counsel, at (415) 972-3916 or reynolds.rebekah@epa.gov, to schedule a meeting or conference call. For questions regarding RCRA, please contact Sharon Lin at 415-972-3446 or lin.sharon@epa.gov. For questions regarding CWA SPCC, please contact Janice Witul at (415) 972-3089 or witul.janice@epa.gov. For questions regarding CWA FRP, please contact Peter Reich at (415) 972-3052 or reich.peter@epa.gov. Finally, for questions regarding CAA, EPCRA and CERLCA, please contact Donald Nixon at (415) 972-3123, or nixon.donald@epa.gov. We thank you in advance for your cooperation.

Sincerely,

Elizabeth Berg
Acting Assistant Director
Enforcement Division

Joel Jones
Assistant Director
Enforcement Division

Daniel Meer
Assistant Director
Superfund Division

Enclosures:

Notice of SEC Registrants' Duty to Report

cc (via certified mail return receipt requested):

Shell Oil Products US
P.O. Box 4453
Houston, TX 77210

Equilon Enterprises LLC
910 Louisiana Street, Suite 2
Houston, TX 77002

CT Corporation System (C0168406)

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818 W. Seventh Street
Los Angeles, California 90017
CT Corporation System (C0168406)

cc (via email):

Gordon Johnson, Environmental Affairs Manager, Shell Oil Products US, Martinez Refinery, Gordon.johnson@shell.com

Keith Kihara, Director, California Department of Toxic Substances Control Enforcement and Emergency Response Program, Keith.Kihara@dtsc.ca.gov

Randy Sawyer, Chief Environmental Health & Hazardous Materials Officer, Contra Costa County Health Services, Randy.Sawyer@hsd.cccounty.us

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Securities and Exchange Commission (SEC) for Registrants Duty to Disclosure Environmental Proceedings

i.JN11SO STATE:S ENV/RONMENTAL PROTECTION AGENCY
WASHiNGTON DC 1.0460

NOTICE OF SECURITIES AND Ex CHANGE COMMISSION REGISTRANTS' DUTY To DISCLOSE ENVIRONMENTAL LEGAL PROCEEDINGS

Securities and Exchange Commission regulations require companies registered with the SEC (e.g., publicly traded companies) to disclose, on at least a quarterly basis, the existence of certain administrative or judicial proceedings taken against them arising under Federal, State or local provisions that have the primary purpose of protecting the environment. instruction 5 to Item 103 of the SEC's Regulation S-K (17 CFR 229.103) requires disclosure of these environmental legal proceedings. For those SEC registrants that use the SEC' s "small business issuer" reporting system, Instructions 1-4 to Item 103 of the SEC's Regulation S-B (17 CFR 228.103) requires disclosure of these environmental legal proceedings.

If you are an SEC registrant. you have a duty to disclose the existence of pending or known to be contemplated environmental legal proceedings that meet any of the following criteria (17 CFR 229.103(5)(A)-(C)): Such proceeding is material to the business or financial condition of the r:egistrant:

> A.Such proceeding involves primarily a claim for damages. or involves potential monetary sanctions. capital expenditures, deferred charges or charges to income and the amount involved. exclusive of interest and costs: exceeds 10 percent of the current assets of the registrant and its subsidiaries on a consolidated basis: or
> B.A governmental authority is a party to such proceeding and such proceeding involves potential monetary sanctions, unless the registrant reasonably believes that such proceeding will result in no monetary sanctions. or in monetary sanctions. exclusive of interest and costs. ofless than $100.000: provided, however. that such proceedings which are similar in nature may be grouped and described generically.

Specific information regar ding the environmental legal proceedings that must be disclosed is set forth in Item 103 of Regulation S-K or, for registrants using the "smallbusiness issuer" reporting system. Item 103(a)-(b) of Regulation S-B. If disclosure is required, it must briefly describe the proceeding, "including the name of the court or agency in which the proceedings are pending. the date _instituted the principal parties thereto. a description of the factual basis alleged to underlie the proceedings and the relief sought."

You have been identified as a party to an environmental legal proceeding to which the United States government is, or w as, a party. If you are an SEC registrant. this environmental legal proceeding rhay trigger, or may already have triggered, the disclosure obligation under the SEC regulations described above.

This notice is being prqvided to inform you of SEC registrants' duty to disclose any relevant environmental legal proceedings to the SEC. This notice does not create, modify or interpret any existing legal obligatfons. it is not intendedto be an exhaustive description of the legally applicable requirements and it is not a substitute for regulations published in the Code of Federal Regulations. This notice has been issued to you for information purposes only. No determination of the applicability of this reporting requirement to your company has been made by any governmental entity. You should seek competent counsel in determining the applicability of these and other SEC requirements to the environmental legal proceedingat issue, as well as any other proceedings known to be contemplated by governmental authorities.

If you have any questions about the SEC's environmental disclosure requirements, please contact the SEC · Office of the Special Senior Counsel for Disclosure Operations at (202) 942-1888.

TITLE 17 - COMJ\10DITY AND SECURITIES EXCHANGES
Title 17, Volume 2, Parts 200 to 239

(Division: Securities and Exchange Commission)

Part 229 - Standard Instructions for Filing Forms Under Securities Act of 1933, Securities Exchange Act of 1934 and Energy Policy and Conservation Act of 1975-Regulation S-K

Subpart 229-100 - Business

§229.103 (Item 103) Legal proceedings

Describe briefly any material pending legal proceedings, other than ordinary routine litigation incidental to the business, to which the registrant or any of its subsidiaries is a party or of which any of their property is the subject. Include the name of the court or agency in which the proceedings are pending, the date instituted, the principal parties thereto, a description of the factual basis alleged to underlie the proceeding'and the relief sought. Inclucle similar information as to any such proceedings known to be contemplated by governmental authorities.

Instructions to Item 103: I. **If the business ordinarily results in actions for negligence or other claims, no such action** or claim need be described unless it departs from the normal kind of such actions.

2. No information need be given with respect to any proceeding that involves primarily a claim for damages if the **amount involved, exclusive of interest and costs, does not exceed 10 percent of the current assets of the registrant and its subsidiaries on a consolidated basis. However, if any proceeding presents in large degree the same legal and** factual issues as other proceedings pending or known to be contemplated, the amount involved in such other proceedings shall be included in computing such percentage.

3. Notwithstanding Instructions I and 2, any material bankruptcy, receivership, or similar proceeding with respect to the registrant or any of its significant subsidiaries shall be described.

4. Any material proceedings to which any director, officer or affiliate of the registrant, any owner ofrecord.or beneficially of more than five percent of any class of voting securities of the registrant, or aiJ.y associate of any such director, officer, affiliate of the registrant, or security holder is a party adverse to the registrant or any of its subsidiaries or has a material interest adverse to the registrant or any of its subsidiaries also shall be described.

5. Notwithstanding the foregoing, an administrative or judicial proceeding (including, for purposes of A and B of this Instruction, proceedings which present in large degree the same issues) arising under any Federal, State or local provisions that have been enacted or adopted regulating the discharge of materials into the environment or primary for the purpose of protecting the environment shall not be deemed "ordinary routine litigation incidental to the business" and shall be described if:

A. Such proceeding is material to the business or financial condition of the registrant;

B. Such proceeding involves primarily a claim for damages, or involves potential monetary sanctions, capital expenditures, deferred charges or charges to income and the amount involved, exclusive of interest and costs, exceeds 10 percent of the current assets of the registrant and its subsidiaries on a consolidated basis; or

C. A governmental authority is a party to such proceeding and such proceeding involves potential monetary sanctions, unless the registrant reasonably believes that such proceeding will result in no monetary sanctions, or in monetary sanctions, exclusive of interest and costs, ofless than $100,000; provided, however, that such proceedings which are similar in nature may be grouped and described generically.

To: Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]
From: McDaniel, Doug
Sent: Mon 10/3/2016 2:21:02 PM
Subject: FW: Valero
Valero Refining - Consent Agreement.pdf

Hi Maria –

FYI

Doug

Douglas K. McDaniel

Chief, Waste and Chemical Section

Enforcement Division

U.S. EPA Region 9

(415) 947-4106

From: McDaniel, Doug
Sent: Monday, October 03, 2016 7:19 AM
To: 'Kihara, Keith@DTSC' <Keith.Kihara@dtsc.ca.gov>
Subject: Valero

Hi Keith –

I think my boss gave your boss a heads up on this already so I wanted to get this to you asap. We filed the Valero case on Friday and will issue a press release today or tomorrow. The case does not include the bundle cleaning pad count, which has been deferred indefinitely. I will try to get the press release to you before it is released.

Doug

Douglas K. McDaniel

Chief, Waste and Chemical Section

Enforcement Division

U.S. EPA Region 9

(415) 947-4106

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION IX

** FILED **
30SEP2016 - 12:59PM
U.S.EPA - Region 09

In the matter of	)	U.S. EPA Docket No.
	)	RCRA-09-2016- 0008
Valero Refining Company - California	)	EPCRA-09-2016- 0003
	)	
	)	
RCRA EPA ID No. CAD063001770	)	CONSENT AGREEMENT AND
TRI ID No. 94510XXNCS3400E	)	FINAL ORDER PURSUANT TO
	)	40 C.F.R. SECTIONS 22.13 AND
Respondent.	)	22.18

CONSENT AGREEMENT

A. PRELIMINARY STATEMENT

1. This is a civil administrative enforcement action instituted pursuant to Section 3008(a)(1) of the Resource Conservation and Recovery Act ("RCRA"), as amended, 42 U.S.C. § 6928(a)(1); Section 325(c) of the Emergency Planning and Community Right-To-Know Act ("EPCRA"), 42 U.S.C. § 11045(c); and the Consolidated Rules of Practice Governing the Administrative Assessment of Civil Penalties and the Revocation/Termination or Suspension of Permits, 40 Code of Federal Regulations ("C.F.R.") Part 22.

2. Complainant is the United States Environmental Protection Agency, Region 9 ("EPA"). Respondent is Valero Refining Company - California ("Respondent" or "Valero").

3. Respondent owns and operates a facility located at 3400 East 2nd Street, in Benicia, California, 94510 (the "Facility"). The Facility's RCRA EPA Identification Number is CAD063001770. Its EPCRA TRI Identification Number is 94510XXNCS3400E. Respondent operates the Valero Benicia Refinery, where it produces petroleum hydrocarbon products, by-products, and intermediates.

4. On May 19 through 23, 2014, inspectors from the EPA conducted a multimedia compliance investigation at the Facility. The purpose of the inspection was to determine the Facility's compliance with applicable regulations adopted by the California authorized program under RCRA in the California Code of Regulations ("C.C.R."), Title 22, Division 4.5 and the California Health and Safety Code, Division 20; and EPCRA Section 313 and the regulations at 40 C.F.R. Part 372. Based upon the findings EPA

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made during the inspection, and additional information obtained subsequent to the inspection, EPA determined that Respondent had violated EPCRA Section 313, 42 U.S.C. § 11023 and the California Health & Safety Code § 25100 *et seq.* and the regulations adopted pursuant thereto, as authorized by the United States.

5. This Consent Agreement and Final Order pursuant to 40 C.F.R. §§ 22.13 and 22.18 ("CA/FO"), simultaneously commences and concludes this proceeding, wherein EPA alleges that Respondent failed to: (1) obtain a permit for disposal of hazardous waste, a violation of 22 C.C.R. § 66270.1 [*see also* 40 C.F.R. § 270.1]; (2) determine if solid waste generated was hazardous, a violation of 22 C.C.R. § 66262.11 [*see also* 40 C.F.R. § 262.11]; (3) maintain and operate the facility to minimize the possibility of any unplanned release, a violation of 22 C.C.R. § 66262.34(a)(4) and 22 C.C.R. § 66265.31 [*see also* 40 C.F.R. § 262.34(a)(4) and 40 C.F.R. § 265.31]; (4) maintain records at the facility for calendar years 2010 and 2011, a violation of 40 C.F.R. §372.10(c); and (5) submit accurate Toxic Chemical Release Inventory Reporting Forms, a violation of Section 313(g)(1)(B) of EPCRA, 42 U.S.C. § 11023(g)(1)(B), and 40 C.F.R. § 372.30(a). Respondent thereby violated Section 3001 et seq. of RCRA, 42 U.S.C. § 6921 et seq., and state regulations authorized pursuant thereto,[1] and Section 313 of EPCRA, 42 U.S.C. § 11023, and the implementing regulations set forth at 40 C.F.R. Part 372.

B. JURISDICTION

6. For the RCRA violations, the State of California received authorization to administer the hazardous waste management program in lieu of the federal program pursuant to § 3006 of RCRA, 42 U.S.C. § 6926, and 40 C.F.R. Part 271 on August 1, 1992. The authorized hazardous waste program is established pursuant to the Hazardous Waste Control Law, Chapter 6.5 of Division 20 of the California Health and Safety Code, and the regulations promulgated thereunder at Title 22, Division 4.5 of the California Code of Regulations, 22 C.C.R. §§ 66001 *et seq.* The State of California has been authorized for all the hazardous waste management regulations referenced in this CA/FO.

7. Respondent is a "person" as defined in Section 329(7) of EPCRA, 42 U.S.C. § 11049(7) and 22 C.C.R. § 66260.10 [*see also* 40 C.F.R. § 260.10].

8. Respondent is the "operator" of a facility as defined in 22 C.C.R. § 66260.10 [*see also* 40 C.F.R. § 260.10].

9. Respondent is a "generator" of hazardous waste as defined in 22 C.C.R. § 66260.10 [40 C.F.R. § 260.10].

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[1] All citations to the "C.C.R." refer to Division 4.5 of Title 22 of the current California Code of Regulations. EPA is enforcing California hazardous waste management program requirements as approved and authorized by the United States. Corresponding Federal citations are provided in brackets.

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10. Respondent is or has been engaged in "storage" of hazardous waste as defined in 22 C.C.R. § 66260.10 [*see also* 40 C.F.R. § 260.10].

11. Respondent generates and accumulates, or has generated and accumulated, materials that are "wastes" as defined in 22 C.C.R. §§ 66260.10 and 66261.2 [*see also* 40 C.F.R. § 261.2].

12. At the Facility, Respondent generates and accumulates, or has generated and accumulated, "hazardous waste" as defined in California Health & Safety Code § 25117, and 22 C.C.R. §§ 66260.10 and 66261.3 [*see also* RCRA § 1004(5), and 40 C.F.R. §§ 260.10 and 261.3]. These hazardous wastes include but are not limited to corrosive waste (D002), petroleum refinery primary oil/water/solids separation sludge (F037), petroleum refinery secondary oil/water/solids separation sludge (F038), and spent hydrotreating catalyst from petroleum refining operations (K171).

13. The Facility is a "facility" as defined in Section 329(4) of EPCRA, 42 U.S.C. § 11049(4) and 40 C.F.R. § 372.3.

14. The Facility has 10 or more "full-time employees," as that term is defined at 40 C.F.R. § 372.3.

15. The Facility is in a North American Industry Classification System Code 324, Petroleum and Coal Products Manufacturing, listed in 40 C.F.R. § 372.23.

16. At the Facility, Respondent manufactured, processed, or otherwise used a toxic chemical listed under 40 C.F.R. § 372.65 in excess of the applicable threshold quantity of that chemical set forth in 40 C.F.R. § 372.25, including but not limited to greater than 25,000 pounds of benzene, toluene, ethylbenzene and xylene.

17. Section 3006 of RCRA, 42 U.S.C. § 6926 provides, *inter alia*, that authorized state hazardous waste programs are carried out under Subtitle C of RCRA. Therefore, a violation of any requirement of law under an authorized state hazardous waste program is a violation of a requirement of Subtitle C of RCRA.

18. A violation of California's authorized hazardous waste program, found at H&SC § 25100 *et seq.*, constitutes a violation of Subtitle C of RCRA and, therefore, a person who violates California's authorized hazardous waste program is subject to the powers vested in the EPA Administrator by Section 3008 of RCRA, 42 U.S.C. § 6928.

19. Section 3008 of RCRA, 42 U.S.C. § 6928, authorizes the EPA Administrator to issue orders assessing a civil penalty and/or requiring compliance immediately or within a specified time for violation of any requirement of Subtitle C of RCRA, Section 3001 of RCRA *et seq.*, 42 U.S.C. § 6921 *et seq.*

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20. Section 325(c) of EPCRA, 42 U.S.C. § 11045(c), authorizes the EPA Administrator to assess a penalty for violations of Section 313 of EPCRA, 42 U.S.C. § 11023.

21. The Administrator has delegated the authority under Section 3008 of RCRA and Section 325 of EPCRA to the EPA Regional Administrator for Region 9, who has redelegated this authority to the EPA signatory below.

C. ALLEGED VIOLATIONS

COUNT I
Failure to obtain a permit for disposal of hazardous waste

22. Paragraphs 1 through 21 above are incorporated herein by this reference as if they were set forth here in their entirety.

23. 22 C.C.R. § 66270.1(c) requires that each person owning or operating a facility where hazardous waste is transferred, treated, stored, or disposed must have a permit. At the time of the inspection, Respondent did not have a permit or grant of interim status to dispose of hazardous waste under 22 C.C.R. § 66270.1(c) [*see also* 40 C.F.R. § 270.1(c)].

24. As a result of the inspection, EPA determined that Respondent discharged benzene-contaminated wastewater, RCRA D018 characteristic hazardous waste, into an unlined stormwater surface impoundment during self-diversion of wet weather flows on 14 occasions between 2011 and 2013. These discharges were not eligible for exemption under 22 C.C.R. § 66265.1(e)(11) [see also 40 C.F.R. § 265.1(c)(11)].

25. Therefore EPA alleges that Respondent disposed of hazardous waste without a permit, a violation of 22 C.C.R. § 66270.1 [*see also* 40 C.F.R. § 270.1].

COUNT II
Failure to maintain and operate the facility to minimize the possibility of an unplanned release

26. Paragraphs 1 through 25 above are incorporated herein by this reference as if they were set forth here in their entirety.

27. 22 C.C.R. § 66262.34(a)(4) and 22 C.C.R. § 66265.31 provide that facilities must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment [*see also* 40 C.F.R. § 262.34(a) and 40 C.F.R. § 265.31].

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28. During the CEI the EPA Inspectors observed several areas where there was staining on the ground, evidencing spillage.

29. Respondent acknowledged that there had been accidental releases of oily sludge, RCRA F037 hazardous waste, that was cleaned up promptly, but some staining was left in place around a Baker Tank, due to access issues.

30. Therefore EPA alleges that Respondent failed to operate its facility to minimize the possibility of a release of hazardous waste, and has violated 22 C.C.R. § 66262.34(a)(4) and 22 C.C.R. § 66265.31 [*see also* 40 C.F.R. § 262.34(a) and 40 C.F.R. § 265.31].

COUNT III

Failure to make a hazardous waste determination

31. Paragraphs 1 through 30 above are incorporated herein by this reference as if they were set forth here in their entirety.

32. 22 C.C.R. § 66262.11 states that a facility which generates waste, as defined by 22 C.C.R. § 66261.2, must determine if the waste is a hazardous waste [*see also* 40 C.F.R. § 262.11].

33. EPA determined that Respondent had pumped stormwater from the surface impoundment where Respondent had discharged RCRA D018 into a stormwater retention pond, used when extra stormwater capacity is needed.

34. Respondent failed to sample the wastewater pumped from the impoundment into the stormwater retention pond, thereby failing to determine if solid waste generated was hazardous.

35. Therefore, EPA alleges that Respondent has violated 22 C.C.R. § 66262.11 [*see also* 40 C.F.R. § 262.11].

COUNT IV

Failure to maintain records at the facility

36. Paragraphs 1 through 35 above are incorporated herein by this reference as if they were set forth here in their entirety.

37. Sections 313(a) and (b) of EPCRA, 42 U.S.C. §§ 11023(a) and (b), and 40 C.F.R. §§ 372.22 and 372.30, provide that the owner or operator of a facility must submit annually to EPA and the State in which the facility is located a chemical release form published under Section 313(g) of EPCRA for each toxic chemical or toxic chemical category listed under Section 313(c) of EPCRA and 40 C.F.R. § 372.65 that it manufactured, processed or otherwise used if: (i) the facility has ten or more full-time

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employees; (ii) the facility is in North American Industry Classification System Code 324110; and (iii) the facility manufactured, processed or otherwise used during the preceding calendar year the listed toxic chemical or toxic chemical category in excess of the threshold quantity established under Section 313(f) of EPCRA and 40 C.F.R. § 372.25.

38. Pursuant to Section 313(g) of EPCRA, 42 U.S.C. § 11023(g), EPA published a uniform Toxic Chemical Release Inventory Form (hereinafter referred to as a "Form R") for facilities that are subject to the reporting requirements of Section 313. Sections 313(a) and (b) of EPCRA, 42 U.S.C. §§ 11023(a) and (b), and 40 C.F.R. § 372.30(d), provide that each Form R for activities involving a toxic chemical or toxic chemical category that occurred during a calendar year must be submitted on or before July 1 of the next year.

39. Pursuant to 40 C.F.R. § 372.10(a) and (b), each person subject to the reporting or notification requirements of 40 C.F.R. Part 372 must retain complete records (as specified in the regulations) for a period of three years from the date of the submission of a report under 40 C.F.R. § 372.30 or of a notification under 40 C.F.R. § 372.45, respectively.

40. These records include data supporting the determination of whether a threshold under 40 C.F.R. § 372.25 applies for each toxic chemical and the calculations of the quantity of each toxic chemical released to the environment or transferred to an off-site location.

41. Pursuant to 40 C.F.R. § 372.10(c), records retained under 40 C.F.R. Part 372 must be maintained at the facility to which the report applies or from which a notification was provided. Such records must be readily available for purposes of inspection by EPA.

42. For reporting years 2010 and 2011, Respondent did not have records relating to threshold determinations for benzene, toluene, ethylbenzene or xylene readily available at the Facility for purposes of inspection by EPA.

43. For reporting year 2010, Respondent did not have records supporting its calculations for fugitive emissions from wastewater readily available at the Facility for purposes of inspection by EPA.

44. By failing to maintain the requisite records at the Facility for reporting years 2010 and 2011, Respondent violated Section 313 of EPCRA, 42 U.S.C. § 11023, and 40 C.F.R. § 372.10(c).

COUNT V
Failure to submit an accurate Form R

45. Paragraphs 1 through 44 above are incorporated herein by this reference as if they were set forth here in their entirety.

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46. 40 C.F.R § 372.30(a) requires that for each toxic chemical known by the owner or operator to be manufactured (including imported), processed, or otherwise used in excess of an applicable threshold quantity in § 372.25, § 372.27, or § 372.28 at its covered facility described in § 372.22 for a calendar year, the owner or operator must submit to EPA and to the State in which the facility is located a completed EPA Form R (EPA Form 9350-1).

47. Section 313(g)(1)(B) of EPCRA, 42 U.S.C. § 11023(g)(1)(B), provides that Form Rs must include a certification regarding the accuracy and completeness of the information provided therein.

48. Based on the inspection, EPA found Respondent failed to accurately report fugitive emissions data for two chemicals, cumene and ethylene, for reporting year 2010.

49. These inaccuracies constitute significant data quality errors and Respondent's failure to submit accurate Form Rs for these two toxic chemicals violated Section 313 of EPCRA, 42 U.S.C. § 11023, and 40 C.F.R. § 372.30(a).

D. CIVIL PENALTY

50. Section 3008(g) of RCRA, 42 U.S.C. § 6928(g), and Section 325(c) of EPCRA, 42 U.S.C. § 11045(c), as adjusted by the Debt Collection Improvement Act of 1996 and the Civil Monetary Penalty Inflation Adjustment Rule, 40 C.F.R. Part 19, authorize a civil penalty of up to thirty-seven thousand, five hundred dollars ($37,500) per day for violations of Subtitle C of RCRA, 42 U.S.C. § 6921 *et seq.*, or Section 313(c) of EPCRA, 42 U.S.C. § 11023(c) occurring after January 12, 2009 and before August 1, 2016. Based upon the facts alleged herein and upon those factors which EPA must consider pursuant to Section 3008(a)(3) of RCRA, 42 U.S.C. § 6928(a)(3), the 2003 RCRA Civil Penalty Policy, and the 1992 Enforcement Response Policy for Section 313 of EPCRA, as amended April 12, 2001, EPA proposes that Respondent be assessed ONE HUNDRED FIFTY-SEVEN THOUSAND EIGHT HUNDRED DOLLARS as the civil penalty for the violations alleged herein.

E. ADMISSIONS AND WAIVERS OF RIGHTS

51. For the purposes of this proceeding, Respondent admits to the jurisdictional allegations set forth in Section B of this CA/FO and agrees not to contest EPA's jurisdiction and authority to enter into and issue this CA/FO and to enforce its terms. Further, Respondent will not contest EPA's jurisdiction and authority to compel compliance with this CA/FO in any enforcement proceedings, either administrative or judicial, or to impose sanctions for violations of this CA/FO.

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52. Respondent neither admits nor denies any allegations of fact or law set forth in Section C of this CA/FO. Respondent hereby waives any rights Respondent may have to contest the allegations set forth in this CA/FO, waives any rights Respondent may have to a hearing on any issue relating to the factual allegations or legal conclusions set forth in this CA/FO, including without limitation a hearing pursuant to Section 3008(b) of RCRA, 42 U.S.C. § 6928(b), and hereby consents to the issuance of this CA/FO without adjudication. In addition, Respondent hereby waives any rights Respondent may have to appeal the Final Order attached to this Consent Agreement and made part of this CA/FO.

F. PARTIES BOUND

53. This CA/FO shall apply to and be binding upon Respondent and its agents, successors and assigns, until such time as the civil penalty required under Sections D and H has been paid in accordance with Section H, and any delays in performance and/or stipulated penalties have been resolved. At such time as those matters are concluded, this CA/FO shall terminate and constitute full settlement of the violations alleged herein.

54. No change in ownership or corporate, partnership or legal status relating to the Facility will in any way alter Respondent's obligations and responsibilities under this CA/FO.

55. The undersigned representative of Respondent hereby certifies that he or she is fully authorized by Respondent to enter into this CA/FO, to execute and to legally bind Respondent to it.

G. COMPLIANCE TASKS

56. By no later than December 30, 2016, Respondent shall submit a work plan for piping modifications at the Facility so that discharges from the Diversion Area lift station can no longer flow (self-divert) to the Wastewater Treatment Plant retention ponds. Respondent has identified this lift station, which receives flows from the Lower Level Tank Farm area, as the most likely source of benzene concentrations that have been detected intermittently in storm-related self-diversions into the retention ponds.

57. By no later than June 30, 2017, Respondent shall complete the project described in Paragraph 56 above. Respondent shall notify EPA in writing within ten (10) working days after completion of the project, and submit documentation showing that the project is complete. Such documentation may include invoices, photos, contracts, or any other relevant materials.

58. From the Effective Date of the CA/FO until one year following completion of the project described in Paragraph 56, during storm events Valero shall sample wastewater discharged at the diversion canal, end of line (EOL) sampling point EOL-10.

59. Respondent shall sample the diversion canal at the beginning of each diversion event. If the diversion is continuous, Respondent shall sample the canal daily for the duration of the diversion.

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60. Respondent shall continue to follow the current National Emissions Standards for Hazardous Air Pollutants ("NESHAP") End of Line ("EOL") monitoring protocol for benzene and utilize the existing Valero Benicia Refinery EOL Sample Check Sheet to record the collection of the samples.

61. Respondent shall continue to follow its existing Quality Assurance/Quality Control requirements, as follows: (1) where applicable, the sample must be collected through a cooler so the temperature is less than 50F degrees; (2) samples must be collected into a Volatile Organic Analysis ("VOA") vial without air bubbles; (3) records must be kept for listing the name, date, time of the person collecting the sample and the temperature of the sample.

62. Respondent's contract laboratory should continue to perform EPA Method 8260 BTEX (Benzene, Toluene, Ethylbenzene, m,p-Xylene, o-Xylene) analysis for these samples.

63. Respondent shall submit the sampling data to EPA within five (5) working days from the receipt from its contractor laboratory. Data shall be transmitted via electronic mail to Sharon Lin at lin.sharon@epa.gov.

H. PAYMENT OF CIVIL PENALTY

64. Respondent consents to the assessment of and agrees to pay a civil penalty of ONE HUNDRED FIFTY-SEVEN THOUSAND AND EIGHT HUNDRED DOLLARS ($157,800.00) in full settlement of the federal civil penalty claims set forth in this CA/FO.

65. Respondent shall submit payment of the ONE HUNDRED FIFTY-SEVEN THOUSAND AND EIGHT HUNDRED DOLLARS ($157,800.00) within thirty (30) calendar days of the Effective Date of this CA/FO in accordance with one of the options set forth below. The Effective Date of this CA/FO is the date the Final Order, signed by the Regional Judicial Officer, is filed with the Regional Hearing Clerk. All payments shall indicate the name of the Facility, EPA identification number of the Facility, the Respondent's name and address, and the EPA docket number of this action.

Regular Mail:
Payment shall be made by certified or cashier's check payable to "Treasurer of the United States" and sent as follows:
US Environmental Protection Agency
Fines and Penalties
Cincinnati Finance Center
PO Box 979077
St. Louis, MO 63197-9000.

Wire Transfers:
Wire transfers must be sent directly to the Federal Reserve Bank in New York

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City with the following information:
Federal Reserve Bank of New York
ABA = 021030004
Account = 68010727
SWIFT address = FRNYUS33
33 Liberty Street
New York, NY 10045
Field Tag 4200 of the Fedwire message should read "D 68010727 Environmental Protection Agency"

Overnight Mail:
U.S. Bank
1005 Convention Plaza
Mail Station SL-MO-C2GL
ATTN Box 979077
St. Louis, MO 63101

ACH (also known as REX or remittance express):
Automated Clearinghouse (ACH) for receiving US currency
PNC Bank
808 17th Street, NW
Washington, DC 20074
ABA = 051036706
Transaction Code 22 – checking
Environmental Protection Agency
Account 31006
CTX Format

On Line Payment:
This payment option can be accessed from the information below:
www.pay.gov
Enter "sfo1.1" in the search field
Open form and complete required fields

If clarification regarding a particular method of payment remittance is needed, contact the EPA Cincinnati Finance Center at 513-487-2091.

66. At the time payment is made, a copy of the payment transmittal shall be sent to:

Regional Hearing Clerk (RC-1)
U.S. Environmental Protection Agency - Region 9
75 Hawthorne Street
San Francisco, CA 94105

and

Sharon Lin (ENF 2-2) and Andrew Chew (ENF 2-2)
Enforcement Division
U.S. Environmental Protection Agency - Region 9
75 Hawthorne Street
San Francisco, CA 94105

67. In accordance with the Debt Collection Act of 1982 and U.S. Treasury directive (TFRM 6-8000), each payment must be received by the due date set forth in this CA/FO to avoid additional charges. If payment is not received by the due date, interest will accrue from the Effective Date of this CA/FO at the current rate published by the United States Treasury as described at 40 C.F.R. § 13.11. Respondent further will be liable for stipulated penalties as set forth below for any payment not received by its due date.

68. The penalties specified in this CA/FO shall represent civil penalties assessed by EPA and shall not be deducted by Respondent or any other person or entity for federal, state or local taxation purposes.

I. DELAY IN PERFORMANCE/STIPULATED PENALTIES

69. In the event Respondent fails to (a) submit a payment to EPA by the time required in this CA/FO, or (b) complete tasks required by Section G above, Respondent shall pay stipulated penalties up to: FIVE HUNDRED DOLLARS ($500) per day for first to fifteenth day of delay; ONE THOUSAND DOLLARS ($1,000) per day for sixteenth to thirtieth day of delay; and ONE THOUSAND FIVE HUNDRED DOLLARS ($1,500) per day for each day of delay thereafter.

70. Prior to the date when Valero completes the project described in Paragraph 56, if Respondent discharges stormwater exceeding 0.5 mg/L benzene to any surface impoundment, Respondent shall pay a penalty of up to $5,000 for each day of such discharge.

71. All penalties owed to EPA under this Section shall be due within thirty (30) days of receipt of a notification of noncompliance. Such notification shall describe the noncompliance and shall indicate the amount of penalties due. Interest at the current rate published by the United States Treasury, as described at 40 C.F.R. §13.11, shall begin to accrue on the unpaid balance at the end of the thirty-day period.

72. All penalties shall be made payable by certified or cashier's check to "Treasurer of the United States" and shall be remitted as described in Paragraph 65.

73. The payment of stipulated penalties shall not alter in any way Respondent's obligation to complete the performance required hereunder.

74. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this CA/FO.

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75. The stipulated penalties set forth in this Section do not preclude EPA from pursuing any other remedies or sanctions which may be available to EPA by reason of Respondent's failure to comply with any of the requirements of this CA/FO.

J. CERTIFICATION OF COMPLIANCE

76. In executing this CA/FO, Respondent certifies under penalty of law to EPA that to its actual knowledge that (1) it has now fully completed and submitted to EPA all of the required Toxic Chemical Release Inventory Forms in compliance with Section 313 of EPCRA, 42 U.S.C. § 11023, and the regulations promulgated thereunder; and (2) it is in compliance with all other EPCRA requirements applicable to the Facility.

77. In executing this CA/FO, subject to the provisions of Section G above, Respondent certifies under penalty of law to EPA that it has fully complied with RCRA Hazardous Waste Management requirements, 42 U.S.C. §§ 6921–6939e, and the federally authorized California hazardous waste management program including 22 C.C.R. §§ 66270.1 [*see also* 40 C.F.R. §§ 270.1], 22 C.C.R. § 66265.31 [*see also* 40 C.F.R. § 265.31], and 22 C.C.R. § 66262.11 [*see also* 40 C.F.R. § 262.11], that formed the basis for the violations alleged in this CA/FO.

78. This certification of compliance is based upon true, accurate, and complete information, which the signatory can verify personally or regarding which the signatory has inquired of the person or persons directly responsible for gathering the information.

K. RESERVATION OF RIGHTS

79. EPA hereby reserves all of its statutory and regulatory powers, authorities, rights and remedies, both legal and equitable, including the right to require that Respondent perform tasks in addition to those required by this CA/FO, except as to those civil penalties for the violations and facts alleged herein. EPA further reserves all of its statutory and regulatory powers, authorities, rights and remedies, both legal and equitable, which may pertain to Respondent's failure to comply with any of the requirements of this CA/FO. This CA/FO shall not be construed as a covenant not to sue, release, waiver or limitation of any rights, remedies, powers or authorities, civil or criminal, which EPA has under RCRA or EPCRA (except as to those civil penalties for the violations and facts alleged herein); the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA"); or any other statutory, regulatory or common law enforcement authority of the United States.

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80. Compliance by Respondent with the terms of this CA/FO shall not relieve Respondent of its obligations to comply with RCRA, EPCRA, or any other applicable local, State or federal laws and regulations.

81. The entry of this CA/FO and Respondent's consent to comply shall not limit or otherwise preclude EPA from taking additional enforcement actions should EPA determine that such actions are warranted except as they relate to Respondent=s liability for federal civil penalties for the specific alleged violations and facts as set forth in Section C of this CA/FO.

82. This CA/FO is not intended to be nor shall it be construed as a permit. This CA/FO does not relieve Respondent of any obligation to obtain and comply with any local, State or federal permits.

L. OTHER CLAIMS

83. Nothing in this CA/FO shall constitute or be construed as a release from nor an admission by Respondents of any other claim, cause of action or demand in law or equity by or against any person, firm, partnership, entity or corporation for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous constituents, hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the Facility.

M. MISCELLANEOUS

84. Each party shall bear its own attorneys' fees, costs, and disbursements incurred in this proceeding.

85. This CA/FO may be amended or modified only by written agreement executed by both EPA and Respondent.

86. The headings in this CA/FO are for convenience of reference only and shall not affect interpretation of this CA/FO.

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87. In accordance with 40 C.F.R. §§ 22.18(b)(3) and 22.31(b), the Effective Date of this CA/FO is the date the Final Order, having been approved by the Regional Judicial Officer, is filed by the Regional Hearing Clerk.

IT IS SO AGREED.

9/27/16
Date

Name, Title: Donald C. Wilson, VP + General Manager
Valero Refining Co. - California

9/29/16
Date

Joel Jones, Assistant Director
Enforcement Division
U.S. Environmental Protection Agency, Region 9

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FINAL ORDER

IT IS HEREBY ORDERED that this Consent Agreement and Final Order pursuant to 40 C.F.R. Sections 22.13 and 22.18 (U.S. EPA Docket No. RCRA-9 -2016-0008 and EPCRA-09-2016-0003) be entered and that Valero Refining Company - California pay a civil penalty of one hundred fifty seven thousand and eight hundred dollars ($157,800.00) due within thirty (30) days from the Effective Date of this Consent Agreement and Final Order. Payment must be made pursuant to Section H of the Consent Agreement.

This Final Order shall be effective upon filing by the Regional Hearing Clerk.

09/30/16
Date

Steven Jawgiel
Regional Judicial Officer
United States Environmental Protection Agency,
Region 9

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CERTIFICATE OF SERVICE

I hereby certify that the original and a copy of the foregoing Consent Agreement and Final Order in the matter of Valero Refining Company – California with Docket # RCRA-09-2016-0008 /EPCRA-09-2016-0003 has been filed with the Regional Hearing Clerk, Region 9, and a copy was sent:

By Certified Mail, Return Receipt Requested to Respondent:

Mr. Christopher W. Howe
Director, Health, Safety, Environment & Government Affairs
Valero Benicia Refinery
3400 East Second Street
Benicia, California 94510-1005
Certified Mail No. 7009 0820 0001 3646 6332

Hand Delivered to:

Rebecca Sugerman
Office of Regional Counsel
U.S. EPA, Region 9, ORC-3
75 Hawthorne Street
San Francisco, CA 94105

Sept. 30, 2016
Date

Steven Armsey
Steven Armsey
Acting Regional Hearing ~~Clerk~~
Office of Regional Counsel, Region 9

To: Kihara, Keith@DTSC[Keith.Kihara@dtsc.ca.gov]
From: McDaniel, Doug
Sent: Mon 10/3/2016 2:19:03 PM
Subject: Valero
Valero Refining - Consent Agreement.pdf

Hi Keith –

I think my boss gave your boss a heads up on this already so I wanted to get this to you asap. We filed the Valero case on Friday and will issue a press release today or tomorrow. The case does not include the bundle cleaning pad count, which has been deferred indefinitely. I will try to get the press release to you before it is released.

Doug

Douglas K. McDaniel

Chief, Waste and Chemical Section

Enforcement Division

U.S. EPA Region 9

(415) 947-4106

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION IX

** FILED **
30SEP2016 - 12:59PM
U.S.EPA - Region 09

In the matter of	)	U.S. EPA Docket No.
	)	RCRA-09-2016- 0008
Valero Refining Company - California	)	EPCRA-09-2016- 0003
	)	
	)	
RCRA EPA ID No. CAD063001770	)	CONSENT AGREEMENT AND
TRI ID No. 94510XXNCS3400E	)	FINAL ORDER PURSUANT TO
	)	40 C.F.R. SECTIONS 22.13 AND
Respondent.	)	22.18

CONSENT AGREEMENT

A. PRELIMINARY STATEMENT

1. This is a civil administrative enforcement action instituted pursuant to Section 3008(a)(1) of the Resource Conservation and Recovery Act ("RCRA"), as amended, 42 U.S.C. § 6928(a)(1); Section 325(c) of the Emergency Planning and Community Right-To-Know Act ("EPCRA"), 42 U.S.C. § 11045(c); and the Consolidated Rules of Practice Governing the Administrative Assessment of Civil Penalties and the Revocation/Termination or Suspension of Permits, 40 Code of Federal Regulations ("C.F.R.") Part 22.

2. Complainant is the United States Environmental Protection Agency, Region 9 ("EPA"). Respondent is Valero Refining Company - California ("Respondent" or "Valero").

3. Respondent owns and operates a facility located at 3400 East 2nd Street, in Benicia, California, 94510 (the "Facility"). The Facility's RCRA EPA Identification Number is CAD063001770. Its EPCRA TRI Identification Number is 94510XXNCS3400E. Respondent operates the Valero Benicia Refinery, where it produces petroleum hydrocarbon products, by-products, and intermediates.

4. On May 19 through 23, 2014, inspectors from the EPA conducted a multimedia compliance investigation at the Facility. The purpose of the inspection was to determine the Facility's compliance with applicable regulations adopted by the California authorized program under RCRA in the California Code of Regulations ("C.C.R."), Title 22, Division 4.5 and the California Health and Safety Code, Division 20; and EPCRA Section 313 and the regulations at 40 C.F.R. Part 372. Based upon the findings EPA

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made during the inspection, and additional information obtained subsequent to the inspection, EPA determined that Respondent had violated EPCRA Section 313, 42 U.S.C. § 11023 and the California Health & Safety Code § 25100 *et seq.* and the regulations adopted pursuant thereto, as authorized by the United States.

5. This Consent Agreement and Final Order pursuant to 40 C.F.R. §§ 22.13 and 22.18 ("CA/FO"), simultaneously commences and concludes this proceeding, wherein EPA alleges that Respondent failed to: (1) obtain a permit for disposal of hazardous waste, a violation of 22 C.C.R. § 66270.1 [*see also* 40 C.F.R. § 270.1]; (2) determine if solid waste generated was hazardous, a violation of 22 C.C.R. § 66262.11 [*see also* 40 C.F.R. § 262.11]; (3) maintain and operate the facility to minimize the possibility of any unplanned release, a violation of 22 C.C.R. § 66262.34(a)(4) and 22 C.C.R. § 66265.31 [*see also* 40 C.F.R. § 262.34(a)(4) and 40 C.F.R. § 265.31]; (4) maintain records at the facility for calendar years 2010 and 2011, a violation of 40 C.F.R. §372.10(c); and (5) submit accurate Toxic Chemical Release Inventory Reporting Forms, a violation of Section 313(g)(1)(B) of EPCRA, 42 U.S.C. § 11023(g)(1)(B), and 40 C.F.R. § 372.30(a). Respondent thereby violated Section 3001 et seq. of RCRA, 42 U.S.C. § 6921 et seq., and state regulations authorized pursuant thereto,[1] and Section 313 of EPCRA, 42 U.S.C. § 11023, and the implementing regulations set forth at 40 C.F.R. Part 372.

B. JURISDICTION

6. For the RCRA violations, the State of California received authorization to administer the hazardous waste management program in lieu of the federal program pursuant to § 3006 of RCRA, 42 U.S.C. § 6926, and 40 C.F.R. Part 271 on August 1, 1992. The authorized hazardous waste program is established pursuant to the Hazardous Waste Control Law, Chapter 6.5 of Division 20 of the California Health and Safety Code, and the regulations promulgated thereunder at Title 22, Division 4.5 of the California Code of Regulations, 22 C.C.R. §§ 66001 *et seq.* The State of California has been authorized for all the hazardous waste management regulations referenced in this CA/FO.

7. Respondent is a "person" as defined in Section 329(7) of EPCRA, 42 U.S.C. § 11049(7) and 22 C.C.R. § 66260.10 [*see also* 40 C.F.R. § 260.10].

8. Respondent is the "operator" of a facility as defined in 22 C.C.R. § 66260.10 [*see also* 40 C.F.R. § 260.10].

9. Respondent is a "generator" of hazardous waste as defined in 22 C.C.R. § 66260.10 [40 C.F.R. § 260.10].

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[1] All citations to the "C.C.R." refer to Division 4.5 of Title 22 of the current California Code of Regulations. EPA is enforcing California hazardous waste management program requirements as approved and authorized by the United States. Corresponding Federal citations are provided in brackets.

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10. Respondent is or has been engaged in "storage" of hazardous waste as defined in 22 C.C.R. § 66260.10 [*see also* 40 C.F.R. § 260.10].

11. Respondent generates and accumulates, or has generated and accumulated, materials that are "wastes" as defined in 22 C.C.R. §§ 66260.10 and 66261.2 [*see also* 40 C.F.R. § 261.2].

12. At the Facility, Respondent generates and accumulates, or has generated and accumulated, "hazardous waste" as defined in California Health & Safety Code § 25117, and 22 C.C.R. §§ 66260.10 and 66261.3 [*see also* RCRA § 1004(5), and 40 C.F.R. §§ 260.10 and 261.3]. These hazardous wastes include but are not limited to corrosive waste (D002), petroleum refinery primary oil/water/solids separation sludge (F037), petroleum refinery secondary oil/water/solids separation sludge (F038), and spent hydrotreating catalyst from petroleum refining operations (K171).

13. The Facility is a "facility" as defined in Section 329(4) of EPCRA, 42 U.S.C. § 11049(4) and 40 C.F.R. § 372.3.

14. The Facility has 10 or more "full-time employees," as that term is defined at 40 C.F.R. § 372.3.

15. The Facility is in a North American Industry Classification System Code 324, Petroleum and Coal Products Manufacturing, listed in 40 C.F.R. § 372.23.

16. At the Facility, Respondent manufactured, processed, or otherwise used a toxic chemical listed under 40 C.F.R. § 372.65 in excess of the applicable threshold quantity of that chemical set forth in 40 C.F.R. § 372.25, including but not limited to greater than 25,000 pounds of benzene, toluene, ethylbenzene and xylene.

17. Section 3006 of RCRA, 42 U.S.C. § 6926 provides, *inter alia*, that authorized state hazardous waste programs are carried out under Subtitle C of RCRA. Therefore, a violation of any requirement of law under an authorized state hazardous waste program is a violation of a requirement of Subtitle C of RCRA.

18. A violation of California's authorized hazardous waste program, found at H&SC § 25100 *et seq.*, constitutes a violation of Subtitle C of RCRA and, therefore, a person who violates California's authorized hazardous waste program is subject to the powers vested in the EPA Administrator by Section 3008 of RCRA, 42 U.S.C. § 6928.

19. Section 3008 of RCRA, 42 U.S.C. § 6928, authorizes the EPA Administrator to issue orders assessing a civil penalty and/or requiring compliance immediately or within a specified time for violation of any requirement of Subtitle C of RCRA, Section 3001 of RCRA *et seq.*, 42 U.S.C. § 6921 *et seq.*

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20. Section 325(c) of EPCRA, 42 U.S.C. § 11045(c), authorizes the EPA Administrator to assess a penalty for violations of Section 313 of EPCRA, 42 U.S.C. § 11023.

21. The Administrator has delegated the authority under Section 3008 of RCRA and Section 325 of EPCRA to the EPA Regional Administrator for Region 9, who has redelegated this authority to the EPA signatory below.

C. ALLEGED VIOLATIONS

COUNT I
Failure to obtain a permit for disposal of hazardous waste

22. Paragraphs 1 through 21 above are incorporated herein by this reference as if they were set forth here in their entirety.

23. 22 C.C.R. § 66270.1(c) requires that each person owning or operating a facility where hazardous waste is transferred, treated, stored, or disposed must have a permit. At the time of the inspection, Respondent did not have a permit or grant of interim status to dispose of hazardous waste under 22 C.C.R. § 66270.1(c) [*see also* 40 C.F.R. § 270.1(c)].

24. As a result of the inspection, EPA determined that Respondent discharged benzene-contaminated wastewater, RCRA D018 characteristic hazardous waste, into an unlined stormwater surface impoundment during self-diversion of wet weather flows on 14 occasions between 2011 and 2013. These discharges were not eligible for exemption under 22 C.C.R. § 66265.1(e)(11) [see also 40 C.F.R. § 265.1(c)(11)].

25. Therefore EPA alleges that Respondent disposed of hazardous waste without a permit, a violation of 22 C.C.R. § 66270.1 [*see also* 40 C.F.R. § 270.1].

COUNT II
Failure to maintain and operate the facility to minimize the possibility of an unplanned release

26. Paragraphs 1 through 25 above are incorporated herein by this reference as if they were set forth here in their entirety.

27. 22 C.C.R. § 66262.34(a)(4) and 22 C.C.R. § 66265.31 provide that facilities must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment [*see also* 40 C.F.R. § 262.34(a) and 40 C.F.R. § 265.31].

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28. During the CEI the EPA Inspectors observed several areas where there was staining on the ground, evidencing spillage.

29. Respondent acknowledged that there had been accidental releases of oily sludge, RCRA F037 hazardous waste, that was cleaned up promptly, but some staining was left in place around a Baker Tank, due to access issues.

30. Therefore EPA alleges that Respondent failed to operate its facility to minimize the possibility of a release of hazardous waste, and has violated 22 C.C.R. § 66262.34(a)(4) and 22 C.C.R. § 66265.31 [*see also* 40 C.F.R. § 262.34(a) and 40 C.F.R. § 265.31].

COUNT III

Failure to make a hazardous waste determination

31. Paragraphs 1 through 30 above are incorporated herein by this reference as if they were set forth here in their entirety.

32. 22 C.C.R. § 66262.11 states that a facility which generates waste, as defined by 22 C.C.R. § 66261.2, must determine if the waste is a hazardous waste [*see also* 40 C.F.R. § 262.11].

33. EPA determined that Respondent had pumped stormwater from the surface impoundment where Respondent had discharged RCRA D018 into a stormwater retention pond, used when extra stormwater capacity is needed.

34. Respondent failed to sample the wastewater pumped from the impoundment into the stormwater retention pond, thereby failing to determine if solid waste generated was hazardous.

35. Therefore, EPA alleges that Respondent has violated 22 C.C.R. § 66262.11 [*see also* 40 C.F.R. § 262.11].

COUNT IV

Failure to maintain records at the facility

36. Paragraphs 1 through 35 above are incorporated herein by this reference as if they were set forth here in their entirety.

37. Sections 313(a) and (b) of EPCRA, 42 U.S.C. §§ 11023(a) and (b), and 40 C.F.R. §§ 372.22 and 372.30, provide that the owner or operator of a facility must submit annually to EPA and the State in which the facility is located a chemical release form published under Section 313(g) of EPCRA for each toxic chemical or toxic chemical category listed under Section 313(c) of EPCRA and 40 C.F.R. § 372.65 that it manufactured, processed or otherwise used if: (i) the facility has ten or more full-time

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employees; (ii) the facility is in North American Industry Classification System Code 324110; and (iii) the facility manufactured, processed or otherwise used during the preceding calendar year the listed toxic chemical or toxic chemical category in excess of the threshold quantity established under Section 313(f) of EPCRA and 40 C.F.R. § 372.25.

38. Pursuant to Section 313(g) of EPCRA, 42 U.S.C. § 11023(g), EPA published a uniform Toxic Chemical Release Inventory Form (hereinafter referred to as a "Form R") for facilities that are subject to the reporting requirements of Section 313. Sections 313(a) and (b) of EPCRA, 42 U.S.C. §§ 11023(a) and (b), and 40 C.F.R. § 372.30(d), provide that each Form R for activities involving a toxic chemical or toxic chemical category that occurred during a calendar year must be submitted on or before July 1 of the next year.

39. Pursuant to 40 C.F.R. § 372.10(a) and (b), each person subject to the reporting or notification requirements of 40 C.F.R. Part 372 must retain complete records (as specified in the regulations) for a period of three years from the date of the submission of a report under 40 C.F.R. § 372.30 or of a notification under 40 C.F.R. § 372.45, respectively.

40. These records include data supporting the determination of whether a threshold under 40 C.F.R. § 372.25 applies for each toxic chemical and the calculations of the quantity of each toxic chemical released to the environment or transferred to an off-site location.

41. Pursuant to 40 C.F.R. § 372.10(c), records retained under 40 C.F.R. Part 372 must be maintained at the facility to which the report applies or from which a notification was provided. Such records must be readily available for purposes of inspection by EPA.

42. For reporting years 2010 and 2011, Respondent did not have records relating to threshold determinations for benzene, toluene, ethylbenzene or xylene readily available at the Facility for purposes of inspection by EPA.

43. For reporting year 2010, Respondent did not have records supporting its calculations for fugitive emissions from wastewater readily available at the Facility for purposes of inspection by EPA.

44. By failing to maintain the requisite records at the Facility for reporting years 2010 and 2011, Respondent violated Section 313 of EPCRA, 42 U.S.C. § 11023, and 40 C.F.R. § 372.10(c).

COUNT V
Failure to submit an accurate Form R

45. Paragraphs 1 through 44 above are incorporated herein by this reference as if they were set forth here in their entirety.

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46. 40 C.F.R § 372.30(a) requires that for each toxic chemical known by the owner or operator to be manufactured (including imported), processed, or otherwise used in excess of an applicable threshold quantity in § 372.25, § 372.27, or § 372.28 at its covered facility described in § 372.22 for a calendar year, the owner or operator must submit to EPA and to the State in which the facility is located a completed EPA Form R (EPA Form 9350-1).

47. Section 313(g)(1)(B) of EPCRA, 42 U.S.C. § 11023(g)(1)(B), provides that Form Rs must include a certification regarding the accuracy and completeness of the information provided therein.

48. Based on the inspection, EPA found Respondent failed to accurately report fugitive emissions data for two chemicals, cumene and ethylene, for reporting year 2010.

49. These inaccuracies constitute significant data quality errors and Respondent's failure to submit accurate Form Rs for these two toxic chemicals violated Section 313 of EPCRA, 42 U.S.C. § 11023, and 40 C.F.R. § 372.30(a).

D. CIVIL PENALTY

50. Section 3008(g) of RCRA, 42 U.S.C. § 6928(g), and Section 325(c) of EPCRA, 42 U.S.C. § 11045(c), as adjusted by the Debt Collection Improvement Act of 1996 and the Civil Monetary Penalty Inflation Adjustment Rule, 40 C.F.R. Part 19, authorize a civil penalty of up to thirty-seven thousand, five hundred dollars ($37,500) per day for violations of Subtitle C of RCRA, 42 U.S.C. § 6921 *et seq.*, or Section 313(c) of EPCRA, 42 U.S.C. § 11023(c) occurring after January 12, 2009 and before August 1, 2016. Based upon the facts alleged herein and upon those factors which EPA must consider pursuant to Section 3008(a)(3) of RCRA, 42 U.S.C. § 6928(a)(3), the 2003 RCRA Civil Penalty Policy, and the 1992 Enforcement Response Policy for Section 313 of EPCRA, as amended April 12, 2001, EPA proposes that Respondent be assessed ONE HUNDRED FIFTY-SEVEN THOUSAND EIGHT HUNDRED DOLLARS as the civil penalty for the violations alleged herein.

E. ADMISSIONS AND WAIVERS OF RIGHTS

51. For the purposes of this proceeding, Respondent admits to the jurisdictional allegations set forth in Section B of this CA/FO and agrees not to contest EPA's jurisdiction and authority to enter into and issue this CA/FO and to enforce its terms. Further, Respondent will not contest EPA's jurisdiction and authority to compel compliance with this CA/FO in any enforcement proceedings, either administrative or judicial, or to impose sanctions for violations of this CA/FO.

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52. Respondent neither admits nor denies any allegations of fact or law set forth in Section C of this CA/FO. Respondent hereby waives any rights Respondent may have to contest the allegations set forth in this CA/FO, waives any rights Respondent may have to a hearing on any issue relating to the factual allegations or legal conclusions set forth in this CA/FO, including without limitation a hearing pursuant to Section 3008(b) of RCRA, 42 U.S.C. § 6928(b), and hereby consents to the issuance of this CA/FO without adjudication. In addition, Respondent hereby waives any rights Respondent may have to appeal the Final Order attached to this Consent Agreement and made part of this CA/FO.

F. PARTIES BOUND

53. This CA/FO shall apply to and be binding upon Respondent and its agents, successors and assigns, until such time as the civil penalty required under Sections D and H has been paid in accordance with Section H, and any delays in performance and/or stipulated penalties have been resolved. At such time as those matters are concluded, this CA/FO shall terminate and constitute full settlement of the violations alleged herein.

54. No change in ownership or corporate, partnership or legal status relating to the Facility will in any way alter Respondent's obligations and responsibilities under this CA/FO.

55. The undersigned representative of Respondent hereby certifies that he or she is fully authorized by Respondent to enter into this CA/FO, to execute and to legally bind Respondent to it.

G. COMPLIANCE TASKS

56. By no later than December 30, 2016, Respondent shall submit a work plan for piping modifications at the Facility so that discharges from the Diversion Area lift station can no longer flow (self-divert) to the Wastewater Treatment Plant retention ponds. Respondent has identified this lift station, which receives flows from the Lower Level Tank Farm area, as the most likely source of benzene concentrations that have been detected intermittently in storm-related self-diversions into the retention ponds.

57. By no later than June 30, 2017, Respondent shall complete the project described in Paragraph 56 above. Respondent shall notify EPA in writing within ten (10) working days after completion of the project, and submit documentation showing that the project is complete. Such documentation may include invoices, photos, contracts, or any other relevant materials.

58. From the Effective Date of the CA/FO until one year following completion of the project described in Paragraph 56, during storm events Valero shall sample wastewater discharged at the diversion canal, end of line (EOL) sampling point EOL-10.

59. Respondent shall sample the diversion canal at the beginning of each diversion event. If the diversion is continuous, Respondent shall sample the canal daily for the duration of the diversion.

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60. Respondent shall continue to follow the current National Emissions Standards for Hazardous Air Pollutants ("NESHAP") End of Line ("EOL") monitoring protocol for benzene and utilize the existing Valero Benicia Refinery EOL Sample Check Sheet to record the collection of the samples.

61. Respondent shall continue to follow its existing Quality Assurance/Quality Control requirements, as follows: (1) where applicable, the sample must be collected through a cooler so the temperature is less than 50F degrees; (2) samples must be collected into a Volatile Organic Analysis ("VOA") vial without air bubbles; (3) records must be kept for listing the name, date, time of the person collecting the sample and the temperature of the sample.

62. Respondent's contract laboratory should continue to perform EPA Method 8260 BTEX (Benzene, Toluene, Ethylbenzene, m,p-Xylene, o-Xylene) analysis for these samples.

63. Respondent shall submit the sampling data to EPA within five (5) working days from the receipt from its contractor laboratory. Data shall be transmitted via electronic mail to Sharon Lin at lin.sharon@epa.gov.

H. PAYMENT OF CIVIL PENALTY

64. Respondent consents to the assessment of and agrees to pay a civil penalty of ONE HUNDRED FIFTY-SEVEN THOUSAND AND EIGHT HUNDRED DOLLARS ($157,800.00) in full settlement of the federal civil penalty claims set forth in this CA/FO.

65. Respondent shall submit payment of the ONE HUNDRED FIFTY-SEVEN THOUSAND AND EIGHT HUNDRED DOLLARS ($157,800.00) within thirty (30) calendar days of the Effective Date of this CA/FO in accordance with one of the options set forth below. The Effective Date of this CA/FO is the date the Final Order, signed by the Regional Judicial Officer, is filed with the Regional Hearing Clerk. All payments shall indicate the name of the Facility, EPA identification number of the Facility, the Respondent's name and address, and the EPA docket number of this action.

Regular Mail:
Payment shall be made by certified or cashier's check payable to "Treasurer of the United States" and sent as follows:
US Environmental Protection Agency
Fines and Penalties
Cincinnati Finance Center
PO Box 979077
St. Louis, MO 63197-9000.

Wire Transfers:
Wire transfers must be sent directly to the Federal Reserve Bank in New York

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City with the following information:
Federal Reserve Bank of New York
ABA = 021030004
Account = 68010727
SWIFT address = FRNYUS33
33 Liberty Street
New York, NY 10045
Field Tag 4200 of the Fedwire message should read "D 68010727 Environmental Protection Agency"

Overnight Mail:
U.S. Bank
1005 Convention Plaza
Mail Station SL-MO-C2GL
ATTN Box 979077
St. Louis, MO 63101

ACH (also known as REX or remittance express):
Automated Clearinghouse (ACH) for receiving US currency
PNC Bank
808 17th Street, NW
Washington, DC 20074
ABA = 051036706
Transaction Code 22 – checking
Environmental Protection Agency
Account 31006
CTX Format

On Line Payment:
This payment option can be accessed from the information below:
www.pay.gov
Enter "sfo1.1" in the search field
Open form and complete required fields

If clarification regarding a particular method of payment remittance is needed, contact the EPA Cincinnati Finance Center at 513-487-2091.

66. At the time payment is made, a copy of the payment transmittal shall be sent to:

Regional Hearing Clerk (RC-1)
U.S. Environmental Protection Agency - Region 9
75 Hawthorne Street
San Francisco, CA 94105

and

Sharon Lin (ENF 2-2) and Andrew Chew (ENF 2-2)
Enforcement Division
U.S. Environmental Protection Agency - Region 9
75 Hawthorne Street
San Francisco, CA 94105

67. In accordance with the Debt Collection Act of 1982 and U.S. Treasury directive (TFRM 6-8000), each payment must be received by the due date set forth in this CA/FO to avoid additional charges. If payment is not received by the due date, interest will accrue from the Effective Date of this CA/FO at the current rate published by the United States Treasury as described at 40 C.F.R. § 13.11. Respondent further will be liable for stipulated penalties as set forth below for any payment not received by its due date.

68. The penalties specified in this CA/FO shall represent civil penalties assessed by EPA and shall not be deducted by Respondent or any other person or entity for federal, state or local taxation purposes.

I. DELAY IN PERFORMANCE/STIPULATED PENALTIES

69. In the event Respondent fails to (a) submit a payment to EPA by the time required in this CA/FO, or (b) complete tasks required by Section G above, Respondent shall pay stipulated penalties up to: FIVE HUNDRED DOLLARS ($500) per day for first to fifteenth day of delay; ONE THOUSAND DOLLARS ($1,000) per day for sixteenth to thirtieth day of delay; and ONE THOUSAND FIVE HUNDRED DOLLARS ($1,500) per day for each day of delay thereafter.

70. Prior to the date when Valero completes the project described in Paragraph 56, if Respondent discharges stormwater exceeding 0.5 mg/L benzene to any surface impoundment, Respondent shall pay a penalty of up to $5,000 for each day of such discharge.

71. All penalties owed to EPA under this Section shall be due within thirty (30) days of receipt of a notification of noncompliance. Such notification shall describe the noncompliance and shall indicate the amount of penalties due. Interest at the current rate published by the United States Treasury, as described at 40 C.F.R. §13.11, shall begin to accrue on the unpaid balance at the end of the thirty-day period.

72. All penalties shall be made payable by certified or cashier's check to "Treasurer of the United States" and shall be remitted as described in Paragraph 65.

73. The payment of stipulated penalties shall not alter in any way Respondent's obligation to complete the performance required hereunder.

74. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this CA/FO.

75. The stipulated penalties set forth in this Section do not preclude EPA from pursuing any other remedies or sanctions which may be available to EPA by reason of Respondent's failure to comply with any of the requirements of this CA/FO.

J. CERTIFICATION OF COMPLIANCE

76. In executing this CA/FO, Respondent certifies under penalty of law to EPA that to its actual knowledge that (1) it has now fully completed and submitted to EPA all of the required Toxic Chemical Release Inventory Forms in compliance with Section 313 of EPCRA, 42 U.S.C. § 11023, and the regulations promulgated thereunder; and (2) it is in compliance with all other EPCRA requirements applicable to the Facility.

77. In executing this CA/FO, subject to the provisions of Section G above, Respondent certifies under penalty of law to EPA that it has fully complied with RCRA Hazardous Waste Management requirements, 42 U.S.C. §§ 6921–6939e, and the federally authorized California hazardous waste management program including 22 C.C.R. §§ 66270.1 [*see also* 40 C.F.R. §§ 270.1], 22 C.C.R. § 66265.31 [*see also* 40 C.F.R. § 265.31], and 22 C.C.R. § 66262.11 [*see also* 40 C.F.R. § 262.11], that formed the basis for the violations alleged in this CA/FO.

78. This certification of compliance is based upon true, accurate, and complete information, which the signatory can verify personally or regarding which the signatory has inquired of the person or persons directly responsible for gathering the information.

K. RESERVATION OF RIGHTS

79. EPA hereby reserves all of its statutory and regulatory powers, authorities, rights and remedies, both legal and equitable, including the right to require that Respondent perform tasks in addition to those required by this CA/FO, except as to those civil penalties for the violations and facts alleged herein. EPA further reserves all of its statutory and regulatory powers, authorities, rights and remedies, both legal and equitable, which may pertain to Respondent's failure to comply with any of the requirements of this CA/FO. This CA/FO shall not be construed as a covenant not to sue, release, waiver or limitation of any rights, remedies, powers or authorities, civil or criminal, which EPA has under RCRA or EPCRA (except as to those civil penalties for the violations and facts alleged herein); the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA"); or any other statutory, regulatory or common law enforcement authority of the United States.

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80. Compliance by Respondent with the terms of this CA/FO shall not relieve Respondent of its obligations to comply with RCRA, EPCRA, or any other applicable local, State or federal laws and regulations.

81. The entry of this CA/FO and Respondent's consent to comply shall not limit or otherwise preclude EPA from taking additional enforcement actions should EPA determine that such actions are warranted except as they relate to Respondent=s liability for federal civil penalties for the specific alleged violations and facts as set forth in Section C of this CA/FO.

82. This CA/FO is not intended to be nor shall it be construed as a permit. This CA/FO does not relieve Respondent of any obligation to obtain and comply with any local, State or federal permits.

L. OTHER CLAIMS

83. Nothing in this CA/FO shall constitute or be construed as a release from nor an admission by Respondents of any other claim, cause of action or demand in law or equity by or against any person, firm, partnership, entity or corporation for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous constituents, hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the Facility.

M. MISCELLANEOUS

84. Each party shall bear its own attorneys' fees, costs, and disbursements incurred in this proceeding.

85. This CA/FO may be amended or modified only by written agreement executed by both EPA and Respondent.

86. The headings in this CA/FO are for convenience of reference only and shall not affect interpretation of this CA/FO.

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87. In accordance with 40 C.F.R. §§ 22.18(b)(3) and 22.31(b), the Effective Date of this CA/FO is the date the Final Order, having been approved by the Regional Judicial Officer, is filed by the Regional Hearing Clerk.

IT IS SO AGREED.

9/27/16
Date

Donald C. Wilson
Name, Title: Donald C. Wilson, VP + General Manager
Valero Refining Co. - California

9/29/16
Date

Joel Jones, Assistant Director
Enforcement Division
U.S. Environmental Protection Agency, Region 9

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FINAL ORDER

IT IS HEREBY ORDERED that this Consent Agreement and Final Order pursuant to 40 C.F.R. Sections 22.13 and 22.18 (U.S. EPA Docket No. RCRA-9 -2016-0008 and EPCRA-09-2016-0003) be entered and that Valero Refining Company - California pay a civil penalty of one hundred fifty seven thousand and eight hundred dollars ($157,800.00) due within thirty (30) days from the Effective Date of this Consent Agreement and Final Order. Payment must be made pursuant to Section H of the Consent Agreement.

This Final Order shall be effective upon filing by the Regional Hearing Clerk.

09/30/16
Date

Steven Jawgiel
Regional Judicial Officer
United States Environmental Protection Agency,
Region 9

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CERTIFICATE OF SERVICE

I hereby certify that the original and a copy of the foregoing Consent Agreement and Final Order in the matter of Valero Refining Company – California with Docket # RCRA-09-2016-0008 /EPCRA-09-2016-0003 has been filed with the Regional Hearing Clerk, Region 9, and a copy was sent:

By Certified Mail, Return Receipt Requested to Respondent:

Mr. Christopher W. Howe
Director, Health, Safety, Environment & Government Affairs
Valero Benicia Refinery
3400 East Second Street
Benicia, California 94510-1005
Certified Mail No. 7009 0820 0001 3646 6332

Hand Delivered to:

Rebecca Sugerman
Office of Regional Counsel
U.S. EPA, Region 9, ORC-3
75 Hawthorne Street
San Francisco, CA 94105

Sept. 30, 2016
Date

Steven Armsey
Steven Armsey
Acting Regional Hearing ~~Clerk~~
Office of Regional Counsel, Region 9

To: gordon.johnson@shell.com[gordon.johnson@shell.com]
From: McDaniel, Doug
Sent: Thur 8/17/2017 4:31:03 PM
Subject: EPA Enforcement Correspondence
Shell Oil Products US Martinez Refinery.pdf

Mr. Johnson,

Please find attached a copy of the show cause letter sent out by EPA Region 9 today. Please let me know if you have any questions.

Regards,

Doug McDaniel

Douglas K. McDaniel

Chief, Waste and Chemical Section

Enforcement Division

U.S. EPA Region 9

(415) 947-4106

AUG 1 6 2017

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Certified Mail
7005 2570 0001 6436 6136

Mr. Tom Rizzo
Shell Oil Products US, Martinez Refinery
PO Box 711
Martinez, California 94553

RE: **Notice of Potential Enforcement Action for Apparent Violations of Section 112(r)(7) of the Clean Air Act, Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act, Section 304 of the Emergency Planning and Community Right-to-Know Act, Section 3008(a) of the Resource Conservation and Recovery Act, and Section 311 of the Clean Water Act**

Dear Mr. Rizzo:

This letter is to notify you that the U.S. Environmental Protection Agency ("the EPA" or "the Agency") is preparing to bring a civil administrative action against Equilon Enterprises LLC d/b/a Shell Oil Products US (the "Company") to ensure compliance and assess penalties, at its facility located at 3485 Pacheco Boulevard, Martinez, California, 94553. The allegations being considered include violations of Section 112(r)(7) of the Clean Air Act ("CAA"), 42 U.S.C. § 7412(r)(7) and the Risk Management Program ("RMP") requirements promulgated thereunder at 40 C.F.R. Part 68; Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), as amended, 42 U.S.C. § 9603; Section 304 of the Emergency Planning and Community Right-to-Know Act ("EPCRA"), 42 U.S.C. § 11004; Section 3008(a) of the Resource Conservation and Recovery Act ("RCRA"), as amended, 42 U.S.C. §§ 6921-6939e; and Section 311 of the Clean Water Act ("CWA"), 42 U.S.C. § 1321. This action is for violations discovered during routine compliance evaluation inspections performed November 17-20, 2014 (CAA, CERCLA, EPCRA), March 23-27 and 30, 2015 (RCRA) and November 15, 2016 (CWA).

Specifically, as previously communicated to the Company, EPA is considering the following allegations:

1. Failure to analyze and report in its RMP a release from the worst-case release scenario ("WCS") in violation of CAA Section 112(r)(7) and 40 C.F.R. § 68.25;
2. Failure to ensure the Piping and Instrumentation Diagrams ("P&IDs") accurately reflect the design of a covered process as installed in the field, in violation of CAA Section 112(r)(7) and 40 C.F.R. § 68.65(d)(ii);

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3. Failure to immediately notify the National Response Center ("NRC") of a release of sulfuric acid above the applicable Reportable Quantity ("RQ") on December 14, 2013, in violation of CERCLA Section 103 and 40 C.F.R. § 302.6;

4. Failure to immediately notify the California Office of Emergency Services ("CalOES") of a release of sulfuric acid above the applicable RQ on December 14, 2013, in violation of EPCRA Section 304 and 40 C.F.R. §§ 355.33 - 355.43;

5. Failure to make a waste determination for spent paint wastes at the paint shop and wastewater/stormwater streams discharging into surface impoundments, in violation of RCRA Section 3008(a) and 22 CCR § 66262.11 [40 C.F.R. § 262.11];

6. Storage and treatment of hazardous wastes generated from its Quality Assurance Laboratory, Crack Product Field Laboratory, Heat Exchanger Bundle and paint shop without a permit, in violation of RCRA Section 3008(a) and 22 CCR § 66270.1(c) [40 C.F.R. § 270.1(c)];

7. Failure to minimize the release of hazardous waste carbon monoxide boiler ("COB") fly ash (K048 and D010) at the bag house area near the COBs, in violation of RCRA Section 3008(a) and 22 CCR § 66265.31, as referenced by § 66262.34(a)(4) Maintenance and Operation of Facility [40 C.F.R. § 265.31, as referenced by § 262.34(a)(4)];

8. Failure to transport a full satellite accumulation container within three days of being filled to the facility's less than 90-day accumulation area, in violation of RCRA Section 3008(a) and 22 CCR § 66262.34(e)(3) [40 C.F.R. § 262.34(c)(2)];

9. Failure to comply with the required container management standards for hazardous waste generators, in violation of RCRA Section 3008(a) and 22 CCR §§ 66262.34(a)(1)(A); 66262.34(a)(2); 66262.34(a)(3); 66265.173(a) [40 C.F.R. §§ 262.34(a)(2); 262.34(a)(3); 265.173(a)];

10. Improper use of a 6400-gallon mobile refueler tank, in violation of CWA Section 311 and 40 C.F.R. Part 112 (Spill Prevention, Control, and Countermeasure Requirements); and

11. Failure to utilize the correct volume of the largest aboveground storage container at the facility for determining the worst-case discharge ("WCD") volume for response planning purposes, in violation of CWA Section 311 and 40 C.F.R. Part 112 (Facility Response Plan Requirements).

Before filing a Determination of Violation, Compliance Order, and Notice of Right to Request a Hearing ("Complaint"), EPA is extending to you the opportunity to advise EPA of any other information that we should consider. Relevant information may include any evidence of your reliance on compliance assistance, additional compliance tasks performed subsequent to the investigation, or financial factors bearing on your ability to pay a civil penalty.

Your response to this letter must be made by a letter, signed by a person or persons duly authorized to represent the Company. Please send your response by certified mail, return receipt requested, addressed to:

Rebekah Reynolds (ORC-3)

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Assistant Regional Counsel
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco CA 94105

Please provide any information that EPA should consider so that it is *received by* September 15, 2017. EPA anticipates filing a Complaint in this matter on or about September 15, 2017, unless the Company first advises EPA, with supporting information, of substantial reasons not to proceed as planned.

Even if you are unaware of any mitigating or exculpatory factors, we are extending to you the opportunity to commence settlement discussions concerning the above-described violations. Any penalty discussed in settlement negotiations for violations of the CAA and its implementing regulations will be calculated pursuant to EPA's June 2012 "Combined Enforcement Policy for Clean Air Act Sections 112(r)(1), 112(r)(7), and 40 CFR Part 68."[1] Any penalty discussed in settlement negotiations for violations of CERCLA, EPCRA, and their respective implementing regulations will be calculated pursuant to EPA's "Enforcement Response Policy for Sections 304, 311, and 312 of the Emergency Planning and Community Right-to-Know Act and Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act."[2] Any penalty discussed in settlement negotiations for violations of RCRA, and its implementing regulations, will be calculated pursuant to EPA's June 2003 "RCRA Civil Penalty Policy."[3] Finally, any penalty discussed in settlement negotiations for violations of the CWA and its implementing regulations will be calculated pursuant to EPA's 1998 "Penalty Policy for Sections 311(b) and (j) of the Clean Water Act."[4] These penalty policies are subject to inflation adjustments under the applicable Civil Monetary Penalty Inflation Adjustment Rule, as well as potential changes in EPA guidance. Also, civil penalties may be mitigated under the EPA "Supplemental Environmental Projects Policy,"[5] which describes the terms under which a commitment to perform an environmental project may mitigate, in part, a civil penalty.

Please note that, pursuant to regulations located at 40 C.F.R. Part 2, Subpart B, you are entitled to assert a business confidentiality claim covering any part of the submitted information as defined in 40 C.F.R. § 2.201(c). Asserting a business confidentiality claim does not relieve you from the obligation to respond fully to this letter. Failure to assert such a claim makes the submitted information subject to public disclosure upon request and without further notice to you, pursuant to the Freedom of Information Act, 5 U.S.C. § 552. Information subject to a business confidentiality claim may be available to the public only to the extent set forth in the above-cited regulation. EPA has authority to use the information requested herein in an administrative, civil, or criminal action.

Enclosed for your information are requirements of the Securities and Exchange Commission (SEC) for "registrants" to provide information on environmental legal proceedings to the public. To determine the applicability of these requirements to your company you should seek competent legal counsel as described in the enclosed SEC Notice.

EPA encourages the Company to explore the possibility of settlement. If you are interested in commencing settlement negotiations or have any questions regarding this notice, please have your

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[1] https://www.epa.gov/sites/production/files/documents/112rcep062012.pdf
[2] https://www.epa.gov/sites/production/files/documents/epcra304.pdf
[3] https://www.epa.gov/sites/production/files/documents/rcpp2003-fnl.pdf
[4] http://www.epa.gov/sites/production/files/documents/311pen.pdf
[5] https://www.epa.gov/sites/production/files/2015-04/documents/sepupdatedpolicy15.pdf

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counsel contact Rebekah Reynolds, Assistant Regional Counsel, at (415) 972-3916 or reynolds.rebekah@epa.gov, to schedule a meeting or conference call. For questions regarding RCRA, please contact Sharon Lin at 415-972-3446 or lin.sharon@epa.gov. For questions regarding CWA SPCC, please contact Janice Witul at (415) 972-3089 or witul.janice@epa.gov. For questions regarding CWA FRP, please contact Peter Reich at (415) 972-3052 or reich.peter@epa.gov. Finally, for questions regarding CAA, EPCRA and CERLCA, please contact Donald Nixon at (415) 972-3123, or nixon.donald@epa.gov. We thank you in advance for your cooperation.

Sincerely,

Elizabeth Berg
Acting Assistant Director
Enforcement Division

Joel Jones
Assistant Director
Enforcement Division

Daniel Meer
Assistant Director
Superfund Division

Enclosures:

Notice of SEC Registrants' Duty to Report

cc (via certified mail return receipt requested):

Shell Oil Products US
P.O. Box 4453
Houston, TX 77210

Equilon Enterprises LLC
910 Louisiana Street, Suite 2
Houston, TX 77002

CT Corporation System (C0168406)

ED_001593_00019699

818 W. Seventh Street
Los Angeles, California 90017
CT Corporation System (C0168406)

cc (via email):

Gordon Johnson, Environmental Affairs Manager, Shell Oil Products US, Martinez Refinery, Gordon.johnson@shell.com

Keith Kihara, Director, California Department of Toxic Substances Control Enforcement and Emergency Response Program, Keith.Kihara@dtsc.ca.gov

Randy Sawyer, Chief Environmental Health & Hazardous Materials Officer, Contra Costa County Health Services, Randy.Sawyer@hsd.cccounty.us

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Securities and Exchange Commission (SEC) for Registrants Duty to Disclosure Environmental Proceedings

i.JN11SO STATE:S ENV/RONMENTAL PROTECTION AGENCY
WASHiNGTON DC 1.0460

NOTICE OF SECURITIES AND Ex CHANGE COMMISSION REGISTRANTS' DUTY To DISCLOSE ENVIRONMENTAL LEGAL PROCEEDINGS

Securities and Exchange Commission regulations require companies registered with the SEC (e.g., publicly traded companies) to disclose, on at least a quarterly basis, the existence of certain administrative or judicial proceedings taken against them arising under Federal, State or local provisions that have the primary purpose of protecting the environment. instruction 5 to Item 103 of the SEC's Regulation S-K (17 CFR 229.103) requires disclosure of these environmental legal proceedings. For those SEC registrants that use the SEC' s "small business issuer" reporting system, Instructions 1-4 to Item 103 of the SEC's Regulation S-B (17 CFR 228.103) requires disclosure of these environmental legal proceedings.

If you are an SEC registrant. you have a duty to disclose the existence of pending or known to be contemplated environmental legal proceedings that meet any of the following criteria (17 CFR 229.103(5)(A)-(C)): Such proceeding is material to the business or financial condition of the r:egistrant:

> A.Such proceeding involves primarily a claim for damages. or involves potential monetary sanctions. capital expenditures, deferred charges or charges to income and the amount involved. exclusive of interest and costs: exceeds 10 percent of the current assets of the registrant and its subsidiaries on a consolidated basis: or
> B.A governmental authority is a party to such proceeding and such proceeding involves potential monetary sanctions, unless the registrant reasonably believes that such proceeding will result in no monetary sanctions. or in monetary sanctions. exclusive of interest and costs. ofless than $100.000: provided, however. that such proceedings which are similar in nature may be grouped and described generically.

Specific information regar ding the environmental legal proceedings that must be disclosed is set forth in Item 103 of Regulation S-K or, for registrants using the "smallbusiness issuer" reporting system. Item 103(a)-(b) of Regulation S-B. If disclosure is required, it must briefly describe the proceeding, "including the name of the court or agency in which the proceedings are pending. the date _instituted the principal parties thereto. a description of the factual basis alleged to underlie the proceedings and the relief sought."

You have been identified as a party to an environmental legal proceeding to which the United States government is, or w as, a party. If you are an SEC registrant. this environmental legal proceeding rhay trigger, or may already have triggered, the disclosure obligation under the SEC regulations described above.

This notice is being prqvided to inform you of SEC registrants' duty to disclose any relevant environmental legal proceedings to the SEC. This notice does not create, modify or interpret any existing legal obligatfons. it is not intendedto be an exhaustive description of the legally applicable requirements and it is not a substitute for regulations published in the Code of Federal Regulations. This notice has been issued to you for information purposes only. No determination of the applicability of this reporting requirement to your company has been made by any governmental entity. You should seek competent counsel in determining the applicability of these and other SEC requirements to the environmental legal proceedingat issue, as well as any other proceedings known to be contemplated by governmental authorities.

If you have any questions about the SEC's environmental disclosure requirements, please contact the SEC · Office of the Special Senior Counsel for Disclosure Operations at (202) 942-1888.

TITLE 17 - COMJ\10DITY AND SECURITIES EXCHANGES
Title 17, Volume 2, Parts 200 to 239

(Division: Securities and Exchange Commission)

Part 229 - Standard Instructions for Filing Forms Under Securities Act of 1933, Securities Exchange Act of 1934 and Energy Policy and Conservation Act of 1975-Regulation S-K

Subpart 229-100 - Business

§229.103 (Item 103) Legal proceedings

Describe briefly any material pending legal proceedings, other than ordinary routine litigation incidental to the business, to which the registrant or any of its subsidiaries is a party or of which any of their property is the subject. Include the name of the court or agency in which the proceedings are pending, the date instituted, the principal parties thereto, a description of the factual basis alleged to underlie the proceeding'and the relief sought. Inclucle similar information as to any such proceedings known to be contemplated by governmental authorities.

Instructions to Item 103: I. **If the business ordinarily results in actions for negligence or other claims, no such action** or claim need be described unless it departs from the normal kind of such actions.

2. No information need be given with respect to any proceeding that involves primarily a claim for damages if the **amount involved, exclusive of interest and costs, does not exceed 10 percent of the current assets of the registrant and its subsidiaries on a consolidated basis. However, if any proceeding presents in large degree the same legal and** factual issues as other proceedings pending or known to be contemplated, the amount involved in such other proceedings shall be included in computing such percentage.

3. Notwithstanding Instructions I and 2, any material bankruptcy, receivership, or similar proceeding with respect to the registrant or any of its significant subsidiaries shall be described.

4. Any material proceedings to which any director, officer or affiliate of the registrant, any owner ofrecord.or beneficially of more than five percent of any class of voting securities of the registrant, or aiJ.y associate of any such director, officer, affiliate of the registrant, or security holder is a party adverse to the registrant or any of its subsidiaries or has a material interest adverse to the registrant or any of its subsidiaries also shall be described.

5. Notwithstanding the foregoing, an administrative or judicial proceeding (including, for purposes of A and B of this Instruction, proceedings which present in large degree the same issues) arising under any Federal, State or local provisions that have been enacted or adopted regulating the discharge of materials into the environment or primary for the purpose of protecting the environment shall not be deemed "ordinary routine litigation incidental to the business" and shall be described if:

A. Such proceeding is material to the business or financial condition of the registrant;

B. Such proceeding involves primarily a claim for damages, or involves potential monetary sanctions, capital expenditures, deferred charges or charges to income and the amount involved, exclusive of interest and costs, exceeds 10 percent of the current assets of the registrant and its subsidiaries on a consolidated basis; or

C. A governmental authority is a party to such proceeding and such proceeding involves potential monetary sanctions, unless the registrant reasonably believes that such proceeding will result in no monetary sanctions, or in monetary sanctions, exclusive of interest and costs, ofless than $100,000; provided, however, that such proceedings which are similar in nature may be grouped and described generically.

To: Schofield, John[Schofield.John@epa.gov]; Sakow, Rick[Sakow.Rick@epa.gov]
From: Haas, Craig
Sent: Tue 7/28/2015 11:39:37 AM
Subject: RE: Conoco Phillips inspection

Thanks for this. Now I just need the dates of travel and I can issue the TD. Will you be arriving on Sunday to start on Monday, and when will you be wrapping up? The contractor needs this information to make their travel arrangements. And if you have a hotel in mind I would like to get that, too.

Thanks,

Craig

From: Schofield, John
Sent: Monday, July 27, 2015 4:07 PM
To: Haas, Craig; Sakow, Rick
Subject: RE: Conoco Phillips inspection

Craig,

Attached is Sampling Analysis Plan for a refinery located here in the Bay area. The samples we will be wanting to sample at ConocoPhillips will be similar types of samples.

regards,

John

****
John Schofield
U. S. Environmental Protection Agency

Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
(415) 947-3530 (fax)
schofield.john@epa.gov
****

NOTE: This email, including any attachments, may contain material that is confidential, privileged and/or attorney work product and is for the sole use of the intended recipient. Any review, reliance or distribution by others or forwarding without expressed permission is strictly prohibited. If you are not the intended recipient, please contact the sender and delete all copies.

From: Haas, Craig
Sent: Monday, July 27, 2015 11:59 AM
To: Schofield, John; Sakow, Rick
Subject: Conoco Phillips inspection

I'm talking with ERG to see if they have availability the week of August 24 to support your refinery inspection. In the meantime, can you send me some details on the nature of the inspection, and what kinds of samples you'll want to take? I'd like to get an idea for the length of the inspection as well so they know what to plan on as far as travel goes.

Thanks,

Craig

To: Cobb, Cheryl D.[Cheryl.D.Cobb@p66.com]
Cc: Bechtol, Michael:[MIKE.D.Bechtol@p66.com]
Bcc: Reynolds, Rebekah[Reynolds.Rebekah@epa.gov]
From: Sakow, Rick
Sent: Wed 2/1/2017 6:42:58 PM
Subject: RE: Phillips 66

Hi Cheryl,

Thank you for your call yesterday and follow-up email. EPA approves the 30 day extension and asks that Phillips' response be postmarked by March 25th, 2017.

Thanks,

-Rick

United States Environmental Protection Agency

Rick Sakow

RCRA Hazardous Waste and Clean Water Act Inspector

Enforcement Division – Waste and Chemical Section
US Environmental Protection Agency, Region 9

sakow.rick@epa.gov (415) 972-3495

75 Hawthorne St. (ENF-2-2), San Francisco, CA 94105

From: Cobb, Cheryl D. [mailto:Cheryl.D.Cobb@p66.com]
Sent: Tuesday, January 31, 2017 4:21 PM
To: Sakow, Rick <Sakow.Rick@epa.gov>
Cc: Bechtol, Michael: <MIKE.D.Bechtol@p66.com>
Subject: Phillips 66

Hello Rick:

In follow-up to our phone conversation earlier today, Phillips 66 is writing to confirm the 30 day extension (until March 25, 2017) granted to respond to the Notice of Violation issued by EPA in the January 23, 2017 letter regarding the Phillips 66 Carson (LARC) and Phillips 66 Wilmington (LARW) waste inspections that took place on August 24 – 28, 2015.

Please let me know if you have any questions.

Thanks,

Cheryl

Cheryl Cobb

Environmental Specialist

Phillips 66 Company – Los Angeles Refinery

1660 W Anaheim Street

Wilmington, CA 90744

(310) 522-8022 – Carson (Mon & Tue)

(310) 952-6210 – Wilmington (Wed thru Fri)

To: Cobb, Cheryl D.[Cheryl.D.Cobb@p66.com]
From: Sakow, Rick
Sent: Thur 4/6/2017 6:02:09 PM
Subject: RE: Phillips 66

Good morning Cheryl,

Has Phillips 66 sent the response to the NOV? I haven't received it in the mail yet and wanted to check. It may still be in transit.

I hope you and your team are doing well.

Best regards,

-Rick

United States Environmental Protection Agency

Rick Sakow

RCRA Hazardous Waste Inspector

Enforcement Division – Waste and Chemical Section
US Environmental Protection Agency, Region 9

sakow.rick@epa.gov (415) 972-3495

75 Hawthorne St. (ENF-2-2), San Francisco, CA 94105

From: Cobb, Cheryl D. [mailto:Cheryl.D.Cobb@p66.com]
Sent: Tuesday, January 31, 2017 4:21 PM
To: Sakow, Rick <Sakow.Rick@epa.gov>
Cc: Bechtol, Michael: <MIKE.D.Bechtol@p66.com>
Subject: Phillips 66

Hello Rick:

In follow-up to our phone conversation earlier today, Phillips 66 is writing to confirm the 30 day extension (until March 25, 2017) granted to respond to the Notice of Violation issued by EPA in the January 23, 2017 letter regarding the Phillips 66 Carson (LARC) and Phillips 66 Wilmington (LARW) waste inspections that took place on August 24 – 28, 2015.

Please let me know if you have any questions.

Thanks,

Cheryl

Cheryl Cobb

Environmental Specialist

Phillips 66 Company – Los Angeles Refinery

1660 W Anaheim Street

Wilmington, CA 90744

(310) 522-8022 – Carson (Mon & Tue)

(310) 952-6210 – Wilmington (Wed thru Fri)

To: marshall.g.waller@p66.com[marshall.g.waller@p66.com]
From: Sakow, Rick
Sent: Thur 2/4/2016 1:13:46 AM
Subject: RCRA Information Request for LARC
Signed LARC Information Request February 2 2016.pdf

Good afternoon Mr. Waller,

EPA Region 9 sent an information request to the Phillips 66 Carson facility today in follow-up to the August 24-28, 2015 RCRA comprehensive evaluation inspection. I've attached an electronic copy of the request for your convenience.

We ask that LARC respond to the request within 30 days of receiving the hard copy, which was sent via Certified Mail.

Please feel free to call me if you have any questions or wish to discuss.

Sincerely,

-Rick

United States Environmental Protection Agency

Rick Sakow

RCRA Hazardous Waste and Clean Water Act Inspector

Enforcement Division – Waste and Chemical Section
US Environmental Protection Agency, Region 9

sakow.rick@epa.gov (415) 972-3495

75 Hawthorne St. (ENF-2-2), San Francisco, CA 94105

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX
75 Hawthorne Street
San Francisco, CA 94105

FEB 0 2 2016

CERTIFIED MAIL NO. 7001 2510 0003 5943 4147
RETURN RECEIPT REQUESTED

Marshall Waller, P.E.
Superintendent, Environmental Services
Phillips 66
1660 West Anaheim Street
Wilmington, California 90744

RE: **Request for Information In re: Phillips 66 Los Angeles Refinery - Carson**
EPA Identification Number: CAD980881676

Dear Mr. Waller:

The United States Environmental Protection Agency (EPA), Region 9 hereby requests additional information following the August 24-28, 2015 compliance evaluation inspection conducted at the Phillips 66 Los Angeles Refinery Carson (LARC) facility, located at 1520 E. Sepulveda Blvd in Carson, California 90744. The information being requested will supplement observations made by the EPA inspection team.

Pursuant to EPA's authority under Section 3007(a) of the Resource Conservation and Recovery Act (RCRA) [42 U.S.C. § 6927(a)], LARC is required to submit the information and documents listed in Attachment I of this letter using the instructions included in Attachment II. Also, please complete and submit the certification included in Attachment III.

Failure to respond fully and truthfully may result in enforcement action by EPA pursuant to Section 3008(g) of RCRA (42 U.S.C. § 6928(g)). These statutory provisions authorize EPA to seek the imposition of penalties of up to $37,500 per day of noncompliance. Please be further advised that provision of false, fictitious or fraudulent statements or representations may subject you to criminal penalties under 18 U.S.C. § 1001. The information you provide may be used by EPA in administrative, civil or criminal proceedings.

This request for information is not subject to review by the Office of Management and Budget (OMB) under the Paperwork Reduction Act because it is not a collection of information within the meaning of 44 U.S.C. §§ 3502(3), 3507, and 3512. *See, also*, 5 CFR §§ 1320.3(c), 1320.5, and 1320.6(a). Furthermore, it is exempt from OMB review under the Paperwork Reduction Act because it is part of an investigation of a specific individual or entity. 44 U.S.C. § 3518(c)(1); 5 CFR § 1320.4.

Your response to this request must be made by letter, signed by a duly authorized official, and submitted to the EPA within thirty (30) calendar days from the date of your receipt of this letter. Please address the submittal to:

Rick Sakow
Mailcode: ENF-2-2
Waste and Chemical Section
Enforcement Division
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105
Sakow.rick@epa.gov

In lieu of submitting the requested response by mail, LARC may submit the response as portable document files via electronic mail.

If you have any questions regarding this letter, please contact Rick Sakow at (415) 972-3495.

Sincerely,

Claire Mombadore

for Kathleen H. Johnson
Director, Enforcement Division

cc: Dan Lynch, California Department of Toxic Substances Control (with photos redacted)

Enclosures
Attachment I: List of information requested
Attachment II: Instructions
Attachment III: Certification of Answers

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ATTACHMENT I

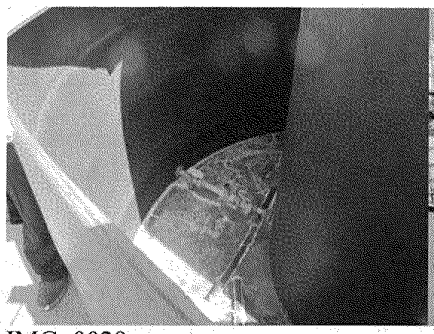
Therefore, pursuant to EPA's authority under Section 3007(a) of RCRA, LARC is requested to submit to EPA the following information:

1. Sodium hydroxide material

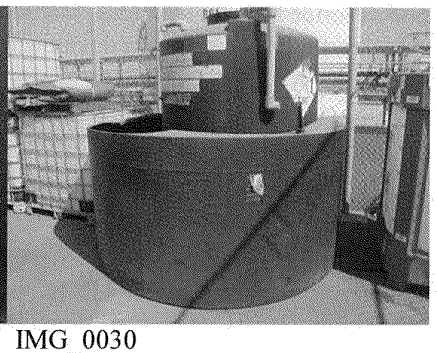
   a. On 8/24/2015, inspectors noted white, powdered residue that had built up within the secondary containment structure of the sodium hypochlorite portable black plastic tank at the LARC Less Than 90 Day Hazardous Waste Accumulation Area (HWAA), as shown in the photographs below. Please provide any waste determination information and/or analysis, if available, for this material.

   b. If the secondary containment and tank has been cleaned and the clean-up material disposed off-site since the inspection, please provide a copy of any outgoing shipping documents (e.g., manifests) for this material. Also, provide a copy of the Waste Profile developed for this waste.

   c. If the secondary containment and tank have not been cleaned, please provide a reason.



IMG_0029



IMG_0030

2. Spent Carbon (O.R.U.) TK-1620

   a. On 8/24/2015, inspectors noted two unlabeled 55-gallon single scrubber containers at the LARC HWAA. Mr. Rob Martinez of Brinderson applied hazardous waste labels to the two unlabeled containers and marked them "Spent Carbon (O.R.U.) TK-1620" with an accumulation start date of 6/30/2015. Please provide any waste determination information and/or analysis, if available, for this material.

   b. Please describe how this material was disposed. If the material was shipped off-site, provide a copy of the shipping document(s) (i.e., manifest, bill of lading). If the material has not been shipped off-site, please describe how the material was managed by LARC.

3. TK-42

   a. On 8/25/2015, inspectors noted waste piles on the surface of the heat exchanger bundle cleaning pad. Mr. Ed Ascendo stated the material was placed on the pad by a HydroChem vacuum truck after the clean-out of TK-42. Please provide any waste determination information and/or analysis, if available, for this material.

b. Please describe the materials / waste streams held in TK-42.

c. Please describe how this material was managed by LARC. If the material was shipped off-site, provide a copy of the shipping document(s) (i.e., manifest, bill of lading). If the material has not been shipped off-site, please describe how the material was managed by LARC.

d. If known, please state how long the material had accumulated on the HEB cleaning pad, prior to being transferred to the HWAA.

4. Flasher Waste from FR-5

a. On 8/24/2015, inspectors noted three 55-gallon containers on a pallet at the LARC HWAA. One of the containers had a hazardous waste label which read "Sludge from FR 4,5,6" with an accumulation start date of 3/19/2015. The other two containers were unlabeled. Mr. Rob Martinez of Brinderson stated that the two unlabeled containers also held flasher exchange waste from FR-5. Please provide any waste determination information and/or analysis, if available, for this material.

b. Please describe how this material was managed by LARC. If the material was shipped off-site, provide a copy of the shipping document(s) (i.e., manifest, bill of lading). If the material has not been shipped off-site, please describe how the material was managed by LARC.

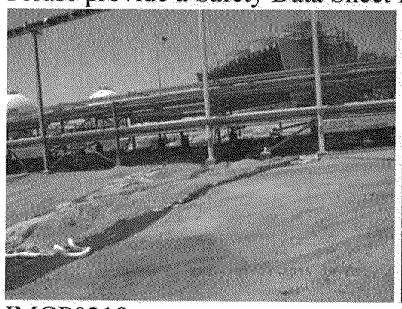
c. Please describe the equipment and source(s) that generated this flasher waste.

5. Cutting Oil

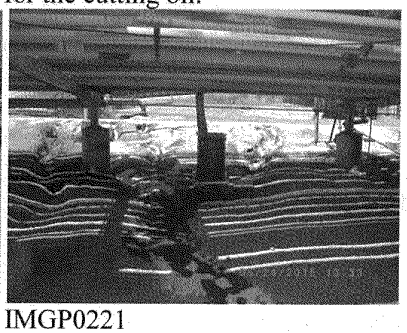
a. On 8/24/2015, inspectors noted a stream of black, oily liquid draining into an unlined surface impoundment located north of TK-12 and abutting Flares 5A-6 and SA-4, as shown in the photos below. LARC personnel stated that the liquid was cutting oil used to flush a pipe.

b. Please describe how this material was managed by LARC. If the material was shipped off-site, please provide a copy of the shipping document(s) (i.e., manifest, bill of lading). If the material has not been shipped off-site, please describe how the material was managed by LARC.

c. Please provide a Safety Data Sheet for the cutting oil.



IMGP0218



IMGP0221

6. Coker & Oil Recovery Unit

a. Please provide narrative description and a detailed schematic flow diagram of the oil recovery

unit processes and the wastewater system. EPA requested this information during the inspection and LARC's 10/2/2015 response references the wastewater permits, which do not adequately detail the processes.

b. Please provide a list of all oil-bearing hazardous secondary materials that are inserted into the oil recovery unit and/or the coker.

c. Please describe how LARC keeps records of the oil-bearing hazardous secondary materials that are inserted into the oil recovery unit and/or the coker.

d. If available, please provide copies of vacuum truck logs for all shipments of oil-bearing hazardous secondary materials from the LARW facility to LARC from 1/1/2012 to 8/25/2015.

e. Please describe the frequency in which LARC analyzes its coke product to ensure the coke is non-hazardous for benzene. Please include a copy of the most recent analysis conducted prior to the 8/24/2015 compliance evaluation inspection.

7. Temporary Heat Exchange Bundle Cleaning Pads

a. Please provide a list of all operations that occur at the temporary heat exchange bundle cleaning pad (pad) located at the HWAA. Please provide a list of the different types of equipment cleaned and materials / wastes placed on this pad. Please include the associated RCRA hazardous waste codes for each waste stream generated during a cleaning operation, if applicable.

b. Please describe all methods used to transport liquids and solids from this pad to the Oil Recovery Unit, HWAA waste management area and/or the coker. Describe the method (e.g., hard-piped, vacuum truck) of transferring liquids/solids to other facility operations.

c. Provide a copy of any written procedures LARC has developed that describes protocols for emptying wastes at this pad. If there are any written training related documents prepared by LARC for this task, provide a copy of the training materials.

d. Provide the date prior to EPA's 8/24/2015 compliance evaluation inspection that this pad was used to clean a heat exchange bundle.

e. If LARC maintains maintenance records for cleaning this pad, please provide copies of the records from 1/1/2012 – 8/28/2015.

8. Main Heat Exchange Bundle Cleaning Pad

a. Please list all operations that occur at the heat exchange bundle cleaning pad located immediately south of SB-4. Please provide a list of the different types of equipment cleaned and materials / wastes placed at this pad. Please include the associated RCRA hazardous waste codes for each, if applicable.

b. Please describe all methods used to transport liquids and solids from this pad to the Oil Recovery Unit, HWAA and/or the coker. Describe the method (e.g., hard-piped, vacuum truck) of transferring liquids/solids from the pad to other facility operations.

c. Please provide a copy of any written procedures LARC has developed that describes protocols for emptying wastes at this pad. If there are any written training related documents prepared by LARC for this task, provide a copy of the training materials.

d. Provide the date prior to EPA's 8/24/2015 compliance evaluation inspection that this pad was used to clean a heat exchange bundle.

e. If LARC maintains maintenance records for cleaning this pad, please provide copies of the records from 1/1/2012 – 8/28/2015.

9. Additional Information Requested

a. On 8/24/2015, inspectors noted black, petroleum-like staining on the banks and surfaces of the unlined surface impoundment located north of TK-12 and abutting Flares 5A-6 and SA-4. Please describe all known processes and sources which would discharge hydrocarbons into this surface impoundment.

b. Please state whether or not LARC has analyzed any of those discharges into this surface impoundment for benzene. If such monitoring has occurred, please provide copies of the associated reports or records developed from 1/1/2012 – 8/28/2015.

c. Please provide any waste determination information and/or analysis, if available, for the petroleum material remaining in the surface impoundment.

10. Please provide a copy of the Exception Report for Manifest # 013004309 JJK, dated 11/14/2014. LARC's 10/16/2015 response to EPA did not include a copy of the Exception Report.

11. LARC's Post Closure Plan for the permitted and closed Process Water Pond states the following:

> "Bulk Operations personnel work in the vicinity of the PWP on a daily basis. Should any cracks form in the asphalt cover, or should precipitation runoff not occur appropriately, Bulk Operations will inform the Environmental Services department through the existing, refinery-wide incident reporting procedures."

Please provide any copies of Operators Logs or other documentation which demonstrates that inspections of the closed Process Water Pond have occurred within the last 5 years. If such inspections have not occurred, please confirm.

12. Please provide copies of the inspection records for the LARC hazardous waste accumulation areas from January 2012 to August 2015.

13. Please provide copies of manifests for all shipments of F-listed and K-listed hazardous wastes sent from LARC to a permitted treatment, storage and disposal facility from 1/1/2012 to 8/24/2015.

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ATTACHMENT II
INSTRUCTIONS

In responding to this Request for Information, apply the following instructions and definitions:

1. Answer Every Question Completely. A separate response must be made to each of the questions set forth in this Information Request. For each question contained in this letter, if information responsive to this Information Request is not in your possession, custody, or control, please identify the person(s) from whom such information may be obtained.

2. Number Each Answer. When answering the questions in Attachment I, please precede each answer with the corresponding number of the question and subpart to which it responds.

3. Number Each Document. For each document produced in response to this Information Request, indicate on the document, or in some other reasonable manner, the number of the question to which it corresponds.

4. Provide the Best Information Available. Provide responses to the best of Respondent's ability, even if the information sought was never put down in writing or if the written documents are no longer available. You should seek out responsive information from current and former employees/agents, if necessary. If you are unable to answer a request in a detailed and complete manner or if you are unable to provide any of the information or documents requested, indicate the reason for your inability to do so. If you have reason to believe that there is an individual who may be able to provide more detail or documentation in response to any request, state that person's name and last known address and phone number and the reasons for your belief.

   If anything is deleted from a document produced in response to this Request for Information, state the reason for and the subject matter of the deletion. If a document/information is requested but is not available, state the reason for its unavailability. In addition, identify any such document by author, date, subject matter, number of pages, and all recipients and their addresses.

5. Identify Sources of Answer. For each question, identify all the persons and documents that you relied on in producing your answer.

6. Continuing Obligation to Provide/Correct Information. If additional information or documents responsive to this Request become known or available to you after you respond to this Request, EPA hereby requests that you supplement your response to EPA.

7. Scope of Request. The scope of this request includes all information and documents independently developed or obtained by research on the part of your company, its attorneys, consultants or any of their agents, consultants or employees.

8. Have an Authorized Person Sign the Response and Certification (Attachment III). The signatory must be an officer or agent who is authorized to respond on behalf of the company or facility.

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9. **Confidential Information.** The information requested herein must be provided even though you may contend that it includes confidential information or trade secrets. You may assert a confidentiality claim covering part or all of the information requested, pursuant to Section 3007(b) of RCRA, 42 U.S.C. § 6927(b), and 40 C.F. R. § 2.203(b).

If you make a claim of confidentiality for any of the information you submit to EPA, you must prove that claim. For each document or response you claim confidential, you must separately address the following points:

i. clearly identify the portions of the information alleged to be entitled to confidential treatment;
ii. ii.. the period of time for which confidential treatment is desired (e.g., until a certain date, until the occurrence of a specific event, or permanently);
iii. measures taken by you to guard against the undesired disclosure of the information to others;
iv. the extent to which the information has been disclosed to others, and the precautions taken in connection therewith;
v. pertinent confidentiality determinations, if any, by EPA or other federal agencies, and a copy of any such determinations or reference to them, if available; and
vi. whether you assert that disclosure of the information would likely result in substantial harmful effects on your business' competitive position, and if so, what those harmful effects would be, why they should be viewed as substantial, and an explanation of the causal relationship between disclosure and such harmful effects.

To make a confidentiality claim, please stamp, or type, confidential on all confidential responses and any related confidential documents. Confidential portions of otherwise nonconfidential documents should be clearly identified. You should indicate the date, if any, after which the information need no longer be treated as confidential. Please submit your response so that all nonconfidential information, including any redacted versions of documents are in one envelope and all materials for which you desire confidential treatment are in another envelope that is clearly marked confidential.

All confidentiality claims are subject to EPA verification. It is important that you satisfactorily show that you have taken reasonable measures to protect the confidentiality of the information and that you intend to continue to do so, and that it is not and has not been obtainable by legitimate means without your consent. If no such claim accompanies the information when it is received by EPA, then it may be made available to the public by EPA without further notice to you.

If the EPA determines that the information so designated meets the criteria set forth in 40 C.F.R. § 2.208, the information will be disclosed only to the extent, and by means of the procedures specified in 40 C.F.R. Part 2, Subpart B..

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ATTACHMENT III
CERTIFICATION OF ANSWERS TO RESPONSES TO REQUEST FOR INFORMATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document (response to EPA Request for Information) and all documents submitted herewith, that the submitted information is true, accurate and complete, and that all documents submitted herewith are complete and authentic, unless otherwise indicated. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

_____

NAME (print or type)

_____

TITLE (print or type)

_____

SIGNATURE

_____

DATE

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To: Lynch, Philip@DTSC[Philip.Lynch@dtsc.ca.gov]; Peebler, Diana@DTSC[Diana.Peebler@dtsc.ca.gov]; Schofield, John[Schofield.John@epa.gov]; Yang, Teng@DTSC[Teng.Yang@dtsc.ca.gov]
From: Soria, Maria@DTSC
Sent: Thur 2/18/2016 6:26:11 AM
Subject: FW: Hydrogen Fluoride Substitutions
Hydrogen Fluoride Substitutions
ATT00001.htm

Do you have any information to impart?

John, do you have a contact knowledgeable on this issue? Just in case we need to reach out for an educational opportunity.

From: Kihara, Keith@DTSC
Sent: Wednesday, February 17, 2016 6:37 PM
To: Soria, Maria@DTSC
Cc: Brausch, Rick@DTSC; Rothschild, Elise@DTSC
Subject: Fwd: Hydrogen Fluoride Substitutions

Do you have someone who's versed enough on this topic to respond to Rick's question?

Sent from my iPhone

Begin forwarded message:

From: "Brausch, Rick@DTSC" <Rick.Brausch@dtsc.ca.gov>
Date: February 17, 2016 at 6:02:06 PM PST
To: "Kihara, Keith@DTSC" <Keith.Kihara@dtsc.ca.gov>
Cc: "Rothschild, Elise@DTSC" <elise.rothschild@dtsc.ca.gov>
Subject: FW: Hydrogen Fluoride Substitutions

Refineries' use (or not) of HF or other forms of Hydrogen Fluoride for fuels formulation doesn't impact our hazardous waste management world (except when they generate them as waste, of course), does it? By my read a bill that phases out the use of HF is not something that impacts HWMP directly. Do you agree?

To: Palmer, Karl@DTSC[Karl.Palmer@dtsc.ca.gov]; Williams, Meredith@DTSC[Meredith.Williams@dtsc.ca.gov]; Brausch, Rick@DTSC[Rick.Brausch@dtsc.ca.gov]; LaBelle, Bruce@DTSC[Bruce.LaBelle@dtsc.ca.gov]
Cc: Tooker, Joshua@DTSC[Joshua.Tooker@dtsc.ca.gov]; Mincks, Erin@DTSC[Erin.Mincks@dtsc.ca.gov]; Pham, Annie@DTSC[Annie.Pham@dtsc.ca.gov]
From: Chapin, Brandon@DTSC
Sent: Wed 2/17/2016 11:12:26 PM
Subject: Hydrogen Fluoride Substitutions
20150AB1759_99.pdf
AB 1759 Fact Sheet.pdf

Hey everyone-

Josh got a heads up from the ARB on this bill and they wanted to know our quick thoughts on it. It requires oil refineries that use modified Hydrogen Fluoride to manufacture high octane fuel to replace the Hydro Fluoride with a "less hazardous chemical".

It seems like it has a foot in each of your wheelhouses, any thoughts? Bill and fact sheet attached.

Thanks!

Brandon Chapin

Legislative Analyst

Office of Legislation, Department of Toxic Substances Control

(916) 324-3149

Brandon.chapin@dtsc.ca.gov

ASSEMBLY BILL No. 1759

Introduced by Assembly Member Bonta

February 2, 2016

An act to add Section 39668.5 to, and to add Article 11.3 (commencing with Section 25240) to Chapter 6.5 of Division 20 of, the Health and Safety Code, relating to hydrogen fluoride, and declaring the urgency thereof, to take effect immediately.

legislative counsel's digest

AB 1759, as introduced, Bonta. Hydrogen fluoride: notice of use: substitution.

(1) Existing law requires the State Air Resources Board to adopt airborne toxic control measures to reduce emissions of toxic air contaminants from nonvehicular sources. Existing law prescribes civil penalties for violations of specified air pollution control laws, rules, regulations, permits, or orders of the State Air Resources Board or of an air pollution control district or air quality management district.

This bill would require an owner or operator of an oil refinery that uses hydrogen fluoride, hydrofluoric acid, or modified hydrofluoric acid in its operations to send out biannual notices to each business, school, child care facility, library, church, community facility, senior facility, and residence within a 3.5-mile radius of the refinery, as specified. The bill would require the cost of the notice to be paid by the owner or operator of the refinery. The bill would require the owner or operator to file a copy of the notice and distribution list with the State Air Resources Board. An owner or operator who violates these provisions would be subject to those civil penalties.

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(2) Existing law generally regulates the management of hazardous waste. A violation of the hazardous waste control laws is a crime.

This bill would require a business that, at any time, handles, maintains, or stores more than 250 gallons of hydrogen fluorideor h ydrofluoric acid to, if possible, convert to a known, significantlyless hazardous substitute by January 1, 2017. If that conversion is not possible and the business is located within 2 miles of a residential dwelling, the bill would require the business to cease handling, maintaining, or storing hydrogen fluorideand h ydrofluoricacid by January 1, 2017. Because a violation of these requirements would be a crime, the bill would impose a state-mandated local program.

(3) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

(4) This bill would declare that it is to take effect immediately as an urgency statute.

Vote: ⅔. Appropriation: no. Fiscal committee: yes. State-mandated local program: yes.

The people of the State of California do enact as follows:

1 SECTION 1. The Legislature findsand declares all of the
2 following:
3 (a) Modifiedh ydrofluoricacid, a solution of h ydrogen fluoride
4 and water, is used by two refineriesin California to manuf acture
5 high octane fuel.
6 (b) According to the United States Chemical Safety Board,
7 "Hydrofluoric acid is one of the most hazardous and deadly
8 chemicals used in petroleum refining."
9 (c) In February 2015, an explosion at the Exxon Mobil Torrance
10 refineryblank eted nearby neighborhoods with catalyst dust and
11 felt like a 1.7 magnitude earthquake. The explosion nearly missed
12 the Torrance refinery's storage of modified hydrofluoric acid.
13 (d) Investigations have shown that since 1979 there have been
14 more than 80 incidents at the Torrance refinery in volving
15 hydrofluoric acid.
16 (e) According to the federal Centers for Disease Control and
17 Prevention, "Hydrogen fluorideg as, even at low levels, can irritate

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the eyes, nose, and respiratory tract. Breathing in hydrogen fluoride at high levels or in combination with skin contact can cause death from an irregular heartbeat or from fluid buildup in the lungs."

(f) People who survive after being severely injured by breathing in hydrogen fluoride may suf fer lingering chronic lung disease or prolonged or permanent visual defects, blindness, or the total destruction of the eye.

(g) Residents in southern California have tried to ban the use of hydrofluoric acid at refineries for more than 25 years.

(h) Previous attempts to ban hydrofluoric acid at refineries in California have ended in litigation. Notably, in 1991, Ultramar, the then-operator of the Wilmington refinery sued the South Coast Air Quality Management District after the district adopted a rule phasing out the use of hydrofluoric acid.

(i) Today, 616,000 residents in California live within 3.5 miles of refineries that combined store more than 60,000 lbs of modified hydrofluoric acid.

(j) Article I of the California Constitution declares, "All people are by nature free and independent and have inalienable rights. Among these are enjoying and defending life and liberty, acquiring, possessing, and protecting property, and pursuing and obtaining safety, happiness, and privacy."

(k) Even in its modified form, h ydrofluoric acid could kill more than 500,000 Californians at any moment, causing a threat to property and safety.

SEC. 2. Article 11.3 (commencing with Section 25240) is added to Chapter 6.5 of Division 20 of the Health and Safety Code, to read:

Article 11.3. Hydrogen Fluoride

25240. The Legislature finds and declares all of the follo wing:

(a) Hydrogen fluoride, a highly toxic and highly corrosi ve mineral acid used in the manufacture of unleaded gasoline and refrigerants, is a harmful and potentially deadly toxic gas.

(b) If released, hydrogen fluoride creates a deadly g as cloud that is toxic to the respiratory system. Inhalation of hydrogen fluoride g as can result in irritation, inflammation, bronchiolar ulceration, pulmonary hemorrhage and edema, and death.

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(c) Hydrogen fluoride and hydrofluoric acid pose significantly greater risks than sulfuric acid, an alternative chemical that can be substituted in the manufacture of unleaded gasoline.

(d) An uncontrolled release of hydrogen fluoride would endanger human life and health over an area six times as large as a comparable release of sulfuric acid. A hydrogen fluoride spill that was 90 percent controlled would endanger human life outside of the spill site, while no similar threat would exist from a spill of sulfuric acid. Tests have shown that a worst case spill of liquid hydrogen fluoride or hydrofluoric acid could produce a cloud that could be lethal for five miles downwind. Under normal spill conditions, sulfuric acid does not vaporize to form a dangerous cloud.

(e) Unforeseeable and unpreventable accidental releases of hydrogen fluoride could occur in several instances, including earthquake, mechanical or structural defects in equipment, human error, sabotage, and, in locations with considerable air traffic, aircraft disasters.

(f) The storage, transport, and use of hydrogen fluoride introduces the potential for serious public health risks. Chemical alternatives are available and should be used as an alternative to hydrogen fluoride to reduce the possibility of public endangerment.

25240.2. (a) A business that, at any time, handles, maintains, or stores more than 250 gallons of hydrogen fluoride, including hydrofluoric acid, shall, if possible, convert to a known, significantly less hazardous substitute by January 1, 2017.

(b) If it is not possible for a business to convert to a known, significantly less hazardous substitute, as specified in subdivision (a), and the business is located within two miles of a residential dwelling, the business shall cease handling, maintaining, or storing hydrogen fluoride and hydrofluoric acid by January 1, 2017.

SEC. 3. Section 39668.5 is added to the Health and Safety Code, to read:

39668.5. (a) An owner or operator of an oil refinery that uses hydrogen fluoride, hydrofluoric acid, or modified hydrofluoric acid in its operations shall send out biannual notices to each business, school, child care facility, library, church, community facility, senior facility, and residence within a three-and-a-half-mile radius of the refinery.

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(1) (A) Notice recipients located within a two-mile radius from the refinery shall be warned they may live in a lethal zone.

(B) "Lethal zone" means the area identified in a worst case scenario to expose individuals to ERPG-3 level toxins.

(C) "ERPG-3" is the maximum airborne concentration below which nearly all individuals could be exposed for up to one hour without experiencing or developing life-threatening health effects.

(2) (A) Notice recipients located outside a two-mile radius but within a three-and-a-half-mile radius from the refinery shall be warned they may live in a long-term illness zone.

(B) "Long-term illness zone" means the area identified in a worst case scenario to expose individuals to ERPG-2 level toxins.

(C) "ERPG-2" is the maximum airborne concentration below which nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action.

(3) Notice recipients located within a three-and-a-half-mile radius from the refinery shall be provided the Internet Web site address of the United States Environmental Protection Agency's Vulnerable Zone Indicator System.

(b) Costs for the notice shall be paid by the owner or operator of the refinery.

(c) The owner or operator shall file a copy of the notice and distribution list with the state board.

SEC. 4. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the only costs that may be incurred by a local agency or school district will be incurred because this act creates a new crime or infraction, eliminates a crime or infraction, or changes the penalty for a crime or infraction, within the meaning of Section 17556 of the Government Code, or changes the definition of a crime within the meaning of Section 6 of Article XIII B of the California Constitution.

SEC. 5. This act is an urgency statute necessary for the immediate preservation of the public peace, health, or safety within the meaning of Article IV of the Constitution and shall go into immediate effect. The facts constituting the necessity are:

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1 In order to address the high risk to the public of exposure to
2 hydrogen fluoride,including h ydrofluoricacid, it is necessary this
3 bill take effect immediately.

O

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AB 1759 (Bonta) – Hydrofluoric Acid

(As Introduced)

EXISTING LAW

Existing law regulates the management of toxic substances and requires the State Air Resources board to adopt airborne toxic control measures and prescribes civil penalties for violations of the air pollution laws.

BACKGROUND

Hydrogen fluoride is used in the petroleum refining process to create high octane fuel. Hydrogen fluoride is extremely toxic and potentially can form a dense, toxic cloud that travels at concentrations that are lethal to humans or could cause irreversible, long term health effects.

Two of California's 14 refineries use modified hydrofluoric acid in the refining process – Wilmington and Torrance. 616,000 reside in areas identified as potentially lethal if an accident involving were to occur.

How likely is an accident involving hydrofluoric acid to occur? Since 2010, the Torrance Refinery has had 22 incidents involving Hydrofluoric Acid.[i]

The most alarming accident occurred on February 18, 2015. An explosion took place at the Torrance Refinery's electrostatic precipitator, just 100 feet from the refineries alkylation unit that stores hydrofluoric acid. The explosion felt like a 1.7 magnitude earthquake, and spread ash and dust over surrounding neighborhoods. Safety investigators called it a serious near miss worst case scenario.[ii]

This was not the only accident at refineries involving hydrofluoric acid.

In 1987, in response to a series of accidents in Torrance and Texas City, Texas, the South Coast Air Quality Management District (SCAQMD) began working on phasing out hydrofluoric acid at refineries in Southern California. SCAQMD Rule 1410 was adopted, but suspended by the Courts for failing to properly follow CEQA's public notice requirement.

In 1990, the California State Assembly held an interim study of hydrofluoric acid was conducted in response to AB 2857 (1990) by Assemblymember Curtis Tucker.

Also in 1990, the City of Torrance filed a public nuisance suit against the Torrance refinery. Ultimately the case was settled with the refinery convincing the city and voters that modified hydrofluoric acid was just as safe, but less expensive, then sulfuric acid.

Studies now show that modified hydrofluoric acid is still as toxic as concentrated hydrofluoric acid. The chemical is so bad, that in 2008, Kern County forbade a local refinery from using modified hydrofluoric acid.[iii]

Currently 660,000 residents in Southern California are at risk if being exposed to lethal or long term health effects if hydrofluoric acid were to become airborne in a worst-case scenario.

BILL SUMMARY

AB 1759 phases out over one year the use of modified and concentrated hydrofluoric acid at refineries in California. In the interim, based on the existing worst case scenario, refineries must notice residents and businesses located within an emergency response planning guideline (ERPG) level 3 that they

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live in a lethal zone. Residences and businesses located in an ERPG level two zone will be noticed they are within a long -term illness zone.

SUPPORT

- None on file.

STATUS

FOR MORE INFORMATION

Contact:

Vanessa Guerrero
Vanessa.Guerrero@asm.ca.gov
Phone: (916) 319-2018
Fax: (916) 319-2118

[i] http://www.dailybreeze.com/article/LI/20151017/NEWS/151019502
[ii] http://www.csb.gov/us-chemical-safety-board-finds-multiple-safety-deficiencies-led-to-february-2015-explosion-and-serious-near-miss-at-the-exxon-mobil-refinery-in-torrance-california/
[iii] http://kern.granicus.com/DocumentViewer.php?file=4318d5dc03d56ec145baade141e0d00f.pdf&view=1

To: Rollins, Christopher[Rollins.Christopher@epa.gov]
Cc: Schofield, John[Schofield.John@epa.gov]; michael.monson@shell.com[michael.monson@shell.com]
From: Natalie.Braden@shell.com
Sent: Fri 7/24/2015 3:19:34 PM
Subject: Extension Request for the Shell Martinez Refinery

Mr. Rollins,

We have received in this office on July 7, 2015 the United States Environmental Protection Agency, Region 9's letter seeking additional information following the March 23, 2015 through March 30, 2015 compliance evaluation inspection. I understand you are looking for a response within thirty (30) calendar days from the day we received the letter which, based on my calculation, would be August 6, 2015. We have reviewed the information request, and I am requesting an extension of 30 days from the original due date of August 6th, 2015 due to the high number of pre-scheduled summer vacations, an extended national wide Shell oil spill drill being hosted by the Martinez Refinery, and a 2nd EPA Request for Information received shortly before this one that requires the same resources as your request. Please let me know if this extension will be granted and thank you for considering my request.

Regards,

Natalie

Natalie Braden
Environmental Affairs Manager - Shell Martinez Refinery
Shell Martinez Refinery, 3485 Pacheco Blvd, Martinez CA 94553
Tel: +1 925-313-3705 **Email:** natalie.braden@shell.com

To: Schofield, John[Schofield.John@epa.gov]
Cc: Wood, Michael S.[Michael.S.Wood@tsocorp.com]; Lim, Sharon[Sharon.Y.Lim@tsocorp.com]; Simmons, Karla D.[Karla.D.Simmons@tsocorp.com]
From: Chetkowski, David M
Sent: Thur 10/13/2016 11:55:47 PM
Subject: Emailing: ITEM H.1 - PGI for Exchanger Pad.pdf
ITEM H.1 - PGI for Exchanger Pad.pdf

Hi John,

Attached is the PGI for the Tesoro Exchanger Pad. Please feel free to contact us if you have any questions regarding the attached.

Thanks,
David

David M. Chetkowski, P.E.
Senior Environmental Engineer
Tesoro Martinez Refinery | 150 Solano Way | Martinez CA 94553
p: (925) 335-3451| f: (925) 372-3179
email: David.M.Chetkowski@tsocorp.com

Simmons, Karla D.

From: Razo, Leonel
Sent: Wednesday, October 12, 2016 3:25 PM
To: Simmons, Karla D.
Cc: Razo, Carlos; Helle, Jim
Subject: RE: PGI for Exchanger Pad

Hey Karla

All Items have been addressed except lines listed below, I also included a estimated time to correct these items

- Item 4. **Paint chipping on Bay floor** – Has not been complete but it is currently being worked and is expected to be done by end of October
- Item 12. **Tripping Hazard in Bay 10** – curb will be painted upon completion of the Fire water line repairs in October
- Item 13. **Corrosion on Fire water Line** – Piping and valve in fire water valve box are being excavated to be replaced

We are expecting this work to be complete by end of October 2016

Thanks

Leonel Razo
Exchanger Shop Planner / Supervisor
Office 925-372-3111
Cell 707-580-8038

TESORO

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Golden Eagle Refinery
Planned General
Inspection Checklist
Process Unit

Date: Feb 2016 **Unit or Area:** Exchanger Shop

Inspection Team: Leonel Rayo, Jv foreman, Derric Mutulo

Instructions: Use the attached checklist as a reminder for items to look for during your inspection. List any deficiencies, their classification, and the steward responsible for resolving them in the table below. Forward this page to your department administrative assistant for entry in TRAQS, and a copy to Becky Olson in the Health & Safety Department.

- **Class 1** - A finding likely to cause permanent disability, loss of life, and/or extensive property damage
- **Class 2** - A finding likely to cause serious injury or illness, and/or serious property damage.
- **Class 3** - A finding likely to cause minor, injury or illness and/or property damage.

Findings:

CLASS	DESCRIPTION	STEWARD
3	Damaged grating in front of bays - clean sorters	Jv
3	incorrect fitting on hydro test pump - not high pressure	Leonel
3	unmarked Jug in Bay 1 -	Leonel
3	Paint / coating chipping on bay floors	Derric
3	Damaged Drainage in wood Pile W. side of Bay 6	Jv
3	Damaged transportation skids	Jv
3	Broken Pallets & tripping hazards on East Laydown	Jv
3	Broken Soda ash Bags in front of Bay 4	Derric
3	garbage can overflowing - Bigger can ?	Jv
3	Oil Drops in Parking lot - Leaking Vehicle ?	Leonel
3	air Regulator leaking / Broken	Leonel
3	tripping hazard @ Bay 10 . curb should be yellow	Jv
3	corrosion on firewater system in front of Bay 6 / underground	Leonel

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To: Peter Carroll (peter.j.carroll@tsocorp.com)[peter.j.carroll@tsocorp.com]
Cc: Magnan, Eric[Magnan.Eric@epa.gov]; Schofield, John[Schofield.John@epa.gov]; Tang, Lila@Waterboards[Lila.Tang@waterboards.ca.gov]
From: Schlipf, Robert@Waterboards
Sent: Tue 5/24/2016 10:06:34 PM
Subject: Tesoro - Inspection Report
Tesoro - inspection report 05-16-signed.pdf

Hi Peter,

This includes the results of the inspection that the Water Board and U.S. EPA conducted on April 20, 2016. If you have any questions concerning this communication, please let me know.

Thanks, Robert

Robert Schlipf, P.E.

Regional Water Quality Control Board

1515 Clay Street, Suite 1400

Oakland, CA 94612

(510) 622-2478

Robert.Schlipf@waterboards.ca.gov

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

San Francisco Bay Regional Water Quality Control Board

(Sent via Email: Peter.J.Carroll@tsocorp.com)

May 24, 2016
File CW-228968

Tesoro Marketing & Refining Company
Tesoro Martinez Refinery
ATTN: Peter Carroll
150 Solano Way
Martinez, CA 94553

Subject: Report of Inspection, Tesoro Refining & Marketing Company, Tesoro Martinez Refinery, Order No. R2-2015-0033, NPDES Permit No. CA0004961, Contra Costa County

Dear Mr. Carroll:

On April 20, 2016, Regional Water Board staff and U.S. EPA staff conducted a compliance evaluation inspection at the Tesoro facility. The details of the inspection are included in the attached report. This letter requires that by no later than August 15, 2016, Tesoro document that it has replaced the hypochlorite delivery system for compliance point EFF-001-D2.

If you have any questions concerning this communication, please contact me at (510) 622-2478 or by email Robert.Schlipf@waterboards.ca.gov.

Sincerely,

Robert Schlipf
Water Resource Control Engineer

Enclosure: Inspection Report

Copy to (via email):
Eric Magnan, USEPA, Magnan.Eric@epa.gov
John Schofield, USEPA, schofield.john@epa.gov

CIWQS Inspection No.: 24370641

CALIFORNIA Water Boards

EDMUND G. BROWN JR. GOVERNOR

MATTHEW RODRIQUEZ SECRETARY FOR ENVIRONMENTAL PROTECTION

San Francisco Bay Regional Water Quality Control Board

*

NPDES Compliance Evaluation Inspection (CEI) Report

Facility Name and Location			Entry Date	Entry Time
Tesoro Martinez Refinery 150 Solano Way Martinez, CA 94553			04/20/2016	8:30 a.m.
			Permit Effective Date	Permit Expiration Date
			9/1/2015	8/31/2020
Mailing Address	Same as facility location?	Yes ☒ No ☐	Notified?	Yes ☒ No ☐
			If no, rationale:	

CIWQS Inspection ID	24370641	Receiving Water Name	Suisun Bay, Carquinez Strait
NPDES Permit Number	CA0004961	County	Contra Costa
Order Number	R2-2015-0033	Plant Classification	Petroleum Refinery
Type of Discharge	Treated Wastewater & Stormwater	CIWQS Place ID	228968

Names and Titles of Onsite Representatives			
Name	Title	Phone	Email
Peter Carroll	Water Compliance Professional	(925) 335-3497	peter.j.carroll@tsocorp.com
Kevin Obad	Wastewater Systems, Laboratory Scientist	(925) 228-1220 ext 2325	kobad.contractor@tsocorp.com
Kitty Metcalfe	Logistics Area Supervisor	(925) 372-3001	kitty.l.metcalfe@tsocorp.com

Name and Title of Responsible Official	
Name Title Phone Email	Matthew Buell Environmental Manager (925) 370-3275 matthew.w.buell@tsocorp.com

Does responsible official match permit based contact information on file?	Yes ☒ No ☐
Does grade level comply with plant classification? Not applicable (n/a)	Yes ☐ No ☐
Inspector Information Presented Credentials?	Yes ☐ No ☐

Organization	Regional Water Quality Control Board	U.S. EPA
Name	Robert Schlipf	John Schofield
Title	Water Resource Control Engineer	Environmental Scientist
Phone	(510) 622-2478	(415) 972-3386
Email	Robert.Schlipf@waterboards.ca.gov	schofield.john@epa.gov

I. PRE-INSPECTION PERMIT REVIEW

	Yes	No	N/A
Is the facility as described in the permit?	☒	☐	☐
Has the Water Board been notified of any process/production modifications?	☐	☒	☐
Was a permit reissuance application submitted to the Water Board on time?	☐	☐	☒
Was the permit modified prior to any facility or discharge changes?	☐	☒	☐

Discharge Points
001—Suisun Bay 003, 005, 006—Walnut Creek 004— Hastings Slough

Facility Class	Petroleum Refinery		
Chief Plant Operator		Grade	N/A
Current ADWF Permitted ADWF Current BOD load Permitted BOD load Current TSS load Permitted TSS load	4.4 million gallons per day		

	Yes	No	N/A
Are current loads less than 80% of design loads?	☐	☐	☒
If no, does annual report describe timing of next plant expansion?	☐	☐	☒

Permitting concerns that might affect inspection process

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II. PRE-INSPECTION MONITORING REPORT REVIEW

Summary of effluent limit violations since last inspection

Constituent	No. of Violations	Corrective Action Reported	No action reported
Total Coliform Organisms	1	Historically, Tesoro has had issues with its pump not providing a consistent amount of hypochlorite for disinfection at EFF-001-D2. To address this issue, Tesoro will replace its delivery system by August 15, 2016. Tesoro is in the process of making these upgrades.	☐

Summary of receiving water violations since last inspection

Parameter	No. of Violations	No action reported
Dissolved oxygen		☒
Turbidity		☒
pH		☒
Temperature		☒
Aesthetic issues (e.g., excessive algae, bottom deposits, etc.)		☒

Corrective Actions Reported

Monitoring and Reporting Program violations since last inspection

	Yes	No	N/A
Responsible person signs and certifies the DMRs and/or SMRs	☒	☐	☐
Discharger monitors at frequency required by permit	☒	☐	☐
All data collected are summarized	☒	☐	☐
Coliform concentrations are calculated as required by permit (median, mean, etc.)	☒	☐	☐
Detection limits are reported	☒	☐	☐
"Less than" and estimated values are properly carried through the calculations	☐	☐	☒
Flow measurement period used for load calculations brackets sampling period	☒	☐	☐
Loading rates are properly calculated	☒	☐	☐
Data reported in time frame and frequency required by permit	☒	☐	☐
Have any spills/bypasses been reported to the Regional Board?	☐	☐	☒

Dates and times of spills/bypasses

Tesoro violated its total coliform effluent limitation in December 2015; however, the transmittal letter, dated January 28, 2016, did not include the cause or corrective actions that Tesoro plans to implement in order to prevent future violations as required by Order No. R2-2015-0033, Attachment G, Regional Standard Provisions and Monitoring and Reporting Requirements, V.C.1. In discussions with Tesoro, we understand that it has identified the need to replace the hypochlorite delivery system as the cause and that it plans to do so by August 15, 2016.

We also discussed the need for Tesoro to update its Stormwater Pollution Prevention Plan (SWPPP) to include best management practices for the Avon Wharf consistent with those included in the California State Lands Commission Final Environmental Impact Report. This is required by Order No. R2-2015-0033, Provision VI.C.4.c. In discussions with Tesoro, we understand that Tesoro plans to implement these best management practices once it completes construction in 2017. On May 6, 2016, Tesoro submitted a revised SWPPP that includes best management practices for the Avon Wharf.

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III. RECORDS AND REPORTS REVIEW

	Required onsite?		Available onsite?				
	Yes	No	Yes	No	N/A	Not Inspected	Comments
Current NPDES permit	☒	☐	☒	☐	☐	☒	
Permit modifications	☐	☐	☐	☐	☐	☒	
Permit amendments	☐	☐	☐	☐	☐	☒	
Compliance orders	☐	☐	☐	☐	☒	☐	
Monitoring and reporting program	☐	☐	☐	☐	☐	☒	
Standard provisions	☐	☐	☐	☐	☐	☒	
Industrial pretreatment program	☐	☐	☐	☐	☐	☒	
Maintenance records and log book	☐	☐	☐	☐	☐	☒	
Plant operation and maintenance manual	☐	☐	☐	☐	☐	☒	
Equipment manuals	☐	☐	☐	☐	☐	☒	
Plant engineering drawings	☐	☐	☐	☐	☐	☒	
Collection system drawings	☐	☐	☐	☐	☐	☒	
Maintenance records	☒	☐	☒	☐	☐	☐	
Spill and bypass records	☐	☐	☐	☐	☐	☒	
Biosolids disposal plan	☐	☐	☐	☐	☐	☒	
Biosolid farm map and disposal agreements	☐	☐	☐	☐	☐	☒	
Soil nutrient analyses	☐	☐	☐	☐	☐	☒	
Biosolids loading rate records	☐	☐	☐	☐	☐	☒	
Pollution prevention plan	☐	☐	☐	☐	☐	☒	
Pathogen/vector reduction records	☐	☐	☐	☐	☐	☒	
Spill prevention control and countermeasure (SPCC) plan	☐	☐	☐	☐	☐	☒	
Operational logs	☒	☐	☒	☐	☐	☐	
Auxiliary power check logs	☐	☐	☐	☐	☐	☒	

Notes

Tesoro enters operation log records electronically. These operation logs are compiled into a centralized system called "C-notes". This allows managers to obtain real-time data on any issues that may be developing at any of the treatment units. During the inspection, Tesoro also provided an unusual discharge form that operators must complete to get approval for unusual discharges to its sewer system. As these forms are not centralized and accessible, Tesoro should consider integrating them with the C-notes system.

IV. OPERATIONS AND MAINTENANCE REVIEW

		Yes	No	N/A	Not Inspected
Were all records and reports required by permit organized and available?		☐	☐	☒	☐
Was influent flow meter calibration available onsite?		☐	☐	☒	☐
Date of last calibration					
Calibration performed by…					
Was effluent flow meter calibration available onsite?		☒	☐	☐	☐
Date of last calibration	4/5/2016				
Calibration performed by…	Ken Boddie				
Were flow measurement records maintained for past 3 years?		☐	☐	☐	☒
Is a maintenance management program in place?		☒	☐	☐	☐
Number of open work orders	36				
Oldest date of open work order	December 31, 2011				
Are entries to the operational logs made in pen?		☐	☐	☒	☐
Were all operational log entry modifications made with suitable cause?		☐	☐	☐	☒
Were reported spills and bypasses recorded in operational logs?		☐	☐	☐	☒
Is the facility staffing requirement described in O&M manual?		☐	☐	☐	☒
Is the facility staffed in accordance with O&M manual?		☐	☐	☐	☒
Were there auxiliary power check logs?		☐	☐	☐	☒
Air Board permit number					

Notes

To manage its work items, Tesoro uses a risk prioritization ranking scheme. Most or the 36 overdue work orders were due for completion in 2015 and 2016. There were three overdue work orders that should have been completed prior to 2015. Tesoro explained that these old overdue work orders related to issues with tanks that it now plans to completely replace in 2017 instead of repair, and a steam line that is no longer in use. Additionally, Tesoro explained that it manages high priority work orders (danger to health and safety and/or the environment) on a daily basis. At the time of the inspection, Tesoro did not have any high priority work orders that were overdue.

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V. MONITORING RECORDS REVIEW

	Yes	No	N/A	Not Inspected
Are monitoring records and laboratory reports retained for 5 years?	☐	☐	☐	☒
Are data reported on DMRs/SMRs consistent with analytical results?	☒	☐	☐	☐
Is the onsite laboratory ELAP certified?	☒	☐	☐	☐

Certification Number	2491
Expiration Date	11/30/2017

Parameters measured onsite	N/A ☐	Not Inspected ☒
1. pH 2. conductivity 3. acute toxicity		
Additional parameters used for internal monitoring and process control	☐	☐
1. filtered chemical oxygen demand 2. total chemical oxygen demand 3. oil and grease 4. ammonia 5. pH 6. total suspended solids 7. turbidity 8. volatile suspended solids 9. nitrate 10. alkalinity 11. phosphate 12. microtox 13. TPH-diesel 14. microcystins		
Constituents analyzed with hand-held equipment	☐	☒

	Most recent calibration date	Standard expiration date

Notes

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VI. MONITORING REPORT REVIEW

	Yes	No	N/A	Not Inspected
Are loading calculations prepared correctly?	☐	☐	☐	☒
Are contract laboratory records and chains of custody available?	☒	☐	☐	☐
Do sampling and analytical records include:				
a. Dates, times, and locations of sampling	☐	☐	☐	☒
b. Names of individuals performing sampling	☐	☐	☐	☒
c. Analytical methods	☐	☐	☐	☒
d. Results of analyses	☐	☐	☐	☒
e. Dates of analyses	☐	☐	☐	☒
f. Times of analyses, as necessary to verify holding times	☐	☐	☐	☒
g. Analysts names or initials	☐	☐	☐	☒
h. Instantaneous flow at grab sample locations, if required	☐	☐	☐	☒
MONITORING PROCEDURES				
Are adequate equipment and procedures used for onsite analyses?				
pH	☐	☐	☐	☒
Dissolved oxygen	☐	☐	☐	☒
Temperature	☐	☐	☐	☒
Turbidity	☐	☐	☐	☒
UV transmittance	☐	☐	☐	☒
Other	☐	☐	☒	☐
Is refrigeration satisfactory?	☒	☐	☐	☐
Are grab samples collected during representative discharge conditions?	☐	☐	☐	☒
Do monitoring locations appear to be appropriate?	☒	☐	☐	☐
Do composite sampling procedures comply with the permit?	☒	☐	☐	☐
Are automatic samplers properly cleaned and maintained?	☐	☐	☐	☒
Are samples adequately preserved?	☐	☐	☐	☒
Are sample containers appropriate for the samples collected?	☐	☐	☐	☒
Are samples collected using appropriate protocols?	☐	☐	☐	☒
Are coliform samples collected directly into sterile containers?	☐	☐	☐	☒
Does coliform sampling occur after the last introduction of wastes?	☐	☐	☐	☒
Is the number of discharge points as described in the permit?	☐	☐	☐	☒
Are the locations of the discharge outfalls as described in the permit?	☐	☐	☐	☒
Is the name of the receiving water as described in the permit?	☒	☐	☐	☐
Is site free of any evidence of spills or bypasses?	☐	☐	☐	☒
Do the sampling and monitoring appear representative of the discharge?	☒	☐	☐	☐
Are groundwater monitoring wells capped and locked?	☐	☐	☐	☒

Notes

To spot check quality assurance and quality control between laboratory reports and data provided in self-monitoring reports, I randomly selected February 2016 and cross-checked data from that self-monitoring report for oil and grease, selenium, ammonia, total suspended solids, cyanide, biochemical oxygen demand, and chemical oxygen demand. I did not note any discrepancies.

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VII. FINAL EFFLUENT AND RECEIVING WATER MONITORING

APPEARANCE OF FINAL EFFLUENT	Yes	No	Not Inspected
Condition during the inspection			
Clear (not cloudy)	☒	☐	☐
Colorless	☒	☐	☐
Free of sheen	☒	☐	☐
Free of scum	☒	☐	☐
Free of foam	☒	☐	☐
Other	☐	☐	
Notes			
The final effluent appeared clear; however, the discharge point via the Clean Canal included a number of booms, and some algal growth.			

APPEARANCE OF RECEIVING WATER	Yes	No	Upstream condition is similar	Not Inspected
Condition during the inspection				
Free of distinctly visible plume	☐	☐	☐	☒
Free of foam and sheen	☐	☐	☐	☒
Free of snails	☐	☐	☐	☒
Free of erosion at the discharge point	☐	☐	☐	☒
Free of bottom deposits	☐	☐	☐	☒
Free of filamentous algae growth	☐	☐	☐	☒
Free of microbial layers on aquatic plants	☐	☐	☐	☒
Other	☐	☐	☐	
Notes				

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VIII. SITE WALK INSPECTION

Weather and site conditions present during time of inspection

Treatment Process (described in permit)	Appeared Compliant	Not Present	Non-Operational	Lacking Maintenance	Not Inspected
1. API Separator	☐	☐	☐	☐	☒
2. Dissolved Nitrogen Flotation Units	☐	☐	☐	☐	☒
3. Surge Pond #1	☒	☐	☐	☐	☐
4. Surge Pond #2	☒	☐	☐	☐	☐
5. Bio-oxidation pond	☒	☐	☐	☐	☐
6. Clarifiers	☒	☐	☐	☐	☐
7. Sand Filters	☐	☐	☐	☐	☒
8. Granular Activated Carbon	☒	☐	☐	☐	☐
	☐	☐	☐	☐	☐

Notes

See facility narrative.

EMERGENCY OPERATION	Yes	No	N/A	Not Inspected
Is available back-up power appropriate for emergency conditions?	☐	☐	☐	☒
Are there alarms systems for power and equipment failure?	☐	☐	☐	☒
Are treatment control procedures established for emergencies?	☐	☐	☐	☒

Notes

CHEMICALS ONSITE	MSDS Available? Yes	MSDS Available? No	Secondary Containment? Yes	Secondary Containment? No	Not Inspected
	☐	☐	☐	☐	☒
	☐	☐	☐	☐	☒
	☐	☐	☐	☐	☒
	☐	☐	☐	☐	☒
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐

	Yes	No	N/A	
Is spill clean-up and containment equipment available?	☐	☐	☐	☒

Notes

IX. SITE WALK OPERATION AND MAINTENANCE INSPECTION

	Yes	No	N/A	Not Inspected
Maintenance program appears to be in place and being followed	☐	☐	☐	☒
Lift stations appear properly maintained and have back-up power	☐	☐	☐	☒
Odors are adequately controlled, including…	☒	☐	☐	☐
Ponds	☒	☐	☐	☐
Headworks	☒	☐	☐	☐
Sludge processing facilities	☐	☐	☒	☐
Storage appears to control leachate and runoff	☐	☐	☒	☐
Public access to storage is prevented	☐	☐	☒	☐
No safety concerns were observed that might interfere with proper O&M or monitoring	☐	☐	☒	☐
Flow devices appear to be property installed and maintained, and operating without interference	☐	☐	☐	☒

Notes

See facility narrative.

Stormwater handling description

See facility narrative.

Facility Narrative

On April 15, 2016, staff from the Regional Water Board and U.S. EPA inspected the Tesoro Martinez Refinery. Discharges from the facility are regulated by Order No. R2-2015-0033 (NPDES Permit No. CA0004961). The primary purpose was to inspect stormwater outfalls, the wastewater treatment plant, and evaluate operation and maintenance activities at the facility. While the inspection did not follow each treatment unit in order, the narrative below will describe treatment units in the order wastewater is treated by them.

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As an overview, the Tesoro Martinez Refinery processes about 144,000 barrels per day of crude oil that arrives via pipeline (e.g., San Joaquin Valley) or by ship (e.g., Alaskan crude). Wastewater from processing crude oil is treated by a wastewater treatment plant that consists of an oil/water separator (API Separator), four dissolved nitrogen flotation units, two surge ponds, one bio-oxidation pond, two clarifiers, anthracite/sand filters or sand filters, and finally granular activated carbon units. Treated wastewater may be routed to a coke pond for further polishing or directly to the Clean Canal prior to discharge to Suisun Bay. In 2008, Tesoro switched from a fluid coker to a delayed coker. Since this switch, Tesoro has stopped storing coke in its coke pond. As nearly all of the coke has been removed, this area functions more as an equalization basin for discharges to Suisun Bay.

Stormwater

We first inspected Tesoro's stormwater outfalls. To address high levels of total suspended solids (TSS), Tesoro installed underground settlement collection vaults at E-005-T2S-B and E-005-T4NW prior to the 2015-2016 wet season. We inspected the underground settlement collection vault at outfall T2S-B (photo 1). It is a concrete basin that includes two baffles made of HDPE to enhance settling. The height of the baffles went nearly to the top of the settling basin. Tesoro explained this was to allow for water to overflow in the case of high intensity storm events. While not visible during the inspection because of the water levels in the settlement collection vaults, Tesoro explained that these vaults contain floor mounted baffles that are about 3 feet high to allow stormwater to pass through during lower intensity rain events. After inspecting the settlement collection vault, we also viewed the outfall for T2S-B (photo 2).

We next inspected a similar treatment system at stormwater outfall T4NW. To improve stormwater quality entering outfall T4NW, Tesoro installed synthetic material as an erosion control measures (see photo 3). The underground settlement collection vault at T4NW (photo 4) was also made of concrete, included two baffles made of HDPE, and a sorbent mat that had a number of solids (photo 5). We also viewed the outfall for T4NW (photo 6). As for as ongoing maintenance, Tesoro indicates that moving forward it plans to: (a) remove the sorbent mats because these drainage areas have not been subject to hydrocarbon contamination, (b) remove water and evaluate sediment accumulation at the end of each rainy season, (c) remove built up sediment from settling vaults during the summer and possibly during the rainy season if sediment accumulation appears to be excessive, and (d) install a silt fence near the Brand Scaffold Yard to improve stormwater quality routed to T2S-B.

We next viewed stormwater ponding in the west retention basin, E-003 (photo 7). The water appeared clear and free of any sheen. Finally, we viewed stormwater that has ponded in the Cardox Pond, E-004 (photo 8), which also appeared clear and free of any sheen. At the Cardox Pond, we also noted some holes that appear to be caused by burrowing animals. Tesoro should ensure that it implements measures to maintain the structural integrity of the Cardox Pond from wildlife.

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Wastewater Treatment Plant

After inspecting stormwater treatment units, we viewed Tesoro's wastewater treatment process. We quickly viewed the API Separators and dissolved nitrogen flotation units. Next, we viewed Surge Ponds No. 1 & 2. To control odors in surge pond 1, Tesoro added a peroxide system in 2006. It will add peroxide to surge pond 1 if it notes dissolved oxygen levels are less than 0.5 mg/L. Tesoro continuously monitors dissolved oxygen in surge pond 1 from two locations that are about 10 feet apart. These data are transmitted by telemetry. The need for redundant dissolved oxygen metering is because the probes are often subject to bio-fouling.

After the surge ponds, Tesoro routes wastewater to the bio-oxidation pond for further treatment (photo 9). Mr. Carroll explained that the bio-oxidation pond had about 33 inches of outage and contained water about 3 feet deep. The residence time for the bio-oxidation pond is about 30 days. During the inspection, we did not note objectionable odors nor did we note algal growth or other possible nuisance conditions in the two surge ponds or the bio-oxidation pond

To assess the health of its biological treatment ponds (surge ponds 1 and 2, and the bio-oxidation pond), Tesoro also conducts microbiology monitoring twice per month and rates the health of microbes on a scale from 1 to 6 (1 = dead to 6 = optimal health). As an example, Tesoro provided the results from sampling on March 14, 2016. This showed that surge pond 1 had a microscopic health rating of 4.0. Tesoro states that it observed "turbid bulk water, weak floc particles, many filamentous bacteria, stalkless skirted ciliates, some algae, some protozoa and abundant euglena indicating acceptable young wastewater health." As for surge pond 2, it had a microscopic health rating of 4.5. Tesoro states that it observed "slightly turbid bulk water, weak floc, some algae, some nematodes, abundant euglena, stalkless skirted ciliates and ciliate eggs indicating slightly better than acceptable medium aged wastewater health." Finally, the bio-oxidation pond had a microscopic health rating of 5.0. Tesoro states that it observed "some algae, clear bulk water, ciliate eggs, stalked ciliates, crawling ciliates, free swimming ciliates, rotifer eggs, three types of rotifers, large floc, and abundant euglena indicating good mature wastewater health." Mr. Carroll indicated that tracking microscopic health provides Tesoro with extra comfort that biological treatment is operating effectively; however, it has not resulted in Tesoro implementing corrective actions. If there's an event that impacts microbes, Tesoro has become aware of it by visual observations (e.g., spill) and/or by measuring basic water quality parameters such as pH and dissolved oxygen. In the past, Tesoro has supplemented its microbes by taking waste sludge from the Shell refinery. To monitor recovery of microbes, Tesoro will measure the ratio of volatile suspended solids to total suspended solids (increasing ratio would indicate recovery).

After the bio-oxidation pond, we viewed a flow splitter where Tesoro adds ferric chloride and polymers prior to wastewater being routed to two clarifiers that operate in parallel. At the center of the clarifiers, Mr. Carroll explained that Tesoro will add additional polymers. Effluent from the clarifiers appeared fairly clear (photo 10); however; we noted that the sludge blanket in the clarifiers was not clearly discernible which could result in solids carry-over putting more burden on the sand filters and granular activated carbon (GAC) units.

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We next viewed GAC units (photo 11). Mr. Carroll explained that Tesoro brought 8 portable GAC units onsite last winter. This was, in part, to provide additional treatment in anticipation of an above average rain year event. Tesoro has also been using these additional GAC units to polish effluent since it is in the process of changing out GAC units 7 and 8 and in the future will change out 11 and 12. To ensure that GAC units provide adequate treatment, Tesoro collects samples every week before and after each of the 12 GAC columns for Microtox. If Microtox results show less than 25 percent removal, then Tesoro will consider these units for carbon replacement. After the GAC units, we viewed final effluent in the clean canal prior to discharge to the Suisun Bay (photo 12). It appeared clear and free of odors.

After viewing the clean canal, we inspected the onsite compliance bioassay laboratory. During the inspection, Tesoro was conducting a 96-hour flow through compliance tests on juvenile rainbow trout (photo 13). Mr. Obad, Tesoro's toxicity expert, explained that with each compliance test Tesoro conducts a control and reference toxicity test per the method requirements. At the time of the inspection, the fish exposed to effluent appeared in good health. Finally, we discussed Tesoro's qualitative ranking system for fish that are subject to 96-hour bioassays. Tesoro uses a ranking system from 1 to 5 as shown in Table 1 below:

Table 1: Qualitative Fish Ranking System

Rank	Description
1	fish mortality
2	lethargic fish displaying dark color, significantly impaired buoyancy control, and respiratory distress
3	lethargic fish displaying darker than normal color with significantly impaired buoyancy control, fish may attempt to swim
4	actively swimming fish displaying darker color and/or slightly impaired buoyancy control
5	actively swimming fish with no changes in color or impaired movement

As Tesoro conducts acute toxicity tests on 20 fish, the lowest qualitative rating would be 20 (zero percent survival) and the highest would be 100 (100 percent survival with no impaired movement). These rankings are more important in the winter months when Tesoro can get additive toxicity from ammonia and napthenic acids due to lower ammonia removal rates with lower temperatures. In the past, Tesoro has noted qualitative problems with acute toxicity tests in the winter months that have not been evident from Microtox testing alone. In such cases, Tesoro may become more aggressive with carbon replacement in GAC units and/or investigate the potential for further source control for ammonia.

Summary of Findings

1) Tesoro needs to install a new hypochlorite delivery system to prevent future total coliform violations at EFF-001-D2. Tesoro must also ensure that when it reports a violation in self-monitoring reports that it includes the cause of the violation and the corrective action it will take to prevent future violations (Order No. R2-2015-0033, Attachment G, Regional Standard

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Provisions and Monitoring and Reporting Requirements, V.C.1). The December 2015 self-monitoring report reported a total coliform violation, but did not include the cause or corrective action.

2) Tesoro should consider (a) integrating the unusual discharge form with C-notes, (b) implementing measures to maintain the structural integrity of the Cardox Pond from burrowing animals, and (c) evaluating the sludge blanket at secondary clarifiers to minimize the possibility for solids carry over.

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Compliance Evaluation Inspection Photos

April 20, 2016

Tesoro Martinez Refinery
150 Solano Avenue
Martinez CA, Contra Costa County

Photo 1: Underground Settlement Collection Vault for E-005-T2S-B

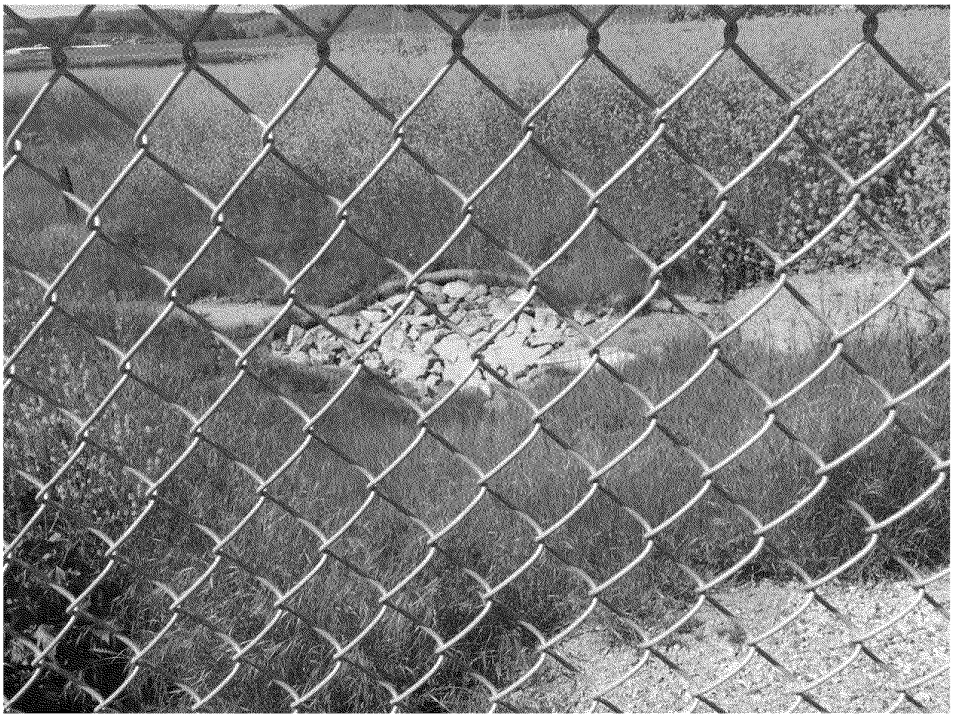

Photo 2: E-005-T2S-B Stormwater Outfall

Photo 3: Erosion Control for Stormwater Outfall E-005-T4NW

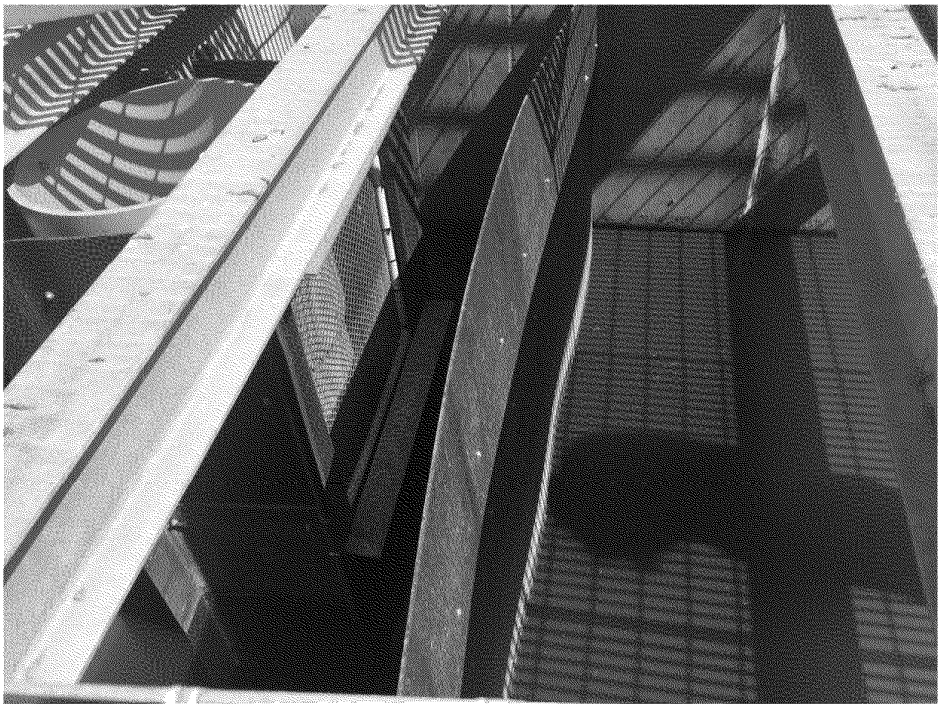

Photo 4: Underground Settlement Collection Vault for E-005-T4NW

Photo 5: Bag Collecting Solids in Underground Settlement Collection Vault for E-005-T4NW

Photo 6: E-005-T4NW Stormwater Outfall

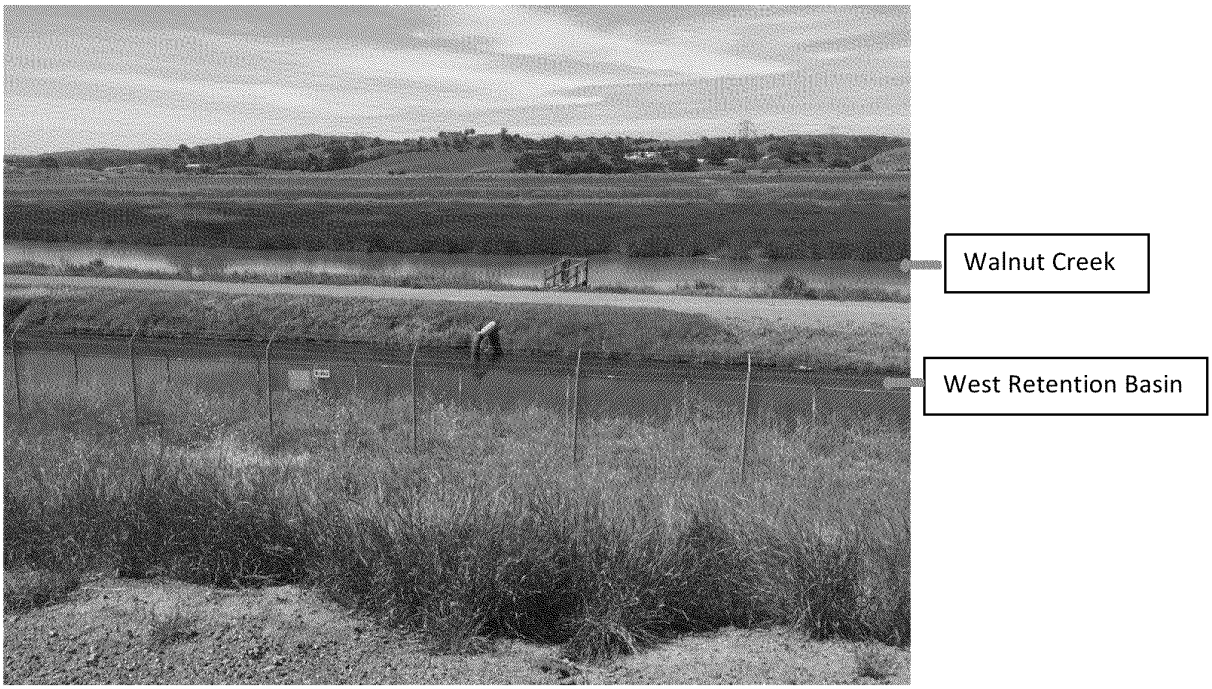

Photo 7: E-003 West Retention Basin holding Stormwater

Photo 8: E-004 Cardox Pond holding Stormwater

Photo 9: Bio-oxidation Pond

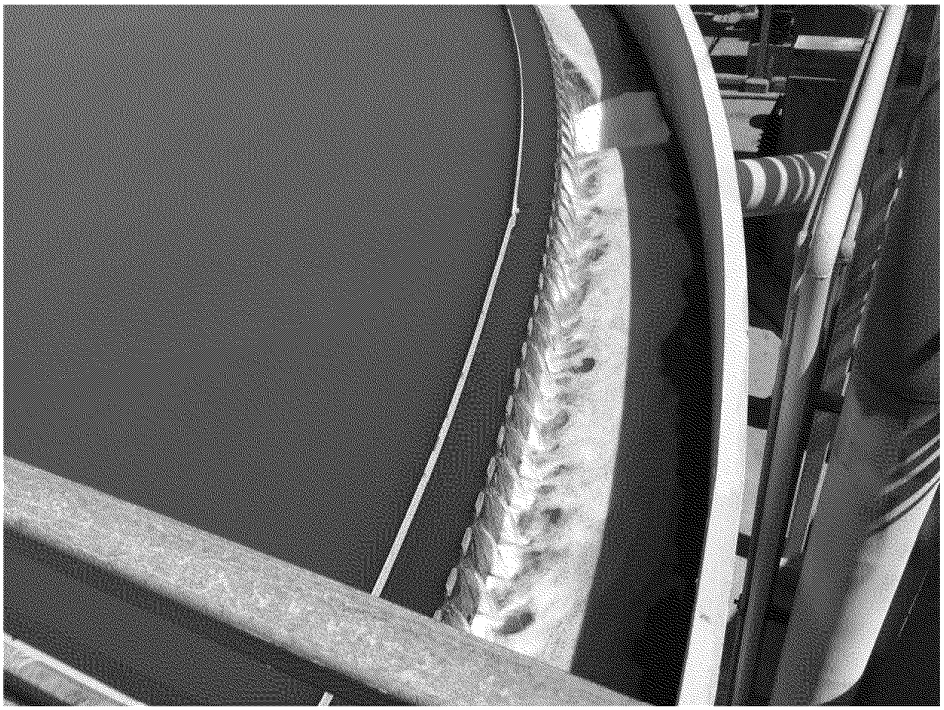

Photo 10: Effluent from Clarifiers

Photo 11: Granular Activated Carbon Units

Photo 12: Discharge of Final Effluent into Clean Canal

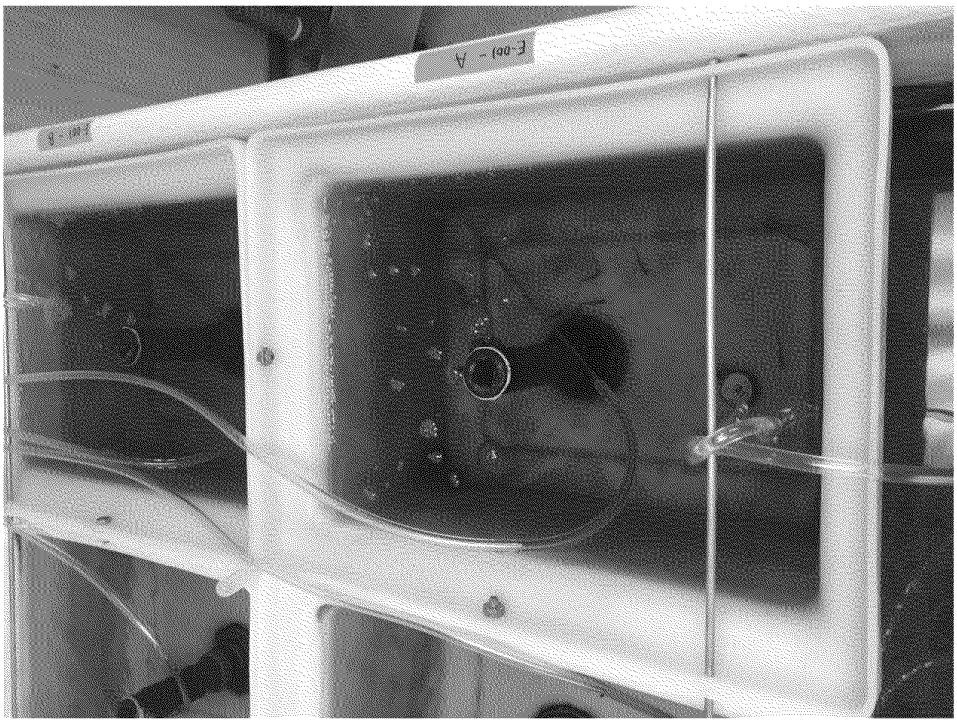

Photo 13: Acute Toxicity flow-through Bioassay

To: Lin, Sharon[Lin.Sharon@epa.gov]; Schofield, John[Schofield.John@epa.gov]
From: Arora, Asha@DTSC
Sent: Thur 9/3/2015 9:52:01 PM
Subject: RE: Total, TCLP, and STLC metals results for water samples from the Shell Martinez Refinery RCRA Haz Waste Sampling SDG 15216B

Thank you, Sharon!

Asha

From: Lin, Sharon [mailto:Lin.Sharon@epa.gov]
Sent: Thursday, September 03, 2015 2:06 PM
To: Arora, Asha@DTSC; Schofield, John
Subject: FW: Total, TCLP, and STLC metals results for water samples from the Shell Martinez Refinery RCRA Haz Waste Sampling SDG 15216B

We are still waiting for the sludge sample results. No TCLP hits for us so far.

Sharon

From: Berges, Jack
Sent: Thursday, September 03, 2015 1:57 PM
To: Lin, Sharon
Subject: Total, TCLP, and STLC metals results for water samples from the Shell Martinez Refinery RCRA Haz Waste Sampling SDG 15216B

Total, TCLP, and STLC metals results for water samples from the Shell Martinez Refinery RCRA Haz Waste Sampling SDG 15216B, project R15E03, are attached.

Jack Berges

Chemist, US EPA Region 9 Laboratory

1337 South 46th Street Bldg 201

Richmond, CA 94804

P: 510-412-2332 F: 510-412-2302

berges.jack@epa.gov

To: Schofield, John[Schofield.John@epa.gov]
From: Lynch, Philip@DTSC
Sent: Thur 10/6/2016 5:31:36 PM
Subject: RE: Valero - Consent Agreement/Final Order

Thanks John for clarifying!

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Thursday, October 06, 2016 10:31 AM
To: Lynch, Philip@DTSC
Subject: RE: Valero - Consent Agreement/Final Order

Yes, please share. FYI, I would never send you anything via e-mail that is not public information. I would call you to discuss or inform you any confidential enforcement information.

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
(415) 947-3530 (fax)
schofield.john@epa.gov
****

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From: Lynch, Philip@DTSC [mailto:Philip.Lynch@dtsc.ca.gov]
Sent: Thursday, October 06, 2016 10:28 AM
To: Schofield, John <Schofield.John@epa.gov>
Subject: RE: Valero - Consent Agreement/Final Order

John,

Is the Consent Agreement/Final Order a public document that I can share with members on a Refinery Task Force that I am one of the members ?

Dan

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Wednesday, October 05, 2016 2:36 PM
To: Lynch, Philip@DTSC
Cc: Yang, Teng@DTSC; Soria, Maria@DTSC; Green, Kristine@DTSC
Subject: Valero - Consent Agreement/Final Order

Dan,

Uncertain if referenced CA/FO was sent to you. Just in case it wasn't I have attached a pdf of the filed CA/FO for your files.

regards,

John

****

John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
(415) 947-3530 (fax)

schofield.john@epa.gov
****

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To: Lin, Sharon[Lin.Sharon@epa.gov]; Schofield, John[Schofield.John@epa.gov]
From: DeMarco, Daniel@DTSC
Sent: Tue 10/10/2017 3:54:43 PM
Subject: RE: Response to Tesoro/Andeavor

I'm ready for a phone call whenever it is convenient for you both.

From: Lin, Sharon [mailto:Lin.Sharon@epa.gov]
Sent: Tuesday, October 10, 2017 8:42 AM
To: DeMarco, Daniel@DTSC <Daniel.DeMarco@dtsc.ca.gov>; Schofield, John <Schofield.John@epa.gov>
Subject: RE: Response to Tesoro/Andeavor

Hi, Daniel,

Thanks for the information. I thought they may be claiming oil bearing exclusion for petroleum refining wastes under 25143.2(d)(2)(B)? Perhaps three of us could have a quick call this morning?

Sharon

From: DeMarco, Daniel@DTSC [mailto:Daniel.DeMarco@dtsc.ca.gov]
Sent: Tuesday, October 10, 2017 8:08 AM
To: Schofield, John <Schofield.John@epa.gov>; Lin, Sharon <Lin.Sharon@epa.gov>
Subject: Response to Tesoro/Andeavor

Good Morning John and Sharon,

I'm preparing to send this response out to PSC, who is operating under a TTU PBR treatment to run a centrifuge on the foul and sour water tank (tank 650) at Andeavor Refinery. I'm hoping you both wouldn't mind telling me If I'm way off base with this response. I'm hoping to send this out some time this Morning. Thanks for your time!

Danny

Good Morning Brandon,

Thank you for your response. The only reason PSC is able to conduct the permit-by-rule treatment activities that it is conducting at the Tesoro/Andeavor refinery is because the treatment activities are federally exempt or excluded, in part because of the Code of Federal Regulations Title 40, section 261.4(a)(12) exclusion you referenced. As far as I'm aware, the regulation you cited was not adopted by the State of California and the federal exclusion does not exclude the secondary oil-bearing waste from the classification as solid waste in California, which means, according to the sampling results, the waste will likely be considered hazardous waste in California and the treatment activities PSC is conducting at the refinery would need to be permitted.

The State of California did adopt a similar recycling exclusion for secondary oil bearing waste into our California Health and Safety Code under section 25144. In order to be excluded from classification as waste, and excluded from the necessity of a transportable treatment unit permit from DTSC, you would need to meet all of the standards set forth in this section. From my understanding, the waste stream is water and sludge containing high quantities of ammonia and sulfur. The information I have received regarding the waste stream is the same analytical sampling results that you reviewed and submitted in your permit application to DTSC prior to beginning treatment. I saw no significant oil or hydrocarbon constituents to validate the claim that the "secondary oil-bearing waste" is in fact oil bearing or that the recycling that is being conducted is legitimate. Do you have any analytical results or statistics about the quantities of oil generated and recycled that have resulted from your treatment process? Any analytical results from tank 650 which would indicate the presence of recyclable oil?

I am still wanting to review the documents listed in the initial email to PSC from DTSC on September 29, 2017. The documents requested included:

- Written operating instructions and a record of the dates, volumes, residual management, and types of wastes treated in the units.
- Written inspection log.

- Waste analysis plan.
- Closure plan for the unit.
- Training records for the two employees identified during the inspection (Sean St. Pierre, Mike Brook).
- Contingency Plan.

Thank you.

Daniel DeMarco

Environmental Scientist

Department of Toxic Subtances Control

Enforcement and Emergency Response Unit

700 Heinz Avenue, Berkeley, CA

(510) 540-3841

To: Schofield, John[Schofield.John@epa.gov]
From: Ripp, Thomas
Sent: Fri 1/22/2016 3:39:55 PM
Subject: Re: Operating TSDF pull

It is the Tesoro in Hawaii not CA.

Tom Ripp
Pesticides, Waste and Toxics Branch
202-564-7003 (Tu & W) 6:45 - 4:15
301-391-6198 (M alternate location) 9:00 - 2:30
Do not work Thursday or Friday

From: Schofield, John
Sent: Friday, January 22, 2016 10:25 AM
To: Ripp, Thomas
Subject: RE: Operating TSDF pull

I will look. Which Tesoro (2 in SoCal: Carson/Wilmington) and one in Martinez? One of the Tesoro refineries is former BP (SoCal).

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
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(415) 972-3386
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schofield.john@epa.gov
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From: Ripp, Thomas
Sent: Thursday, January 21, 2016 5:27 PM
To: Schofield, John <Schofield.John@epa.gov>
Subject: Fw: Operating TSDF pull

John, do you know if the Tesoro refinery is still an operating TSDF? I need to know for the ACS inspection bidding process.

Tom Ripp
Pesticides, Waste and Toxics Branch
202-564-7003 (Tu & W) 6:45 - 4:15
301-391-6198 (M alternate location) 9:00 - 2:30
Do not work Thursday or Friday

From: Ripp, Thomas
Sent: Thursday, January 21, 2016 8:12 PM
To: Jones, Lauren W.
Cc: Lin, Sharon
Subject: Operating TSDF pull

I've identified another issue in the pull. For some reason the Tesoro refinery in Hawaii did not show up in the operating TSDF pull. In RCRAInfo BR they reported managing nearly 465,000 tons of hazardous waste. ECHO indicates that they are active (that doesn't necessarily mean operating), but between ECHO and BR it seems to be an operating facility. I'm cc'ing Sharon Lin in case she can shed some light on this facility's status.

Tom Ripp
Pesticides, Waste and Toxics Branch
202-564-7003 (Tu & W) 6:45 - 4:15
301-391-6198 (M alternate location) 9:00 - 2:30
Do not work Thursday or Friday

To: Schofield, John[Schofield.John@epa.gov]
From: Green, Kristine@DTSC
Sent: Fri 8/4/2017 8:35:24 PM
Subject: SRF data
DTSC_SRF_FFY15-16.xlsx

Hi John

Here are the facilities that were inspected or had an enforcement action that were uploaded to RCRAInfo. There are two tabs.

Please let me know if you need anything else.

Thanks

-K

Kristine Green

Enforcement and Emergency Response Division

Department of Toxic Substances Control

916.255.6658

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To: Schofield, John[Schofield.John@epa.gov]; Kou, Roberto@DTSC[Roberto.Kou@dtsc.ca.gov]
From: Rios, Alfredo@DTSC
Sent: Fri 2/17/2017 5:56:39 PM
Subject: RE: Chevron-El Segundo Refinery Inspection and Training

Thank you John, I appreciate it. Looking forward to working with you and the rest of the team.

Yes, the week of April 17 works for our Branch, it's after the CHMIA Conference so we should be available. Thanks….

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Thursday, February 16, 2017 10:00 AM
To: Kou, Roberto@DTSC; Rios, Alfredo@DTSC
Subject: Chevron-El Segundo Refinery Inspection and Training

Alfredo/Robert,

First, Alfredo congratulations on your new position.

I am sure Maria will be contacting you separately. It appears the week of April 17th is the best week for the training. Monday would be classroom refinery training and field training the rest of the week. My understanding is that Danny Ho and Brian Wu are part of the refinery team. It is hoped that this week fits in with their schedule.

Maria wants to video conference the classroom training to all DTSC offices interested in the training. EPA has assumed either Chatsworth or Cypress Office would be where the training would be held.

If you could confirm by EOB today that the schedule works for you and your staff, that would be greatly appreciated.

regards,

John

****
John Schofield
U. S. Environmental Protection Agency
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To: Schofield, John[Schofield.John@epa.gov]
From: Easley, Robert@DTSC
Sent: Mon 5/2/2016 9:13:29 PM
Subject: RE: LDR Storage Time Limit.

Thanks John.

Rob

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Monday, May 02, 2016 2:07 PM
To: Easley, Robert@DTSC
Cc: Robison, Rick@DTSC; Soria, Maria@DTSC
Subject: RE: LDR Storage Time Limit.

Robert,

Good questions. On your second question, Kandice Bellamy would be the better person to answer the Buttonwillow/Kettleman question. Kandice is on inspections this week. I will touch base with her next week on your question. My initial thoughts are that the Buttonwillow/Kettleman have 1 year to meet the treatment limit. The 1-year start date is when Buttonwillow/Kettleman first receives the waste for land disposal. Multiple treatments would not impact the storage time limit.

Before I answer your first question. I just want to say I never have come across a TSD permit that did not have a storage time limit requirement.

For waste that may not fall under the LDR storage limit, I would say there is still a concern. If metal storage containers observed are deteriorating (e.g., rust, corrosion) or if plastic are the containers being stored outside in the sun and plastic is brittle. If yes, you could cite 22 CCR 66264.31 (if CA HW). Why is the waste not being processed? Speculatively accumulated?

Call me when your phone is up and running we can further discuss. Also Friday, I am available

to come by your office to discuss if you want.

regards,

John

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

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From: Easley, Robert@DTSC [mailto:Robert.Easley@dtsc.ca.gov]
Sent: Monday, May 02, 2016 1:44 PM
To: Schofield, John <Schofield.John@epa.gov>
Cc: Robison, Rick@DTSC <Rick.Robison@dtsc.ca.gov>; Soria, Maria@DTSC <Maria.Soria@dtsc.ca.gov>
Subject: RE: LDR Storage Time Limit.

John – Maria asked me to call you but my phone is not currently working at the moment because of a recent switch to a different floor.

I attached the California equivalent of 268.50 (66268.50) which is basically identical to 268.50 except it includes California hazardous waste restricted under from land disposal under Article 3,

chapter 18 in title 22 of the California Code of Regulations.

Article 3 of this chapter is about 5 pages long and lists various types of wastes that are prohibited from land disposal.

I am not sure if all DTSC hazardous waste facility permits should always specify a time limit for permitted storage area. Most of our permits specify a time limit, but some do not (see below as an example). I'm not familiar with all possible types of hazardous waste to know if there is a concern for hazardous waste potentially stored in a permitted storage area that are not restricted from land disposal.

Also, when a facility like Kettleman and Buttonwillow treat a hazardous waste and it does not pass the treatment limits and has to be retreated, are there any time limits a hazardous waste can be stored that is waiting for retreatment? I think they argue that the waste is still in the process of treatment and there are no time limits.

Clean Harbors Buttonwillow – permit limits storage of containers in permitted storage area up to 1 year and cites 66268.50(b)

Safety-Kleen Newark Oil Refining facility – permit does not specify time limit for permitted container storage area

Chemical Waste Management Kettleman Hills – permit does not specify time limit for permitted drum storage area

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Sandia National Lab, Livermore - permit limits storage of hazardous waste up to 1 year

Lawrence Livermore National Lab - permit limits storage of hazardous waste up to 1 year

AERC Hayward – permit limits storage of mercury containing waste up to 90 days

Robert Easley

Senior Environmental Scientist

California Department of Toxic Substances Control

700 Heinz Avenue, Berkeley, CA 94710-2721

(510) 540-3893

From: Soria, Maria@DTSC
Sent: Monday, May 02, 2016 12:26 PM
To: Easley, Robert@DTSC
Cc: Robison, Rick@DTSC
Subject: FW: LDR Storage Time Limit.

Rob, please give John a call. I received a phone message from him that he would like more information on the issue so that he can continue the discussion with his colleagues. Thanks.

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Tuesday, April 26, 2016 2:58 PM
To: Green, Kristine@DTSC; Haertle, Ellen@DTSC; Jones, Joel E.; Kihara, Keith@DTSC; Kou, Roberto@DTSC; Lampino, Carmelita@DTSC; Palmer, Adam@DTSC; Salomon, Maria@DTSC; Soria, Maria@DTSC; Tsuji, Denise@DTSC; Vintze, Roger@DTSC
Subject: LDR Storage Time Limit.

Thought I should resend to with different subject.

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John Schofield
U. S. Environmental Protection Agency
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From: Schofield, John
Sent: Tuesday, April 26, 2016 2:32 PM
To: Green, Kristine@DTSC <Kristine.Green@dtsc.ca.gov>; Haertle, Ellen@DTSC <Ellen.Haertle@dtsc.ca.gov>; Jones, Joel E. <Jones.Joel@epa.gov>; Kihara, Keith@DTSC <Keith.Kihara@dtsc.ca.gov>; Kou, Roberto@DTSC <Roberto.Kou@dtsc.ca.gov>; Lampino, Carmelita@DTSC <Carmelita.Lampino@dtsc.ca.gov>; Palmer, Adam@DTSC <Adam.Palmer@dtsc.ca.gov>; Salomon, Maria@DTSC <Maria.Salomon@dtsc.ca.gov>; Soria, Maria@DTSC <Maria.Soria@dtsc.ca.gov>; Tsuji, Denise@DTSC <Denise.Tsuji@dtsc.ca.gov>; Vintze, Roger@DTSC <Roger.Vintze@dtsc.ca.gov>
Subject: RE: Branch Chief's Weekly Conference Call Agenda - April 26, 2016

§268.50 Prohibitions on storage of restricted wastes.

(a) Except as provided in this section, the storage of hazardous wastes restricted from land disposal under subpart C of this part of RCRA section 3004 is prohibited, unless the following conditions are met:

(1) A generator stores such wastes in tanks, containers, or containment buildings on-site solely for the purpose of the accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal and the generator complies with the requirements in §262.34 and parts 264 and 265 of this chapter.

(2) An owner/operator of a hazardous waste treatment, storage, or disposal facility stores such wastes in tanks, containers, or containment buildings solely for the purpose of the accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal and:

(i) Each container is clearly marked to identify its contents and the date each period of accumulation begins;

(ii) Each tank is clearly marked with a description of its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins, or such information for each tank is recorded and maintained in the operating record at that facility. Regardless of whether the tank itself is marked, an owner/operator must comply with the operating record requirements specified in §264.73 or §265.73.

(3) A transporter stores manifested shipments of such wastes at a transfer facility for 10 days or less.

(b) An owner/operator of a treatment, storage or disposal facility may store such wastes for up to one year unless the Agency can demonstrate that such storage was not solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal.

JOHN SCHOFIELD NOTE: Would non-RCRA waste be covered under 22 CCR 66268.50(b).

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John Schofield
U. S. Environmental Protection Agency
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From: Hall, Helen@DTSC [mailto:Helen.Hall@dtsc.ca.gov]
Sent: Tuesday, April 26, 2016 9:13 AM
To: Green, Kristine@DTSC <Kristine.Green@dtsc.ca.gov>; Haertle, Ellen@DTSC <Ellen.Haertle@dtsc.ca.gov>; Jones, Joel E. <Jones.Joel@epa.gov>; Schofield, John <Schofield.John@epa.gov>; Kihara, Keith@DTSC <Keith.Kihara@dtsc.ca.gov>; Kou, Roberto@DTSC <Roberto.Kou@dtsc.ca.gov>; Lampino, Carmelita@DTSC <Carmelita.Lampino@dtsc.ca.gov>; Palmer, Adam@DTSC <Adam.Palmer@dtsc.ca.gov>; Salomon, Maria@DTSC <Maria.Salomon@dtsc.ca.gov>; Soria, Maria@DTSC <Maria.Soria@dtsc.ca.gov>; Tsuji, Denise@DTSC <Denise.Tsuji@dtsc.ca.gov>; Vintze, Roger@DTSC <Roger.Vintze@dtsc.ca.gov>
Subject: FW: Branch Chief's Weekly Conference Call Agenda - April 26, 2016

I'm sorry. Please see the attachment.

Thank you.

Helen Hall

Office Technician

Enforcement and Emergency Response Division

From: Hall, Helen@DTSC
Sent: Tuesday, April 26, 2016 9:02 AM
To: Green, Kristine@DTSC <Kristine.Green@dtsc.ca.gov>; Haertle, Ellen@DTSC <Ellen.Haertle@dtsc.ca.gov>; Joel Jones <Jones.Joel@epa.gov>; John Schofield (Schofield.John@epa.gov) <Schofield.John@epa.gov>; Kihara, Keith@DTSC <Keith.Kihara@dtsc.ca.gov>; Kou, Roberto@DTSC <Roberto.Kou@dtsc.ca.gov>; Lampino, Carmelita@DTSC <Carmelita.Lampino@dtsc.ca.gov>; Palmer, Adam@DTSC <Adam.Palmer@dtsc.ca.gov>; Salomon, Maria@DTSC <Maria.Salomon@dtsc.ca.gov>; Soria, Maria@DTSC <Maria.Soria@dtsc.ca.gov>; Tsuji, Denise@DTSC <Denise.Tsuji@dtsc.ca.gov>; Vintze, Roger@DTSC <Roger.Vintze@dtsc.ca.gov>
Subject: Branch Chief's Weekly Conference Call Agenda - April 26, 2016

Good Morning,

Here is the agenda for today's conference call.

Thank you!

Helen Hall

Office Technician

Enforcement Performance Management Branch

Enforcement and Emergency Response Division

Department of Toxic Substances Control

(916) 324-6809

Helen.Hall@DTSC.ca.gov

To: Schofield, John[Schofield.John@epa.gov]
Cc: Robison, Rick@DTSC[Rick.Robison@dtsc.ca.gov]; Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]
From: Easley, Robert@DTSC
Sent: Mon 5/2/2016 8:43:38 PM
Subject: RE: LDR Storage Time Limit.
CA regs, 1-year storage, 66268.50.pdf

John – Maria asked me to call you but my phone is not currently working at the moment because of a recent switch to a different floor.

I attached the California equivalent of 268.50 (66268.50) which is basically identical to 268.50 except it includes California hazardous waste restricted under from land disposal under Article 3, chapter 18 in title 22 of the California Code of Regulations.

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Senior Environmental Scientist

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Subject: RE: Branch Chief's Weekly Conference Call Agenda - April 26, 2016

§268.50 Prohibitions on storage of restricted wastes.

(a) Except as provided in this section, the storage of hazardous wastes restricted from land disposal under subpart C of this part of RCRA section 3004 is prohibited, unless the following conditions are met:

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JOHN SCHOFIELD NOTE: Would non-RCRA waste be covered under 22 CCR 66268.50(b).

eCFR — Code of Federal Regulations Page 77 of 107

http://

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From: Hall, Helen@DTSC [mailto:Helen.Hall@dtsc.ca.gov]
Sent: Tuesday, April 26, 2016 9:13 AM

To: Green, Kristine@DTSC <Kristine.Green@dtsc.ca.gov>; Haertle, Ellen@DTSC <Ellen.Haertle@dtsc.ca.gov>; Jones, Joel E. <Jones.Joel@epa.gov>; Schofield, John <Schofield.John@epa.gov>; Kihara, Keith@DTSC <Keith.Kihara@dtsc.ca.gov>; Kou, Roberto@DTSC <Roberto.Kou@dtsc.ca.gov>; Lampino, Carmelita@DTSC <Carmelita.Lampino@dtsc.ca.gov>; Palmer, Adam@DTSC <Adam.Palmer@dtsc.ca.gov>; Salomon, Maria@DTSC <Maria.Salomon@dtsc.ca.gov>; Soria, Maria@DTSC <Maria.Soria@dtsc.ca.gov>; Tsuji, Denise@DTSC <Denise.Tsuji@dtsc.ca.gov>; Vintze, Roger@DTSC <Roger.Vintze@dtsc.ca.gov>
Subject: FW: Branch Chief's Weekly Conference Call Agenda - April 26, 2016

I'm sorry. Please see the attachment.

Thank you.

Helen Hall

Office Technician

Enforcement and Emergency Response Division

From: Hall, Helen@DTSC
Sent: Tuesday, April 26, 2016 9:02 AM
To: Green, Kristine@DTSC <Kristine.Green@dtsc.ca.gov>; Haertle, Ellen@DTSC <Ellen.Haertle@dtsc.ca.gov>; Joel Jones <Jones.Joel@epa.gov>; John Schofield (Schofield.John@epa.gov) <Schofield.John@epa.gov>; Kihara, Keith@DTSC <Keith.Kihara@dtsc.ca.gov>; Kou, Roberto@DTSC <Roberto.Kou@dtsc.ca.gov>; Lampino, Carmelita@DTSC <Carmelita.Lampino@dtsc.ca.gov>; Palmer, Adam@DTSC <Adam.Palmer@dtsc.ca.gov>; Salomon, Maria@DTSC <Maria.Salomon@dtsc.ca.gov>; Soria, Maria@DTSC <Maria.Soria@dtsc.ca.gov>; Tsuji, Denise@DTSC <Denise.Tsuji@dtsc.ca.gov>; Vintze, Roger@DTSC <Roger.Vintze@dtsc.ca.gov>
Subject: Branch Chief's Weekly Conference Call Agenda - April 26, 2016

Good Morning,

Here is the agenda for today's conference call.

Thank you!

Helen Hall

Office Technician

Enforcement Performance Management Branch

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Department of Toxic Substances Control

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(d) Constituents subject to treatment. When applying the soil treatment standards in subsection (c) of this section, constituents subject to treatment are any constituents listed in section 66268.48 Table UTS—Universal Treatment Standards that are reasonably expected to be present in any given volume of contaminated soil, except fluoride, selenium, sulfides, vanadium, zinc, and that are present at concentrations greater than ten times the universal treatment standard. PCBs are not constituents subject to treatment in any given volume of soil which exhibits the toxicity characteristic solely because of the presence of metals.

(e) Management of treatment residuals. Treatment residuals from treating contaminated soil identified by subsection (a) of this section as needing to comply with LDRs shall be managed as follows:

(1) Soil residuals are subject to the treatment standards of this section;

(2) Non–soil residuals are subject to:

(A) For soils contaminated by listed hazardous waste, the hazardous waste standards applicable to the listed hazardous waste; and

(B) For soils that exhibit a characteristic of hazardous waste, if the non–soil residual also exhibits a characteristic of hazardous waste, the treatment standards applicable to the characteristic hazardous waste.

NOTE: Authority cited: Sections 25150, 25159, 25159.5, 25179.5 and 58012, Health and Safety Code. Reference: Sections 25159, 25159.5 and 58012, Health and Safety Code; and 40 CFR Section 268.49.

HISTORY

1. Change without regulatory effect adding new section filed 6–4–99 pursuant to section 100, title 1, California Code of Regulations (Register 99, No. 23).
2. Change without regulatory effect amending subsections (c)(3)(A)–(B) filed 9–11–2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 37).
3. Change without regulatory effect amending subsections (c)(1)(A)–(B) and (d) filed 7–3–2002 pursuant to section 100, title 1, California Code of Regulations (Register 2002, No. 27).
4. Editorial correction of subsection (a) —Table (Register 2012, No. 33).

Article 5. Prohibitions on Storage

§ 66268.50. Prohibitions on Storage of Restricted Wastes.

(a) Except as provided in this section, the storage of hazardous wastes restricted from land disposal under article 3 of this chapter or RCRA section 3004 (42 U.S.C. section 6924) is prohibited, unless the following conditions are met.

(1) A generator stores such wastes in tanks, containers, or containment buildings on site solely for the purpose of the accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal and the generator complies with the requirements in section 66262.34 and Chapters 14 and 15 of this division. (A generator who is in existence on July 1, 1991 and who must store hazardous wastes for longer than the applicable accumulation period specified in subsection (a) or (d) of section 66262.34 of this chapter, due to the regulations under this chapter becomes an owner/operator of a storage facility and shall obtain a Hazardous Waste Facility Permit. Such a facility may qualify for interim status upon compliance with the regulations governing interim status under section 66270.70 of chapter 20).

(2) An owner/operator of a hazardous waste treatment, storage, or disposal facility stores such wastes in tanks, containers, or containment buildings solely for the purpose of the accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal and:

(A) each container is clearly marked to identify its contents and the date each period of accumulation begins;

(B) each tank is clearly marked with a description of its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins, or such information for each tank is recorded and maintained in the operating record at that facility. Regardless of whether the tank itself is marked, an owner/operator shall comply with the operating record requirements specified in section 66264.73 or section 66265.73.

(3) A transporter stores manifested shipments of such wastes at a transfer facility for six days or less, or 10 days or less for transfer facilities in areas zoned industrial by the local planning authority.

(b) An owner/operator of a treatment, storage or disposal facility may store such wastes for up to one year unless the Department can demonstrate that such storage was not solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal.

(c) An owner/operator of a treatment, storage or disposal facility may store such wastes beyond one year; however, the owner/operator bears the burden of proving that such storage was solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal.

(d) If a generator's waste is exempt from a prohibition on the type of land disposal utilized for the waste (for example, because of an approved case–by–case extension under section 66268.5, or a nationwide capacity variance under article 3), the prohibition in paragraph (a) of this section does not apply during the period of such exemption.

(e) The prohibition in subsection (a) of this section does not apply to hazardous wastes that meet the treatment standards specified under section 66268.40 or the treatment standards specified under the variance in section 66268.44, or, where treatment standards have not been specified, is in compliance with the applicable prohibitions specified in section 66268.32 or RCRA section 3004 (42 U.S.C. section 6924) or where the waste is a non–RCRA hazardous waste.

(f) Liquid hazardous wastes containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to 50 ppm shall be stored at a facility that meets the requirements of 40 CFR section 761.65(b) and shall be removed from storage and treated or disposed as required by this part within one year of the date when such wastes are first placed into storage. The provisions of subsection (c) of this section do not apply to such PCB wastes prohibited under section 66268.32 of this chapter.

NOTE: Authority cited: Sections 25150, 25159, 25159.5, 25179.6 and 58012, Health and Safety Code. Reference: Sections 25150, 25159, 25159.5 and 58012, Health and Safety Code; 40 CFR Section 268.50.

HISTORY

1. New section filed 5–24–91; operative 7–1–91 (Register 91, No. 22).
2. Amendment of subsections (a)(1)–(2) and NOTE filed 10–24–94 as an emergency; operative 10–24–94 (Register 94, No. 43). A Certificate of Compliance must be transmitted to OAL by 2–20–95 or emergency language will be repealed by operation of law on the following day.
3. Amendment of subsections (a)(1)–(2) and NOTE refiled 2–21–95 as an emergency; operative 2–21–95 (Register 95, No. 8). A Certificate of Compliance must be transmitted to OAL by 6–21–95 or emergency language will be repealed by operation of law on the following day.
4. Amendment of subsections (a)(1)–(2) and NOTE refiled 6–19–95 as an emergency; operative 6–19–95 (Register 95, No. 25). A Certificate of Compliance must be transmitted to OAL by 10–17–95 or emergency language will be repealed by operation of law on the following day.
5. Amendment of subsections (a)(1)–(2) and NOTE refiled 10–16–95 as an emergency; operative 10–16–95 (Register 95, No. 42). A Certificate of Compliance must be transmitted to OAL by 2–13–96 or emergency language will be repealed by operation of law on the following day.
6. Certificate of Compliance as to 10–24–94 order including amendment of subsection (a)(1) transmitted to OAL 12–15–95 and filed 1–31–96 (Register 96, No. 5).
7. Change without regulatory effect amending subsection (a)(1) filed 4–3–96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 14).
8. Change without regulatory effect amending subsection (a)(3) filed 4–3–96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 14).
9. Change without regulatory effect amending subsection (e) filed 9–11–2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 37).

Article 10. Land Disposal Prohibitions—Non–RCRA Wastes

§ 66268.100. Waste Specific Prohibitions.

(a) The following non–RCRA hazardous wastes are subject to prohibition under this section.

(1) Non–RCRA metal–containing aqueous wastes identified in section 66268.29(a) are prohibited from land disposal.

(2) Auto shredder waste identified in section 66268.29(b) is prohibited from land disposal effective on May 8, 1991.

ED_001593_00021239

To: Schlipf Robert (rschlipf@waterboards.ca.gov)[rschlipf@waterboards.ca.gov]; Schofield, John[Schofield.John@epa.gov]
From: Carroll, Peter J.
Sent: Fri 4/22/2016 3:54:42 PM
Subject: Microtox Paper and length of the Avon MOT
carrolpj_042216_084041.pdf

Robert and John:

Attached is the Microtox paper I referred to. It is a bit old (1991) and refers to correlations of the luminescent bacteria toxicity test data with other acute toxicity – with an emphasis on 96-hr acute lethality data of 200 individual chemicals to fathead minnow. As we know, juvenile rainbow trout are a more sensitive indicator of toxicity.

Also a question was asked about the length of the Avon Marine Oil Terminal (MOT) approachway. It is approx. 2,500 feet from Land's End north to the MOT wharf face and approx. 3,000 feet south from Land's End back into Tract 3.

Regards, Peter

Peter Carroll

Tesoro Martinez Refinery

Professional, Water Compliance

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Water Poll. Res. J. Canada; 1991
Volume 26, No. 3, 361–431

Photobacterium phosphoreum Toxicity Data Index

Klaus L.E. Kaiser[1] and Virginia S. Palabrica[2]

Abstract

This toxicity data index gives a compilation of some 1350 acute toxicity data of individual organic compounds for the luminescent marine bacterium *Photobacterium phosphoreum*, commonly known as Microtox™ test. The index contains 5-min, 15-min and 30-min toxicity data in both logarithmic (log (L/mmol) and non-logarithmic (mg/L) formats for approximately 1300 chemicals sorted by Chemical Abstracts Service (CAS) accession numbers.

In addition to the toxicity data, this index reviews correlations of the luminescent bacteria toxicity test data with a multitude of other acute toxicity tests on aquatic and terrestrial species, with emphasis on the 96-hr acute lethality data of 200 individual chemicals to the fathead minnow (*Pimephales promelas*). A high collinearity between these two tests is demonstrated over nearly ten orders of magnitude in toxicity variation as expressed on a molar basis for compounds acting with several known toxicity mechanisms. These results indicate the usefulness of the luminescent bacteria bioassay as a simple, fast and comparatively inexpensive alternative to *in-vivo* bioassays with higher organisms.

Key words: Toxicity, *Photobacterium phosphoreum*, chemicals, contaminants, relationship, acute toxicity, *Pimephales promelas*, Microtox.

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Introduction

In earlier reviews (Ribo and Kaiser 1987; Kaiser and Ribo 1988), we have described the test methods and procedures, the test variables and conditions which bear on the test results as well as an earlier toxicity data compilation for single organic chemicals. The latter contains approximately 500 entries for approximately 400 individual chemicals. The present toxicity data index covers a large additional data collection, mostly for additional organic compounds which have not yet been reported elsewhere in the literature. This index comprises now approximately 1350 entries for approximately 1300 compounds and is presented essentially in the same way as the earlier, much smaller data compilation, except for the addition of toxicity values in mg/L or ppm.

For the purpose of quantitative structure-activity correlations, QSAR (Kaiser 1987), as well as for quick and error-free interpretation of the measured values, all toxicity data have been transformed to a common logarithmic notation of pT values, where pT describes the negative logarithm of the milli-molar concentration causing a 50% reduction of the light emission of the test bacteria in a given time. As most researchers report such data for 5, 15 or 30 min exposure, the data are collated and given for each of those exposure times where available. For practical reasons, these toxicity tests are commonly determined at a temperature of 15°C and all results are given for this temperature, unless stated otherwise.

Reviews on the *Photobacterium phosphoreum* bioassay test conditions, influence of variations in test conditions and applicability to certain types of samples have been published in recent years. Without attempting to provide a complete overview, the reader is referred to the publications by Bulich *et al.* (1981), Curtis *et al.* (1982), Krebs (1983), Ribo and Kaiser (1987), Kaiser *et al.* (1988) and EC (1990) as well as the application and information notes published by the commercial suppliers of dedicated photometers and freeze-dried bacteria used for this bioassay.

The comparatively quick and low cost bioassay with *Photobacterium phosphoreum*, strain NRRL-B-11177 (Microtox[3]), occasionally also referred to as *Vibrio fischerii*, strain NRRL-B-11177, has gained a considerable status for the monitoring of various industrial effluents to comply with environmental protection regulations in several countries (EPS 1990). It has also been used in conjunction with environmental water quality surveys (Kaiser *et al.* 1988) and

[3] Microtox is a trademark of Microbics Corporation, Carlsbad, California, USA.

more recently with surveys on sediment contamination (Brouwer *et al.* 1990; Hoke *et al.* 1990; True and Heyward 1990; Giesy and Hoke 1989; Dutka and Kwan, 1988; Giesy *et al.* 1988; Schiewe *et al.* 1985), benthic assemblages (Becker *et al.* 1990) and for the determination of toxicity in suspended particulates (Rao and Kwan 1990). In addition, this test has been used quite extensively to determine toxicity values for the purpose of structure-activity relationships and correlations with acute and/or sublethal toxicity tests on other organisms, including non-aquatic species and topological parameters (Munkittrick *et al.* 1991; Kaiser and Esterby 1991; Hickey *et al.* 1990; Gombar and Enslein 1989; Hansch *et al.* 1989) and for the study of metal speciation (Ribo *et al.* 1989) and the toxicity of mixtures (Ribo and Rogers 1990).

Correlations with Other Toxicity Bioassays

In recent years, inter-species toxicity test comparisons have become of interest as a means to approximate values for compounds and/or organisms which have not actually been measured but were desired in order to determine the environmental effects and pathways of such chemicals and to satisfy environmental and health protection guidelines of various authorities. Several recent publications deal with such inter-species evaluations, either for narrowly defined chemical groups or in a holistic non-chemically defined data space. Among the organisms so studied are bacteria, including *Spirillum volutants* (Qureshi *et al.* 1982), *Nitrosomonas* and *Nitrobacter* sp. (Maas-Diepeveen and van Leeuwen 1988), *Candida parapsilosis*, *Escherichia coli* (Chao *et al.* 1990), a recombinant *E. coli* (Rychert and Mortimer (1991), *Staphylococcus aureus* and *Streptococcus faecalis* (Devillers *et al.* 1990), *Pseudomonas fluorescens* (Chao *et al.* 1990) and *Aeromonas hydrophila* (Dutka and Kwan 1981), *Pseudomonas putida* and *Microcystis aeruginosa* (DeZwart and Slooff 1983) and *Bacillus subtilis* (Ribo and Kaiser 1983), several species of yeasts, including *Pichia* sp., *Rhodotorula* sp. and *Saccharomyces cerevisiae* (Chao *et al.* 1990; Ribo and Kaiser, 1983), flagellate and ciliate protozoa such as *Entosyphon sulcatum*, *Uronema parduczi* and *Chilomonas paramecium* (DeZwart and Slooff 1983), *Colpidium campylum* (Vasseur *et al.* 1988) and *Tetrahymena pyriformis* (Kaiser and Esterby 1991), algae, such as *Selenastrum capricornutum* (Blaise and Harwood 1991; Miller *et al.* 1985; DeZwart and Slooff 1983), *Scenedesmus quadricauda* (Kaiser and Esterby 1991) and *Scenedesmus pannonicus* (DeZwart and Slooff 1983), *Chlorella*

pyrenoidosa (Deneer *et al.* 1989, Bazin *et al.* 1987 DeZwart and Slooff 1983), the coelenterate *Hydra oligactis* (DeZwart and Slooff 1983), the estuarine rotifer *Brachionus plicatilis* (Snell *et al.* 1991), mollusks such as the oyster *Crassostrea gigas* (Becker *et al.* 1990) and the snail *Lymnea stagnalis* (DeZwart and Slooff 1983), a variety of crustaceans including the brine shrimp *Artemia salina* (Devillers *et al.* 1990), the sand shrimp *Crangon septemspinosa* (Ribo and Kaiser 1983), the cladocerans *Daphnia magna* (Kaiser and Esterby 1991; Deneer *et al.* 1989; Bazin *et al.* 1987; Miller *et al.* 1985), *Daphnia pulex* (DeZwart and Slooff 1983) and *Cerodaphnia dubia* (Ankley *et al.* 1990; Hoke *et al.* 1990), the harpacticoid copepod *Nitocra spinipes* (Tarkpea *et al.* 1986) and the amphipod *Rhepoxynius abronius* (Becker *et al.* 1990), several insects including the chironomid *Chironomus tentans* (Giesy *et al.* 1990; Hoke *et al.* 1990), the mosquitoes *Aedes aegypti* and *Culex pipiens* (DeZwart and Slooff 1983) and the mayfly larva *Hexagenia limbata* (Giesy *et al.* 1990), the sea urchin *Arbacia punctulata* (Snell *et al.* 1991; Nacci *et al.* 1986), various fish species including guppy *Poecilia reticulata* (van Leeuwen *et al.* 1985), the goldorfe *Leuciscus idus melanotus* and rainbow trout *Oncorhynchus mykiss* (Blaise and Harwood 1991; Birkholz *et al.* 1990; DeZwart and Slooff 1983), brown trout *Salmo trutta* and bluegill *Lepomis macrochirus* (Indorato *et al.* 1984; Ribo and Kaiser 1983), sheepshead minnow *Cyprinodon variegatus* (Ribo and Kaiser 1983), zebrafish *Brachydanio rerio* (Devillers *et al.* 1990; Samak and Noiseux 1981), American flagfish *Jordanella floridae* (Holdway *et al.* 1991), the Japanese medaka *Oryzias latipes* (DeZwart and Slooff 1983) and the fathead minnow *Pimephales promelas* (Curtis *et al.* 1982), the frogs *Xenopus laevis* and *Ambystoma mexicanum* (DeZwart and Slooff 1983), as well as terrestrial fauna and flora, such as the earthworm *Eisenia foetida* (Miller *et al.* 1985), several plant species including the wheat *Triticum aestivum*, the lettuce *Lactuca sativa*, the radish *Raphanus sativa*, the red clover *Trifolium pratense* and the cucumber *Cucumis sativa* (Miller *et al.* 1985) and mammals such as the mouse (Benson and Stackhouse 1986) and rat (Kaiser and Esterby, 1991). Recently, also a large number of medical device and biomaterial extracts were tested with the luminescent bacteria test as well as the L-929 Minimals Eagle's Medium cytotoxicity test and the Draize eye irritancy test (Bulich *et al.* 1990).

Among the chemicals tested are frequently observed environmental contaminants, such as chlorophenols and chlorobenzenes, and also groups of chemicals with large-scale industrial uses such as nitrobenzenes, anilines, alcohols, chloroalkanes and others. Several studies, however comprise large sets of data from several classes of

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chemicals with large variations in activities and/or toxic mechanisms, such as fungicides, herbicides and insecticides.

In addition to the above noted correlations and comparative analyses on specific, pure chemicals, there is a host of reports on the comparison of the luminescent bacteria test with other bioassays on a wide variety of complex industrial and municipal waste streams including extracts thereof. Without intend to provide a comprehensive review, the reader is referred to the publications by Logue *et al.* (1989), Symons and Sims (1988), Reynolds *et al.* (1987), Calleja *et al.* (1986), Plotkin and Ram (1984) and Qureshi *et al.* (1982).

Fish Toxicity Bioassays

In many of these comparative studies, statistical and/or range limitations of the data are commonly observed with the consequence of a limited generality and applicability to other groups. However, two tests stand out in this regard, namely the 96-hr acute lethality test (LC_{50}) with fathead minnow and the toxicity test with the luminescent bacteria described here. In recent years, several hundred chemicals have been tested with each test. The fathead minnow results have been published by the Center for Lake Superior Environmental Studies, University of Wisconsin-Superior (Brooke *et al.* 1984; Geiger *et al.* 1985, 1986, 1988, 1990) and most of the bacteria tests at our laboratory at the National Water Research Institute. Between these two data sets are presently in excess of 200 toxicity individual compounds in common and their respective toxicities span nearly ten orders of magnitude on a molar basis, as shown in Figure 1.

As evident from Figure 1, there is a good correlation between the fathead minnow LC_{50} and bacteria EC_{50} values for nearly ten orders of magnitude in molar activity. This plot also covers a large variety of chemical classes, including alcohols, phenols, aromatic and aliphatic compounds, heterocyclics, acids, ketones, nitriles, nitro-, fluoro-, chloro- and bromo-substituted chemicals, various pesticides, including, fungicides, herbicides and insecticides and others. The entire set is put together strictly on the basis of compounds measured in both tests without any other selection process. The only compound excluded from the correlation, acrolein, can be deemed an outlier by statistical tests; it is also known to be highly volatile and difficult to work with. Given this large range of molar activities, the wide variety of chemical classes, molecular sizes and compositions, this relationship is highly significant. Its exploitation will allow at

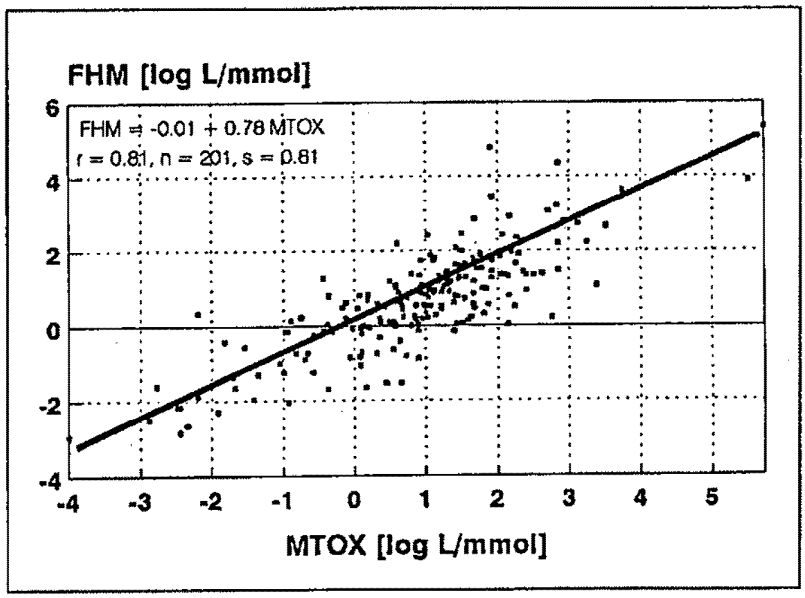

Figure 1. Plot of the acute toxicities of over 200 individual organic chemicals in the fathead minnow 96-hr LC_{50} test (FHM) versus the luminescent bacteria 5-min to 30-min EC_{50} test (MTOX).

least a partial substitution of monitoring and exploratory fish tests with the much faster and lower cost bacterial luminescence bioassay.

There is also varying amounts of data to substantiate high collinearity of the bacterial luminescence test with acute toxicity bioassays with other fish species, such as the cold-water species Goldorfe (*Leuciscus idus melanotus*) and the warm-water species zebrafish (*Brachydanio rerio*), both of which have been used as standard test species in Europe. Limited data for the cold-water species rainbow trout (now *Oncorhynchus mykiss*) and the warm-water species American flagfish (*Jordanella floridae*) are not inconsistent with these findings. Comparison with guppy (*Poecilia reticulata*) also shows a high degree of correlation for a number of halogenated aliphatic and aromatic compounds and others (Kaiser, unpublished data).

Other Toxicity Bioassays

A variety of other aquatic species, including algae, (for example *Scenedesmus quadricauda*), ciliates (*Tetrahymena pyriformis*), waterfleas (*Daphnia magna* and *Daphnia pulex*) are commonly

used test organisms for the acute and/or sublethal toxicities of chemicals. Where sufficient data available, generally positive correlations between those data and the effects on *Photobacterium phosphoreum* are indicated. However, quality of fit varies widely and also depends strongly on the type of chemicals assessed as well as on water quality variables.

Of the major bioassays investigated, the least collinearity with *Photobacterium phosphoreum* values is observed for the acute lethal dose values for the rat, (Kaiser and Esterby 1991). This is not too surprising as the rat data are also known to correlate little with any other biological endpoint and/or physicochemical parameter, such as the n-octanol/water partition coefficient. The latter has been recognized as a most important bulk parameter which provides a good measure for the solute interaction with cell membranes (Hansch and Leo 1979).

Mutagenicity and Genotoxicity Bioassays

Kwan *et al.* (1990) recently introduced a test using a dark mutant strain of *Photobacterium phosphoreum* to determine the presence of DNA damaging chemicals, DNA intercalating chemicals, DNA inhibitors and direct mutagens in river water. Also Elmore and Fitzgerald (1990) proposed the bioluminescence assays as screens for genotoxicity of chemicals while Yates (1985a, 1985b) investigated the mutagenicity and toxicity of several natural toxins with this bioassay. While their results are encouraging, they await further in-depth studies to verify and expand the limited observations.

Physical Effects Bioassayed

Stress on organisms in our environment is caused by chemical as well as physical effects. Among the latter, changes in level of radiation and temperature are likely to be most influential. Recent work by McInnes *et al.* (1990) uses *Photobacterium phosphoreum* to assess the impact of acoustic energy and cavitation. Further work in that direction is likely to result in additional uses for the bacterial luminescence test.

Explanatory Notes to Table 1

Notation of Data

Table 1 of this toxicity data index for *Photobacterium phosphoreum* contains some 1400 entries for approximately 1300 individual organic chemicals ranging from simple alcohols to complex, high molecular weight biocides. In order to easily and quantitatively compare the effects of different substances on a particular biological species, it has long been recognized that the chemicals' effects must be expressed in molar units, such as mol/L, mmol/L, mol/kg body weight, and soforth. Because of the wide-ranging differences in the chemicals' effects, it has also been useful and is common to express these values in logarithmic form, using the base ten logarithm, i.e. log(mmol/L).

However, there are both theoretical and very important practical reasons to express biological effect data as the logarithm of the *inverse* concentration, i.e. log(1/(mmol/L) = log(L/mmol). Expression of biological effect data in this format has the great advantage of higher potency (lower concentration to reach the predetermined effect) to be expressed with a higher number. For example, a compound with a pT value of, say 3.25, is immediately recognized as being 100 times as toxic as a compound with a pT value of 1.25. For these reasons, all toxicity (pT) values given here are presented in the log[1/(mmol/L)] form.

Data Transformation

Transformation of the given log(L/mmol) data into the corresponding mg/L values is easily achieved according to the following equation:

$$\mathrm{pT}[\log(\mathrm{L/mmol})] = \log(\mathrm{MW/EC50})[\mathrm{mg/L}]$$

where MW is the molecular weight of the substance, given in column 12 of Table 1. Conversion of the pT values into mg/L values is therefore achieved by taking the product of

$$\mathrm{MW} \times \frac{1}{10^{\mathrm{pT}}} \ .$$

Practically, for pT values smaller than zero (negative pT values), this conversion simplifies to

$$\mathrm{MW} \times 10^{|\mathrm{pT}|} \ .$$

Two examples follow:

Example (i): phenol, pT for 15 min = 0.44, MW = 94.12

$$\mathrm{EC50} = 94.12 \times 1/10^{0.44} = 34 \ \mathrm{mg/L} \ .$$

Example (ii): acetone, pT for 30 min = −2.47, MW = 58.08

$$EC50 = 58.08 \times 10^{2.47} = 17140 \text{ mg/L} \ .$$

For various purposes, a notation in part per million (ppm) or mg/L may be preferable. Such values are also given in Table 1 under the heading "ppm".

Exposure Time

The luminescent bacterial bioassay requires only a short period of time, i.e. minutes, which is one of its major advantages compared to lethality fish bioassays which normally take several days. When using the bacterial assay to determine the variation of the toxicity of industrial process effluents or similar continuous discharges, a five to ten minute exposure is normally sufficient. In terms of testing a broad range of different chemicals with many different modes of action, a somewhat longer assay time, i.e. 30 min, is preferred, mainly to ascertain that potential diffusion problems are eliminated at source. Therefore, where available, the data compiled here are given for the most commonly used exposure times, namely 5, 15 and 30-min exposures. Any deviations are noted in the footnotes.

Normally the pT values for a particular chemical rarely vary much with exposure time, however a few chemicals show larger variations. In those cases, both increases and declines with time of exposure can be noted. At present, there is no clear interpretation of such time-effect dependencies in this bioassay, but it may be assumed that several processes interact, including hydrolysis, photodecomposition, membrane diffusion and chemical reaction with the substrate.

Nomenclature

The systematic nomenclature of chemicals is a subject of international concern and is dealt with by the International Union of Pure and Applied Chemistry (IUPAC). Some chemical reference works use nomenclature systems different from the IUPAC convention. Chemical supply companies, in turn, appear to have adopted their own choices of mix between traditional, IUPAC, and other nomenclatures. This fact is particularly evident in the field of commercially used biocides, some of which may be known under more than 20 different tradenames. In this compilation, no attempt to use a particular nomenclature was made as each compound is given with its Chemical Abstracts Service Registration Number (CAS number), a unique identifier.

ED_001593_00021264

Order of Entries

Because of the internationally used CAS number, a unique identifier, this data index is in ascending order by CAS number. For compounds where two or more entries are found in the literature (including our own results) and where we feel on the basis of our own practical or theoretical experience that one of the reported values appears to be preferable, such values are listed first in each group of data for a specific compound and are indicated by an asterisk preceding the CAS number.

Standard Conditions

There are some standard conditions which are normally used for this test. They are also outlined in the operating manuals of the commercial instrument suppliers. For practical experimental reasons, the most commonly used operating conditions are 15°C for the EC_{50} tests with exposure times of 5 to 30 min. (see also Exposure Time, above). The pH of the test system can vary in the range of 5< pH <9 without great effect on the luminescence. Detailed investigations on the effects of variations in the operating variables have been described by Krebs (1983) and reviewed by Ribo and Kaiser (1987). Both the commercial manufacturers of *Photobacterium phosphoreum* preparations and regulatory agencies recommend the use of certain reference chemicals for the determination of the viability and sensitivity of the bacteria. Most frequently used and recommended are phenol and sodium pentachlorophenate (EPS 1990).

Footnotes

Where available, from the literature or the chemicals' supplier, the *stated* purity is given in the Footnote column. In our experience, the mean standard deviation for three tests per chemical is in the order of less than ±0.05 pT (log) units; this includes experimental variation from the preparation of fresh solute solutions and using at least three vials of commercially made bacteria concentrates. Therefore, we have made no corrections to data for compounds with stated purities equal to or greater than 95%. For compounds or solutions where the active ingredient is stated to be less than 95%, the results were factored with the stated concentration to give the chemical's effect on a 100% purity basis.

Other deviations from the standard conditions, such as test temperature (unless otherwise stated 15°C), pH (unless stated otherwise, measured or assumed to be in the range 5< pH <9)

or other peculiarities are noted in the footnotes at the end of Table 1.

Column Headings

For the 12 separate columns in Table 1, the following abbreviations and explanations are provided:

1. *No.:* An internal control number assigned to each entry.
2. *Ref.:* Reference source number as detailed in Table 2.
3. *Footnote:* Purity of chemical (in percent) and/or deviation from standard conditions; see above for Standard conditions and Footnotes.
4. to 6. *pT:* Measured concentrations (in log(L/mmol) at which there is a 50% reduction of the light emission relative to controls at the stated exposure times of 5, 15 and 30 min.
7. **:* An asterisk preceding the compound's CAS number indicates values which we consider more accurate than other entries.
8. *CAS:* The compound's Chemical Abstracts Service Registry Number; note that certain commercial preparations may have CAS numbers different from that of the active ingredient(s).
9. *Name:* The compound's name according to the nomenclature used in the literature or by the chemical supplier. See Nomenclature, above.
10. *Formula:* The compound's chemical formula according to international convention.
11. *ppm:* The compound's toxicity expressed in parts per million (ppm) or mg/L. If more than one entry is provided on the same line under the pT headings, preference is given to the 30-min exposure EC_{50} level, second preference to the 15-min level and third preference to the 5-min level. These values are computer-generated from the pT values and are given with up to 5 digits, however they should be rounded to the nearest third, in some cases to the nearest second digit.
12. *MW:* Molecular weight of the compound. In cases of salts, such as sodium lauryl sulfate, the formula weight including counterion is given.

Note to Users

Literature data do not always state the exact test conditions, such as temperature or pH. In general there is good agreement between measurements reported by different laboratories for the same substance, but in a few cases larger discrepancies are evident. All literature values were reported without evaluation of their reliability, except as stated above. Although utmost care has been exercised in the compilation of the data, no guarantee can be assumed as to their accuracy. Furthermore, we invite suggestions for improvements and communication of newly published or unpublished toxicity data for inclusion in any future updates of this index. This index will soon be available on computer diskette; enquiries are directed to the senior author, FAX (416) 336-6430.

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
1203	44		0.48	0.55	0.55 *	50-00-0	formaldehyde	C1H2O1	8.46	30.03
425	19	2	1.00			50-00-0	formaldehyde	C1H2O1	3.00	30.03
397	17		0.54			50-00-0	formaldehyde	C1H2O1	8.66	30.03
1243	47		0.47			50-00-0	formaldehyde	C1H2O1	10.2	30.03
505	28		−1.48			50-00-0	formaldehyde	C1H2O1	907	30.03
824	38	23	>1.32	>1.32	>1.39	50-07-7	Mytomycin-C	C15H18N4O5	<15.3	334.37
1196	8	>99%	1.39	1.39	1.41	50-29-3	p,p'-DDT	C14H9Cl5	13.8	354.48
405	17		1.70			50-29-3	p,p'-DDT	C14H9Cl5	7.07	354.48
849	8		1.26	1.28	1.24 *	51-28-5	2,4-dinitrophenol	C6H4N2O5	10.6	184.11
45	3		1.48		1.48	51-28-5	2,4-dinitrophenol	C6H4N2O5	6.10	184.11
352	2		1.07			51-28-5	2,4-dinitrophenol	C6H4N2O5	15.7	184.11
304	8	97%	0.67	0.70	0.68	51-67-2	tyramine	C8H11N1O1	27.6	132.18
1063	8	98%	0.47	0.53	0.51	54-96-6	3,4-diaminopyridine	C5H7N3	33.7	109.13
287	6			−0.14		55-18-5	N,N-diethylnitrosamine	C4H10N2O1	141	102.14
157	12	99%	0.28	0.30	0.31	55-21-0	benzamide	C7H7N1O1	59.3	121.14
1199	8	>99%	0.12	0.10	0.01	55-22-1	isonicotinic acid	C6H5N1O2	120	123.11
610	21	7		0.66		56-23-5	carbontetrachloride	C1Cl4	33.7	153.82
597	50		1.44			56-23-5	carbontetrachloride	C1Cl4	5.58	153.82
799	36				5.73	56-35-9	tributyltinoxide	C24H54O1Sn2	0.0011	596.16
1245	49		1.54		*	56-38-2	Parathion	C10H14N1O5P1S1	8.40	291.27
1271	52	32	0.63			56-38-2	Parathion	C10H14N1O5P1S1	68.3	291.27
821	38	23	2.24	2.45	2.49	56-57-5	4-nitroquinoline-1-oxide	C9H6N2O3	0.615	190.17
1236	46	22		2.96		57-09-0	cetyltrimethylammonium bromide	C19H42Br1N1	0.400	364.46
458	24		1.57			57-09-0	cetyltrimethylammonium bromide	C19H42Br1N1	9.81	364.46
431	19	2	−2.60			57-13-6	urea	C1H4N2O1	23914	60.07
398	17		−0.65			57-43-2	Amytal	C11H18N2O3	1011	226.31
553	30	99%	−2.66	−2.58	−2.55 *	57-55-6	1,2-propanediol	C3H8O2	27001	76.10

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
1145	8	>99%	−0.93	−0.93	−0.97	57-55-6	1,2-propanediol	C3H8O2	710	76.10
442	20	4	0.49			58-08-2	caffeine	C8H10N4O2	62.8	194.22
1182	8	98%	2.55	2.81	2.83	58-27-5	2-methyl-1,4-naphthoquinone	C11H8O2	0.255	172.18
449	21	7		1.71	*	58-89-9	Lindane	C6H6Cl6	5.67	290.83
481	25			1.42		58-89-9	Lindane	C6H6Cl6	11.1	290.83
1273	52	32	−0.04			58-89-9	Lindane	C6H6Cl6	319	290.83
18	1		2.09	2.20	2.26	58-90-2	2,3,4,6-tetrachlorophenol	C6H2Cl4O1	1.27	231.89
1069	8	>99%	2.21	2.18	2.16	59-31-4	2-hydroxyquinoline	C9H7N1O1	1.00	145.16
841	8	99%	2.73	2.71	2.62	59-50-7	4-chloro-3-methylphenol	C7H7Cl1O1	0.342	142.59
1047	8	98%	−0.12	−0.18	−0.24	59-67-6	nicotinic acid	C6H5N1O2	214	123.11
189	12	98%	1.90	1.89	1.87	60-09-3	4-aminoazobenzene	C12H11N3	2.66	197.24
163	12	99%	1.35	1.39	1.36	60-12-8	phenethyl alcohol	C8H10O1	5.33	122.17
464	25			−1.88		60-29-7	diethylether	C4H10O1	5623	74.12
859	8	98%	0.23	0.45	0.48	60-34-4	methylhydrazine	C1H6N2	15.3	46.07
1324	8	>99%	−0.47	−0.41	−0.33 *	60-56-0	2-mercapto-1-methylimidazole	C4H6N2S1	244	114.17
541	8	98%	−0.66	−0.66	−0.68	60-56-0	2-mercapto-1-methylimidazole	C4H6N2S1	546	114.17
1107	8	95%	−0.60	−0.71	−0.84	61-82-5	Amitrole; Cytrol; 3-amino-1,2,4-triazole	C2H4N4	582	84.08
502	28	12	−0.33			61-82-5	Amitrole; Cytrol; 3-amino-1,2,4-triazole	C2H4N4	180	84.08
1213	11				1.02	62-23-7	4-nitrobenzoic acid	C7H5N1O4	16.0	167.12
1344	8	97%	0.24	0.21	0.21	62-44-2	phenacethine	C10H13N1O2	111	179.24
81	9		0.16	0.13	0.12 *	62-53-3	aniline	C6H7N1	70.6	93.13
385	16		−0.66	−0.72		62-53-3	aniline	C6H7N1	489	93.13
900	32			−1.65		62-56-6	thiourea	C1H4N2S1	3400	76.12
1235	45	98%			2.50	63-25-2	Carbaryl	C12H11N1O2	0.636	201.24
401	17		2.00			63-25-2	Carbaryl	C12H11N1O2	2.01	201.24
452	49		1.60			63-25-2	Carbaryl	C12H11N1O2	5.05	201.24
171	12	99%	0.91	0.97	0.99	64-04-0	phenethylamine	C8H11N1	12.4	121.18

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
751	35		−2.89		−2.88 *	64-17-5	ethanol	C2H6O1	34948	46.07
486	26			−2.70		64-17-5	ethanol	C2H6O1	23090	46.07
432	19	2	−2.83			64-17-5	ethanol	C2H6O1	31147	46.07
326	2		−2.98			64-17-5	ethanol	C2H6O1	43997	46.07
391	17		−3.01			64-17-5	ethanol	C2H6O1	47143	46.07
507	28		−3.08			64-17-5	ethanol	C2H6O1	55388	46.07
1013	8		−0.74	−0.74	−0.68	64-20-0	tetramethylammonium bromide	C4H12Br1N1	737	154.06
919	33		−3.69	−3.95	−4.00 *	67-56-1	methanol	C1H4O1	320400	32.04
750	35		−3.23		−3.20	67-56-1	methanol	C1H4O1	50780	32.04
485	26			−2.55		67-56-1	methanol	C1H4O1	11368	32.04
460	25			−3.12		67-56-1	methanol	C1H4O1	42237	32.04
515	28		−3.25			67-56-1	methanol	C1H4O1	56976	32.04
327	2		−3.59			67-56-1	methanol	C1H4O1	124650	32.04
325	2		−2.77		*	67-63-0	2-propanol	C3H8O1	35390	60.10
430	19	2	−2.84			67-63-0	2-propanol	C3H8O1	41579	60.10
547	30		−2.44	−2.46	−2.47 *	67-64-1	acetone	C3H6O1	17141	58.08
918	33		−2.33	−2.34	−2.36	67-64-1	acetone	C3H6O1	13305	58.08
484	26			−2.40		67-64-1	acetone	C3H6O1	14589	58.08
461	25			−2.56		67-64-1	acetone	C3H6O1	21088	58.08
382	16		−2.58	−2.70		67-64-1	acetone	C3H6O1	29109	58.08
514	28		−2.50			67-64-1	acetone	C3H6O1	18367	58.08
339	2		−2.57			67-64-1	acetone	C3H6O1	21579	58.08
1206	44		−0.64	−0.75	−0.75 *	67-66-3	chloroform	C1H1Cl3	671	119.38
611	21	7		−1.32		67-66-3	chloroform	C1H1Cl3	2494	119.38
312	14		−0.56			67-66-3	chloroform	C1H1Cl3	433	119.38
549	30	99%	−3.05	−3.10	−3.10 *	67-68-5	dimethylsulfoxide	C2H6O1S1	98360	78.13
487	26			−2.91		67-68-5	dimethylsulfoxide	C2H6O1S1	63506	78.13

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
508	28		−3.12			67-68-5	dimethylsulfoxide	C2H6O1S1	102995	78.13
1051	8	98%	2.52	2.79	2.84 *	67-72-1	hexachloroethane	C2Cl6	0.342	236.74
765	35		2.73		3.06	67-72-1	hexachloroethane	C2Cl6	0.206	236.74
911	33			1.46		67-72-1	hexachloroethane	C2Cl6	8.21	236.74
356	2		3.23			67-72-1	hexachloroethane	C2Cl6	0.139	236.74
363	2		−2.44			68-12-2	N,N-dimethylformamide	C3H7N1O1	20133	73.10
1259	49		−0.19			69-72-7	salicylic acid	C7H6O3	214	138.12
820	38	23	0.76	1.22	1.35	70-25-7	N-methyl-N'-nitro-N-nitrosoguanidine	C2H5N5O3	6.57	147.12
881	8	99%+	0.60	0.54	0.48	70-55-3	toluene-4-sulfonamide	C7H9N1O2S1	56.7	171.13
253	8	97%	1.33	1.32	1.36	70-70-2	4-hydroxy propiophenone	C9H10O2	6.56	150.18
752	35		−2.22		−2.19 *	71-23-8	1-propanol	C3H8O1	9308	60.10
462	25			−2.16		71-23-8	1-propanol	C3H8O1	8687	60.10
378	16		−2.47	−2.49		71-23-8	1-propanol	C3H8O1	18573	60.10
548	30		−1.66	−1.70	−1.70 *	71-36-3	1-butanol	C4H10O1	3715	74.12
753	35		−1.44		−1.47	71-36-3	1-butanol	C4H10O1	2187	74.12
463	25			−1.58		71-36-3	1-butanol	C4H10O1	2818	74.12
322	2		−1.49			71-36-3	1-butanol	C4H10O1	2291	74.12
429	19	2	−1.65			71-36-3	1-butanol	C4H10O1	3311	74.12
392	17		−2.77			71-36-3	1-butanol	C4H10O1	43645	74.12
754	35		0.53		−0.65	71-41-0	1-pentanol	C5H12O1	394	88.15
1221	8				−0.12 *	71-43-2	benzene	C6H6	103	78.12
21	1		0.02	0.00	0.02	71-43-2	benzene	C6H6	74.6	78.12
469	25			−0.31		71-43-2	benzene	C6H6	160	78.12
386	16		−0.44	−0.48		71-43-2	benzene	C6H6	236	78.12
423	19	2	1.59			71-43-2	benzene	C6H6	2.01	78.12
506	28		1.28			71-43-2	benzene	C6H6	4.10	78.12
454	23	7	−0.03			71-43-2	benzene	C6H6	83.7	78.12

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
393	17		−0.41			71-43-2	benzene	C6H6	201	78.12
473	25			1.22		71-55-6	1,1,1-trichloroethane	C2H3Cl3	8.04	133.41
359	2	8	0.10			71-55-6	1,1,1-trichloroethane	C2H3Cl3	106	133.41
138	11		1.44	1.40	1.37	74-11-3	4-chloro-benzoic acid	C7H5Cl1O2	6.68	156.57
1258	49		−0.05			74-89-5	methylamine	C1H5N1	34.8	31.06
426	19	2	0.50			74-90-8	hydrogen cyanide	C1H1N1	8.55	27.03
54	3		−2.84		−2.84	75-04-7	ethylamine	C2H7N1	31195	45.09
53	3		−2.77		−2.77	75-05-8	acetonitrile	C2H3N1	24172	41.05
368	2		−0.89			75-07-0	acetaldehyde	C2H4O1	342	44.05
466	25			−1.53	*	75-09-2	dichloromethane	C1H2Cl2	2878	84.93
70	6	pH 6.7		−1.07		75-09-2	dichloromethane	C1H2Cl2	998	84.93
483	26			−1.52		75-09-2	dichloromethane	C1H2Cl2	2812	84.93
719	31	99%		−0.65		75-15-0	carbon disulfide	C1S2	340	76.13
767	35		−0.43		−0.71	75-29-6	2-chloropropane	C3H7Cl1	403	78.54
759	35		−0.44		−0.55	75-34-3	1,1-dichloroethane	C2H4Cl2	351	98.96
764	35		2.51		2.35 *	76-01-7	pentachloroethane	C2H1Cl5	0.904	202.30
357	2		2.43			76-01-7	pentachloroethane	C2H1Cl5	0.752	202.30
652	8	98%+	1.76	1.86	1.89	76-84-6	triphenylmethanol	C19H16O1	3.35	260.34
805	36				3.04	77-58-7	dibutyltindilaurate	C32H64O4Sn1	0.576	631.55
320	2		−1.35		*	78-83-1	2-methyl-1-propanol	C4H10O1	1659	74.12
915	33			−1.22		78-83-1	2-methyl-1-propanol	C4H10O1	1230	74.12
768	35		0.28		0.08	78-87-5	1,2-dichloropropane	C3H6Cl2	94.0	112.99
791	35		−1.68		−1.67 *	78-93-3	2-butanone	C4H8O1	3373	72.11
338	2		−1.85			78-93-3	2-butanone	C4H8O1	5105	72.11
274	8	90%	0.53	0.97	1.20	78-95-5	chloroacetone	C3H5Cl1O1	5.84	92.53
178	2				0.44	78-96-6	1-aminopropanol, DL	C3H9N1O1	27.3	75.11
761	35		−0.10		−0.12	79-00-5	1,1,2-trichloroethane	C2H3Cl3	176	133.41

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
482	2		0.10			79-00-5	trichloroethane	C2H3Cl3	106	133.41
383	16		−0.09	0.05	*	79-01-6	trichloroethylene	C2H1Cl3	117	131.39
781	35		−0.87		−0.91	79-01-6	trichloroethylene	C2H1Cl3	1068	131.39
493	27	6	0.13	0.05		79-01-6	trichloroethylene	C2H1Cl3	117	131.39
470	25			−0.16		79-01-6	trichloroethylene	C2H1Cl3	190	131.39
613	21	7		−0.66		79-01-6	trichloroethylene	C2H1Cl3	610	133.39
262	8	98%	0.96	0.68	0.47	79-07-2	2-chloroacetamide	C2H4Cl1N1O1	31.7	93.51
763	35		1.50		1.33	79-34-5	1,1,2,2-tetrachloroethane	C2H2Cl4	7.85	167.85
139	11	97%+	1.53	1.47	1.43	80-00-2	4-chlorophenyl-phenyl-sulfone	C12H9Cl1O2S1	9.39	252.71
229	8	99%	0.32	0.36	0.40	80-08-0	4,4'-diaminodiphenyl sulfone	C12H12N2O2S1	59.0	148.30
1228	11				1.10	80-09-1	4,4'-sulfonyldiphenol	C12H10O4S1	19.9	250.27
1165	8	98%	0.80	0.81	0.81	81-81-2	Warfarin	C19H16O4	47.8	308.34
112	10		1.89	1.89	1.89	82-68-8	pentachloro-nitrobenzene	C6Cl5N1O2	3.80	295.34
933	41			2.45		83-41-0	2,3-dimethylnitrobenzene	C8H9N1O2	0.536	151.17
932	41			2.29		83-42-1	2-chloro-6-nitrotoluene	C7H6Cl1N1O2	0.880	171.58
983	8	>97%	1.64	1.79	1.76	83-56-7	1,5-dihydroxynaphthalene	C10H8O2	2.78	160.18
1005	8	>99.9%	3.38	3.49	3.50	84-11-7	phenanthrenequinone	C14H8O2	0.0658	208.22
816	37		0.29	0.29	0.30	84-66-2	diethylphthalate	C12H14O4	111	222.26
817	37		1.08	1.03	1.08 *	84-74-2	dibutylphthalate	C16H22O4	23.2	278.35
550	30		1.41	1.40	1.41	84-74-2	dibutylphthalate	C16H22O4	10.8	278.35
1004	8		3.63	3.56	3.39	85-01-8	phenanthrene	C14H10	0.0726	178.23
1103	8	99%	2.93	2.93	2.91 *	86-57-7	1-nitronaphthalene	C10H7N1O2	0.213	173.17
844	8	99%	2.84	2.81	2.80	86-57-7	1-nitronaphthalene	C10H7N1O2	0.274	173.17
1098	8	99%	1.09	1.20	1.16	86-74-8	carbazole	C12H9N1	11.6	167.21
1181	8	95%	2.45	2.43	2.38	86-77-1	2-hydroxydibenzofuran	C12H8O2	0.768	184.20
1384	8	98%	2.44	2.03	1.98	86-84-0	1-naphthylisocyanate	C11H7N1O1	1.77	169.19
300	8	99%	1.78	1.79	1.81	86-98-6	4,7-dichloroquinoline	C9H5Cl1N1	3.07	198.05

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
1172	8	99%	0.55	0.49	0.41	87-59-2	2,3-dimethylaniline	C8H11N1	47.1	121.18
26	1		1.99	1.84	1.76 *	87-61-6	1,2,3-trichlorobenzene	C6H3Cl3	3.15	181.45
479	25			1.86		87-61-6	1,2,3-trichlorobenzene	C6H3Cl3	2.50	181.45
1175	8	99%	0.80	0.76	0.66	87-62-7	2,6-dimethylaniline	C8H11N1	26.5	121.18
8	1		1.23	1.08	1.09 *	87-65-0	2,6-dichlorophenol	C6H4Cl2O1	13.2	163.00
731	35		0.80		0.73	87-65-0	2,6-dichlorophenol	C6H4Cl2O1	30.4	163.00
20	1		2.46	2.64	2.71 *	87-86-5	pentachlorophenol	C6H1Cl5O1	0.519	266.34
552	30		2.41	2.64	2.74	87-86-5	pentachlorophenol	C6H1Cl5O1	0.485	266.34
1200	44		2.31	2.38	2.43	87-86-5	pentachlorophenol	C6H1Cl5O1	0.990	266.34
910	33			2.43		87-86-5	pentachlorophenol	C6H1Cl5O1	0.990	266.34
448	21	7		2.17		87-86-5	pentachlorophenol	C6H1Cl5O1	1.80	266.34
341	2		3.52			87-86-5	pentachlorophenol	C6H1Cl5O1	0.0804	266.34
439	20	4	2.58			87-86-5	pentachlorophenol	C6H1Cl5O1	0.701	266.34
455	23	6, 7	2.43			87-86-5	pentachlorophenol	C6H1Cl5O1	0.990	266.34
1015	8		2.71	2.64	2.57	87-90-1	trichlorocyanuric acid	C3Cl3N3O3	0.626	232.41
75	7	99%		1.29		88-04-0	p-chloro-m-xylenol	C8H9Cl1O1	8.03	156.60
437	20	4	1.99			88-04-0	p-chloro-m-xylenol	C8H9Cl1O1	1.60	156.60
15	1		1.52	1.38	1.41 *	88-06-2	2,4,6-trichlorophenol	C6H3Cl3O1	7.68	197.45
736	35		1.18		1.21	88-06-2	2,4,6-trichlorophenol	C6H3Cl3O1	12.2	197.45
349	2		1.44			88-06-2	2,4,6-trichlorophenol	C6H3Cl3O1	7.17	197.45
867	8		2.01	2.08	2.10	88-30-2	3-trifluoromethyl-4-nitrophenol	C7H4F3N1O3	1.65	207.11
520	8	97%	1.72	1.76	1.68	88-58-4	2,5-ditertbutyl hydroquinone	C14H22O2	4.65	222.33
928	41			1.87		88-72-2	2-nitrotoluene	C7H7N1O2	1.85	137.14
99	10		1.59	1.57	1.56 *	88-73-3	2-chloronitrobenzene	C6H4Cl1N1O2	4.34	157.56
921	41			1.54		88-73-3	2-chloronitrobenzene	C6H4Cl1N1O2	4.54	157.56
1339	8	98%	1.32	1.30	1.28	88-74-4	2-nitroaniline	C6H6N2O2	7.25	138.13
738	35		0.62		0.60	88-75-5	2-nitrophenol	C6H5N1O3	34.9	139.11

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
49	3		−0.37		−0.37	88-89-1	picric acid	C6H3N3O7	537	229.11
1042	8	99%	0.46	0.40	0.34	89-00-9	2,3-pyridinedicarboxylic acid	C7H5N1O4	76.4	167.12
931	41			1.55		89-59-8	4-chloro-2-nitrotoluene	C7H6Cl1N1O2	4.84	171.58
104	10		1.39	1.36	1.34 *	89-61-2	2,5-dichloronitrobenzene	C6H3Cl2N1O2	8.78	192.00
926	41			1.36		89-61-2	2,5-dichloronitrobenzene	C6H3Cl2N1O2	8.38	192.00
1120	8		1.45	1.45	1.41	89-62-3	4-methyl-2-nitroaniline	C7H8N2O2	5.92	152.15
598	8				0.94	89-63-4	4-chloro-2-nitroaniline	C6H5Cl1N2O2	19.8	172.57
108	10		1.45	1.51	1.63	89-69-0	2,4,5-trichloronitrobenzene	C6H2Cl3N1O2	5.31	226.45
389	16		0.87	0.93		90-02-8	salicylaldehyde	C7H6O2	14.3	122.12
833	8	99%+	1.81	1.79	1.71 *	90-15-3	1-naphthol	C10H8O1	2.81	144.17
65	6	pH 6.7		1.58		90-15-3	1-naphthol	C10H8O1	3.79	144.17
1252	49		1.59			90-15-3	1-naphthol	C10H8O1	3.71	144.17
347	2		1.41			90-15-3	1-naphthol	C10H8O1	5.61	144.17
825	38	23	1.48	1.40	1.40	90-41-5	2-aminobiphenyl	C12H11N1	6.74	169.23
343	2		1.92			90-43-7	2-phenylphenol	C12H10O1	2.05	170.21
822	38	23	0.69	0.69	0.73	90-45-9	9-aminoacridine	C13H10N2	36.2	194.25
285	8	99%	1.40	1.45	1.42	90-47-1	xanthone	C13H8O2	7.46	196.21
62	5		1.56	2.07		90-65-3	penicillic acid	C8H10O4	1.45	170.17
413	18	2	1.03	1.29		90-65-3	penicillic acid	C8H10O4	8.73	170.17
673	8	96%	0.55	0.59	0.59	91-00-9	aminodiphenylmethane	C13H13N1	47.1	183.25
1214	11	99%			0.52	91-01-0	benzhydrol	C13H12O1	55.6	184.24
1125	8	97%	0.56	0.59	0.62	91-08-7	tolylene-2,6-diisocyanate	C9H6N2O2	41.8	174.16
283	8	98%	0.15	0.13	0.12	91-15-6	phthalonitrile	C8H4N2	97.2	128.13
1104	8	99%	0.30	0.27	0.25	91-19-0	quinoxaline	C8H6N2	73.2	130.15
268	8	99%	2.20	2.15	2.14 *	91-20-3	naphthalene	C10H8	0.929	128.17
221	13	1	1.81			91-20-3	naphthalene	C10H8	1.99	128.17
944	42	24, 25	1.81	1.71		91-62-3	6-methylquinoline	C10H9N1	2.79	143.19

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
1148	8		1.10	1.09	1.07	91-64-5	coumarin	C9H6O2	12.4	146.15
68	6	pH 6.7		3.62		91-94-1	3,3'-dichlorobenzidine	C12H10Cl2N2	0.0607	253.13
443	20	4	1.73			92-43-3	1-phenyl-3-pyrazolidinone	C9H10N2O1	3.02	162.21
1227	8				1.91	92-52-4	biphenyl	C12H10	1.90	154.21
862	8	98%	0.65	0.62	0.55	92-53-5	4-phenylmorpholine	C10H13N1O1	46.0	163.22
1090	8	98%	2.32	2.86	3.07	92-55-7	5-nitro-2-furaldehyde diacetate	C9H9N1O7	0.207	243.17
191	12	98%	1.52	1.49	1.40	92-67-1	4-aminobiphenyl	C12H11N1	6.74	169.23
38	1		1.99	1.87	1.86	92-69-3	4-hydroxybiphenyl	C12H10O1	2.35	170.21
282	8	98%	0.83	0.89	0.92	92-82-0	phenazine	C12H8N2	21.7	180.21
1325	8	>98%	1.15	1.11	1.00	92-84-2	phenothiazine	C12H9N1S1	19.9	199.28
1375	8	>99%	1.97	1.91	1.86	92-88-6	4,4'-biphenol	C12H10O2	2.57	186.21
580	8	95%	1.03	1.16	1.17	92-92-2	4-biphenylcarboxylic acid	C13H10O2	13.4	198.22
947	42	24, 25	1.21	1.16		93-37-8	2,7-dimethylquinoline	C11H11N1	10.9	157.22
574	8	99%	1.41	1.39	1.37	93-55-0	propiophenone	C9H10O1	5.72	134.18
164	12	99%	1.49	1.51	1.47	93-58-3	methyl benzoate	C8H8O2	4.61	136.15
451	49		0.69		*	93-76-5	2,4,5-T	C8H5Cl3O3	52.2	255.48
501	28	12	0.51			93-76-5	2,4,5-T	C8H5Cl3O3	79.0	255.48
513	28	12	0.21			93-76-5	2,4,5-T	C8H5Cl3O3	158	255.48
1215	11	99%			2.14	93-99-2	phenylbenzoate	C13H10O2	1.44	198.22
1102	8	98%	1.19	1.18	1.16	94-52-0	5-nitrobenzimidazole	C7H5N3O2	11.3	163.14
517	29	13, 14	1.33	1.33	1.42 *	94-75-7	Esteron 99, a 2,4-D formulation	C8H6Cl2O3	8.40	221.04
516	29	13	0.30	0.32	0.24	94-75-7	2,4-D	C8H6Cl2O3	127	221.04
1275	53			1.59		94-75-7	2,4-D	C8H6Cl2O3	5.68	221.04
500	28	11	0.55			94-75-7	2,4-D	C8H6Cl2O3	62.3	221.04
450	49		0.34			94-75-7	2,4-D	C8H6Cl2O3	101	221.04
1312	8	>99%	1.87	1.85	1.81	95-16-9	benzothiazole	C7H5N1S1	2.09	135.19
476	25			1.06		95-47-6	o-xylene	C8H10	9.25	106.18

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
875	8	99%	0.68	0.62	0.61 *	95-48-7	o-cresol	C7H8O1	26.5	108.14
388	16		0.72	0.85		95-48-7	o-cresol	C7H8O1	15.3	108.14
371	15		0.54			95-48-7	o-cresol	C7H8O1	31.2	108.14
1159	8	99%	1.64	1.58	1.43 *	95-49-8	2-chlorotoluene	C7H7Cl1	4.70	126.59
489	27		1.33	1.32		95-49-8	2-chlorotoluene	C7H7Cl1	6.06	126.59
588	8	99%+	1.49	1.47	1.39 *	95-50-1	1,2-dichlorobenzene	C6H4Cl2	5.99	147.00
23	1		1.73	1.67	1.56	95-50-1	1,2-dichlorobenzene	C6H4Cl2	4.05	147.00
444	21	7		1.54		95-50-1	1,2-dichlorobenzene	C6H4Cl2	4.24	147.00
510	28		1.16			95-50-1	1,2-dichlorobenzene	C6H4Cl2	10.2	147.00
82	9		0.95	0.93	0.91 *	95-51-2	2-chloroaniline	C6H6Cl1N1	15.7	127.58
1238	46	22		0.83		95-51-2	2-chloroaniline	C6H6Cl1N1	18.9	127.58
440	20		0.90			95-51-2	2-chloroaniline	C6H6Cl1N1	16.1	127.58
602	10				0.91	95-53-4	o-toluidine	C7H9N1	13.2	107.16
740	35		−0.28		−0.09	95-55-6	2-aminophenol	C6H7N1O1	134	109.13
744	35		0.91		0.92	95-56-7	2-bromophenol	C6H5Br1O1	20.8	173.01
2	1		0.54	0.51	0.58 *	95-57-8	2-chlorophenol	C6H5Cl1O1	33.8	128.56
725	35		0.85		0.78	95-57-8	2-chlorophenol	C6H5Cl1O1	21.3	128.56
1265	43		0.67	0.65		95-57-8	2-chlorophenol	C6H5Cl1O1	28.8	128.56
446	21	7		0.58		95-57-8	2-chlorophenol	C6H5Cl1O1	33.8	128.56
353	2		0.76			95-57-8	2-chlorophenol	C6H5Cl1O1	22.3	128.56
1176	8	98%	2.20	2.15	2.10	95-64-7	3,4-dimethylaniline	C8H11N1	0.963	121.18
681	8	97%	2.44	2.40	2.40	95-65-8	3,4-dimethylphenol	C8H10O1	0.486	122.17
1173	8	99%	0.90	0.87	0.85	95-68-1	2,4-dimethylaniline	C8H11N1	17.1	121.18
544	8	99%+	2.49	2.50	2.46	95-71-6	toluhydroquinone	C7H8O2	0.430	124.14
279	8	99%	1.85	1.81	1.78	95-73-8	2,4-dichlorotoluene	C7H6Cl2	2.67	161.03
478	25			2.06		95-75-0	3,4-dichlorotoluene	C7H6Cl2	1.40	161.03
89	9		2.56	2.46	2.40	95-76-1	3,4-dichloroaniline	C6H5Cl2N1	0.645	162.02

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
9	1		2.11	1.99	2.00 *	95-77-2	3,4-dichlorophenol	C6H4Cl2O1	1.63	163.00
732	35		2.51		2.40	95-77-2	3,4-dichlorophenol	C6H4Cl2O1	0.649	163.00
1174	8	99%	0.89	0.83	0.74	95-78-3	2,5-dimethylaniline	C8H11N1	22.1	121.18
1080	8	98%	0.06	0.10	0.08 *	95-80-7	2,4-diaminotoluene	C7H10N2	102	122.17
47	3		0.22		0.15	95-80-7	2,4-diaminotoluene	C7H10N2	86.5	122.17
87	9		1.68	1.65	1.63	95-82-9	2,5-dichloroaniline	C6H5Cl2N1	3.80	162.02
892	8	96%	1.95	1.90	1.70	95-83-0	4-chloro-1,2-phenylenediamine	C6H7Cl1N2	2.85	142.59
272	8	99+%	0.68	0.62	0.61	95-84-7	o-cresol	C7H8O1	26.5	108.14
692	8	99%+	1.14	1.13	1.13	95-87-4	2,5-dimethylphenol	C8H10O1	9.06	122.17
31	1		1.33	1.52	1.68	95-94-3	1,2,4,5-tetrachlorobenzene	C6H2Cl4	4.51	215.89
14	1		2.22	2.21	2.19 *	95-95-4	2,4,5-trichlorophenol	C6H3Cl3O1	1.27	197.45
1251	49		2.04			95-95-4	2,4,5-trichlorophenol	C6H3Cl3O1	1.80	197.45
319	2		−0.17			96-13-9	2,3-dibromopropanol	C3H6Br2O1	322	217.90
770	35		0.90		0.78	96-18-4	1,2,3-trichloropropane	C3H5Cl3	24.5	147.43
242	50		−0.99			96-22-0	3-pentanone	C5H10O1	842	86.13
788	35		−1.71		−1.58	96-24-2	3-chloro-1,2-propanediol	C3H7Cl1O2	4203	110.54
334	2		−1.04			96-29-7	2-butanoneoxime	C4H9N1O1	955	87.12
604	50		−1.04			96-29-7	2-butanoneoxime	C4H9N1O1	955	87.12
705	31	99%		−1.31		96-45-7	ethylenthiourea, ETU, 2-imidazolidinethione	C3H6N2S1	2086	102.16
902	32			−1.38		96-45-7	ethylenethiourea	C3H6N2S1	2451	102.16
1078	8	97%	−1.15	−1.05	−0.98	96-50-4	2-aminothiazole	C3H4N2S1	956	100.14
306	8	99%	0.35	0.37	0.37	96-99-1	4-chloro-3-nitrobenzoic acid	C7H4Cl1N1O4	86.0	201.57
1331	8	>99%	1.20	1.55	1.76	97-00-7	1-chloro-2,4-dinitrobenzene	C6H3Cl1N2O4	3.52	202.55
883	8	96%	0.49	0.56	0.58	97-02-9	2,4-dinitroaniline	C6H5N3O4	48.2	183.12
76	7	95%		3.69		97-23-4	5,5'-dichloro-2,2'-dihydroxy diphenylmethane	C13H10Cl2O2	0.0549	269.13
569	8	99%	0.40	0.38	0.36	97-67-6	malic acid, L	C4H6O5	58.5	134.09
714	31	95%		2.04		97-74-5	TMTM; tetramethylthiuram-monosulfide	C6H12N2S3	1.90	208.38

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
720	31	97%		2.39		97-77-8	Disulfiram; tetraethylthiuramdisulfide	C10H20N2S4	1.21	296.56
814	37		0.58	0.46	0.41	97-88-1	butyl methacrylate	C8H14O2	55.3	142.22
1224	8				−0.46	98-05-5	phenylarsonic acid	C6H7As1O3	583	202.04
578	8	99%+	1.22	1.09	1.04	98-07-7	1',1',1'-trichlorotoluene	C7H5Cl3	17.8	195.48
177	12	99%	0.87	0.80	0.66	98-08-8	1',1',1'-trifluorotoluene	C7H5F3	32.0	146.11
154	12	98%	−0.14	−0.20	−0.19	98-10-2	benzene sulfonamide	C6H7N1O2S1	243	157.19
340	2		2.85			98-54-4	p-tert-butylphenol	C10H14O1	0.212	150.22
132	11		1.21	1.13	1.10	98-56-6	4-chloro-1',1',1'-trifluorotoluene	C7H4Cl1F3	14.3	180.55
488	27	6	1.82	1.71		98-56-6	4-chlorobenzotrifluoride	C7H4Cl1F3	3.52	180.55
266	8	99%+	1.98	1.92	1.90	98-59-9	toluene-4-sulfonyl chloride	C7H7Cl1S1O2	2.40	190.65
122	11		0.44	0.36	0.28	98-64-6	1-chloro-4-benzene sulfonamide	C6H6Cl1N1O2S1	101	191.63
1006	8	65%	−0.12	−0.21	−0.34	98-67-9	phenol-4-sulfonic acid	C6H6O4S1	381	174.18
1160	8	99%	2.13	2.04	1.91	98-82-8	cumene	C9H12	1.48	120.20
1226	8				0.89	98-86-2	acetophenone	C8H8O1	15.5	120.15
236	8	99%	1.88	1.67	1.44	98-87-3	1',1'-dichlorotoluene	C7H6Cl2	5.85	161.03
305	8	99%	1.13	1.08	1.06	98-88-4	benzoyl chloride	C7H5Cl1O1	12.2	140.57
98	10		0.64	0.62	0.55 *	98-95-3	nitrobenzene	C6H5N1O2	34.7	123.11
920	41			0.84		98-95-3	nitrobenzene	C6H5N1O2	17.8	123.11
1008	8	99%	0.48	0.43	0.47	98-98-6	picolinic acid	C6H5N1O2	41.7	123.11
929	41			1.54		99-08-1	3-nitrotoluene	C7H7N1O2	3.96	137.14
1304	8	98%	0.76	0.73	0.66	99-09-2	3-nitroaniline	C6H6N2O2	30.2	138.13
893	8	97%	0.86	0.80	0.64	99-10-5	3,5-dihydroxybenzoic acid	C7H6O4	35.3	154.12
1335	8	98%	1.77	1.80	1.75	99-30-9	2,6-dichloro-4-nitroaniline	C6H4Cl2N2O2	3.68	207.02
1050	8	>99%	−0.12	−0.06	−0.06	99-34-3	3,5-dinitrobenzoic acid	C7H4N2O6	244	212.12
934	41			1.85		99-51-4	3,4-dimethylnitrobenzene	C8H9N1O2	2.14	151.17
1118	8	97%	1.69	1.68	1.63	99-52-5	2-methyl-4-nitroaniline	C7H8N2O2	3.57	152.15
105	10		1.32	1.28	1.28	99-54-7	3,4-dichloronitrobenzene	C6H3Cl2N1O2	10.1	192.00

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
1119	8	99%	1.02	1.04	1.00	99-55-8	2-methyl-5-nitroaniline	C7H8N2O2	15.2	152.15
216	8	97%	0.74	0.84	0.85	99-56-9	4-nitro-o-phenylenediamine	C6H7N3O2	21.6	153.14
884	8	97%	0.72	0.72	0.80 *	99-65-0	1,3-dinitrobenzene	C6H4N2O4	26.6	168.11
699	8	97%	0.53	0.72	0.80	99-65-0	1,3-dinitrobenzene	C6H4N2O4	26.6	168.11
936	41			0.62		99-65-0	1,3-dinitrobenzene	C6H4N2O4	40.3	168.11
620	8	99%+	2.09	2.01	1.90	99-75-2	methyl-4-methylbenzoate	C9H10O2	1.89	150.18
536	8	99%	1.40	1.39	1.38	99-76-3	methyl-4-hydroxybenzoate	C8H8O3	6.34	152.15
641	8	98%	1.50	1.52	1.52	99-90-1	4'-bromoacetophenone	C8H7Br1O1	6.01	199.05
137	11	97%	1.36	1.34	1.35	99-91-2	4-chloro-acetophenone	C8H7Cl1O1	6.91	154.59
40	1		1.48	1.44	1.49	99-93-4	4-hydroxy acetophenone	C8H8O2	4.41	136.15
42	1		1.05	1.07	1.12	99-96-7	4-hydroxy benzoic acid	C7H6O3	10.5	138.12
972	8	>98%	1.80	2.14	2.21	99-98-9	4-amino-N,N-dimethylaniline	C8H12N2	0.840	136.20
1039	11				1.04 *	99-99-0	4-nitrotoluene	C7H7N1O2	12.5	137.14
930	41			1.10		99-99-0	4-nitrotoluene	C7H7N1O2	10.9	137.14
101	10		0.88	0.87	0.82 *	100-00-5	4-chloronitrobenzene	C6H4Cl1N1O2	23.8	157.56
923	41			0.67		100-00-5	4-chloronitrobenzene	C6H4Cl1N1O2	33.7	157.56
1194	8	99%	2.23	2.20	2.14 *	100-01-6	4-nitroaniline	C6H6N2O2	1.00	138.14
1212	11				2.13	100-01-6	4-nitroaniline	C6H6N2O2	1.02	138.14
739	35		1.11		1.02 *	100-02-7	4-nitrophenol	C6H5N1O3	13.3	139.11
1241	46	22		1.15		100-02-7	4-nitrophenol	C6H5N1O3	9.85	139.11
351	2		1.03			100-02-7	4-nitrophenol	C6H5N1O3	13.0	139.11
1255	49		1.01			100-02-7	4-nitrophenol	C6H5N1O3	13.6	139.11
241	8	98%	1.25	1.26	1.30	100-06-1	4-methoxyacetophenone	C9H10O2	7.53	150.18
666	8	99%	1.95	1.95	1.95	100-07-2	p-anisoyl chloride	C8H7Cl1O2	1.91	170.60
967	8	99%	2.33	2.30	2.23	100-10-7	4-dimethylaminobenzaldehyde	C9H11N1O1	0.878	149.19
521	8	99%	2.07	2.05	2.02	100-12-9	4-ethylnitrobenzene	C8H9N1O2	1.44	151.17
183	12	99%	1.87	1.84	1.82	100-14-1	4-nitrobenzyl chloride	C7H6Cl1N1O2	2.60	171.58

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
587	8	97%	2.06	2.08	2.10	100-15-2	N-methyl-4-nitroaniline	C7H8N2O2	1.21	152.15
1210	11				2.10	100-16-3	4-nitrophenylhydrazine	C6H7N3O2	1.22	153.14
1038	11				0.97	100-17-4	4-nitroanisole	C7H7N1O3	16.4	153.14
1037	11				0.78	100-19-6	4-nitroacetophenone	C8H7N1O3	27.4	165.15
680	8		1.40	1.43	1.44	100-23-2	N,N-dimethyl-p-nitroaniline	C8H10N2O2	6.03	166.18
518	8	15	2.65	3.17	3.25 *	100-25-4	1,4-dinitrobenzene	C6H4N2O4	0.0945	168.11
937	41			2.97		100-25-4	1,4-dinitrobenzene	C6H4N2O4	0.180	168.11
185	12	98%	0.70	0.68	0.64 *	100-27-6	2-(4-nitrophenyl)ethanol	C8H9N1O3	38.3	167.17
533	8	98%	0.51	0.54	0.57	100-27-6	2-(4-nitrophenyl)ethanol	C8H9N1O3	45.0	167.17
572	8	99%+	1.21	1.14	1.04	100-41-4	ethylbenzene	C8H10	9.68	106.18
311	14		1.28			100-42-5	styrene	C8H8	5.47	104.15
1048	8	95%	1.09	1.04	1.03	100-43-6	4-vinylpyridine	C7H7N1	9.81	105.14
168	12	97%	1.82	1.75	1.63	100-44-7	benzyl chloride	C7H7Cl1	2.97	126.59
160	12	99%	0.70	0.80	0.80	100-46-9	benzylamine	C7H9N1	17.0	107.16
166	12	99.9%	1.01	0.99	0.95 *	100-47-0	benzonitrile	C7H5N1	11.6	103.12
373	15		0.73			100-47-0	benzonitrile	C7H5N1	19.2	103.12
830	8	98%	−0.64	−0.60	−0.58 *	100-48-1	4-cyanopyridine	C6H4N2	396	104.11
856	8	98%	−0.67	−0.62	−0.67	100-48-1	4-cyanopyridine	C6H4N2	487	104.11
167	12	99%	0.23	0.23	0.18	100-51-6	benzyl alcohol	C7H8O1	71.4	108.14
162	12	98%	1.24	1.32	1.30	100-52-7	benzaldehyde	C7H6O1	5.32	106.12
194	12	99%	2.11	2.10	2.01	100-53-8	benzyl mercaptan	C7H8S1	1.21	124.21
981	8	98%	−0.79	−0.79	−0.80	100-54-9	3-cyanopyridine	C6H4N2	657	104.11
170	12	99%	0.96	0.94	0.89	100-61-8	N-methyl-aniline	C7H9N1	13.8	107.16
204	12	99%	0.14	0.17	0.21	100-63-0	phenylhydrazine	C6H8N2	66.7	108.14
1225	8				0.76	100-66-3	anisole	C7H8O1	18.8	108.15
980	8	99%	−0.48	−0.19	0.07	100-70-9	2-cyanopyridine	C6H4N2	88.6	104.11
860	8	99%+	0.11	0.21	0.15	100-74-3	4-ethylmorpholine	C6H13N1O1	81.5	115.18

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
252	8	96%	2.85	2.85	2.87	101-53-1	4-benzylphenol	C13H12O1	0.249	184.24
190	12	98%	2.84	2.85	2.75	101-54-2	4-aminodiphenylamine	C12H12N2	0.328	184.24
228	8	99%	1.52	1.48	1.48	101-77-9	4,4'-diaminobibenzyl methane	C13H14N2	6.57	198.27
248	8	98%	1.73	1.75	1.80	101-80-4	4,4'-diaminodiphenyl ether	C12H12N2O1	3.17	200.24
182	12	99%	2.07	1.87	1.68	101-81-5	diphenylmethane	C13H12	3.52	168.24
976	8	98%	0.88	0.89	0.91	101-82-6	2-benzylpyridine	C12H11N1	20.8	169.23
1217	11	99%+			1.67	101-84-8	phenylether	C12H10O1	3.64	170.21
909	32			1.36		102-08-9	N,N'-diphenylthiourea	C13H12N2S1	9.97	228.32
404	17		2.13			102-30-7	Dichloran	C21H36Cl3N1	3.03	408.93
278	8	97%	2.10	2.23	2.29	102-36-3	3,4-dichlorophenyl isocyanate	C7H3Cl2N1O1	0.964	188.01
207	12	99%	1.23	1.21	1.15	103-03-7	1-phenylsemicarbazide	C7H9N3O1	10.7	151.17
1381	8	98%	2.09	2.03	1.97	103-16-2	4-(benzyloxy)phenol	C13H12O2	2.15	200.24
579	8	99%+	2.00	1.92	1.87	103-32-2	N-phenylbenzylamine	C13H13N1	2.47	183.25
294	8	99%	2.29	2.24	2.15	103-33-3	azobenzene	C12H10N2	1.29	182.23
1340	8	98%	2.45	2.42	2.37	103-63-9	(2-bromoethyl)benzene	C8H9Br1	0.789	185.07
852	8	97%	1.19	1.14	1.07	103-69-4	N-ethylaniline	C8H11N1	10.3	121.18
199	12	98%	1.45	1.44	1.41	103-70-8	formanilide	C7H7N1O1	4.71	121.14
174	12	98%	0.78	0.84	0.77	103-71-9	phenylisocyanate	C7H5N1O1	20.2	119.12
1220	11				1.81	103-72-0	isothiocyanatobenzene	C7H5N1S1	2.09	135.19
1307	8	99%	1.36	1.29	1.21	103-73-1	phenetole	C8H10O1	7.53	122.17
1190	48	98%	−0.63	−0.64	−0.64	103-74-2	2-(2-hydroxyethyl)pyridine	C7H9N1O1	538	123.16
571	8	98%	1.53	1.63	1.66	103-80-0	phenylacetyl chloride	C8H7Cl1O1	3.38	154.60
152	12	99%	−0.53	−0.50	−0.60	103-82-2	phenylacetic acid	C8H8O2	542	136.15
201	12	97%	−0.39	−0.30	−0.32	103-84-4	N-phenylacetamide	C8H9N1O1	282	135.17
176	12	97%	1.41	1.56	1.64 *	103-85-5	N-phenylthiourea	C7H8N2S1	3.49	152.22
908	32			1.05		103-85-5	N-phenylthiourea	C7H8N2S1	13.6	152.22
546	48	98%	−0.87	−0.84	−0.82	103-90-2	4-acetamidophenol; Acetaminophen	C8H9N1O2	999	151.17

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
239	8	99%	0.46	0.47	0.47	104-01-8	4-methoxyphenylacetic acid	C9H10O2	56.3	166.18
1036	11				−0.03	104-03-0	4-nitrophenylacetic acid	C8H7N1O4	194	181.15
226	8	98%	1.51	1.51	1.55	104-10-9	p-aminophenethyl alcohol	C8H11N1O1	3.87	137.18
143	11		1.76	1.79	1.82	104-12-1	4-chlorophenyl-isocyanate	C7H4Cl1N1O1	2.32	153.56
269	8	97%	2.92	2.91	2.94	104-47-2	4-methoxyphenyl acetonitrile	C9H9N1O1	0.169	147.18
147	11		2.50	2.43	2.40	104-83-6	4-chloro-benzylchloride	C7H6Cl2	0.641	161.03
260	8	98%	0.77	0.74	0.67	104-84-7	4-methylbenzylamine	C8H11N1	25.9	121.18
890	8	98%	1.54	1.48	1.41	104-85-8	p-tolunitrile	C8H7N1	4.56	117.15
130	11		1.00	0.90	0.76	104-86-9	4-chlorobenzylamine	C7H8Cl1N1	24.6	141.60
1014	8	98%	1.42	1.38	1.27	104-87-0	p-toluylaldehyde	C8H8O1	6.45	120.15
133	11		1.14	1.11	1.13	104-88-1	4-chlorobenzaldehyde	C7H5Cl1O1	10.4	140.57
649	8	99%	1.92	1.89	1.86	104-92-7	4-bromoanisole	C7H7Br1O1	2.58	187.04
855	8	99%	1.64	1.61	1.54	104-93-8	p-methylanisole	C8H10O1	3.52	122.17
1029	11				0.93	104-94-9	p-anisidine	C7H9N1O1	14.5	123.16
250	8	99%	0.97	0.98	1.02	105-07-7	4-cyanobenzaldehyde	C8H5N1O1	12.5	131.13
238	8	98%	2.11	2.12	2.13	105-13-5	4-methoxybenzyl alcohol	C8H10O2	1.02	138.17
530	8	98%	1.91	1.89	1.89	105-13-5	4-methoxybenzyl alcohol	C8H10O2	1.78	138.17
381	16		−0.78	−0.90		105-37-3	ethylpropionate	C5H10O2	811	102.15
905	32			−0.76		105-55-5	N,N'-diethylthiourea	C5H12N2S1	761	132.23
871	8	97%	1.69	1.67	1.66 *	105-67-9	2,4-dimethylphenol	C8H10O1	2.67	122.17
346	2		1.44			105-67-9	2,4-dimethylphenol	C8H10O1	4.44	122.17
1024	1	99%			1.92	106-37-6	1,4-dibromobenzene	C6H4Br2	2.84	235.92
846	8	98%	2.07	1.97	1.83	106-38-7	4-bromotoluene	C7H7Br1	2.53	171.04
582	8	99%+	1.62	1.54	1.47	106-39-8	4-bromochlorobenzene	C6H4Br1Cl1	6.49	191.46
746	35		2.63		2.57	106-41-2	4-bromophenol	C6H5Br1O1	0.466	173.01
559	1	99.5%			1.27	106-42-3	p-xylene	C8H10	5.70	106.17
135	11		1.41	1.34	1.29 *	106-43-4	4-chlorotoluene	C7H7Cl1	6.49	126.58

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
490	27	6	1.30	1.24		106-43-4	4-chlorotoluene	C7H7Cl1	7.28	126.59
35	1		1.72	1.67	1.66 *	106-44-5	p-cresol	C7H8O1	2.37	108.14
375	15		1.92			106-44-5	p-cresol	C7H8O1	1.30	108.14
420	19	2	1.86			106-44-5	p-cresol	C7H8O1	1.49	108.14
25	1		1.53	1.48	1.44	106-46-7	1,4-dichlorobenzene	C6H4Cl2	5.34	147.00
84	9		1.60	1.53	1.40	106-47-8	4-chloroaniline	C6H6Cl1N1	5.08	127.58
4	1		1.18	1.15	1.19 *	106-48-9	4-chlorophenol	C6H5Cl1O1	8.30	128.56
727	35		2.13		2.08	106-48-9	4-chlorophenol	C6H5Cl1O1	1.07	128.56
1027	11				1.40	106-49-0	p-toluidine	C7H9N1	4.27	107.16
1025	11				0.46	106-50-3	p-phenylenediamine	C6H8N2	37.5	108.14
1279	40	31	3.73	3.73	3.69 *	106-51-4	1,4-benzoquinone	C6H4O2	0.0221	108.10
77	7	98%		3.73		106-51-4	1,4-benzoquinone	C6H4O2	0.0201	108.10
377	15		4.10			106-51-4	1,4-benzoquinone	C6H4O2	0.0086	108.10
434	20	4	3.13			106-51-4	1,4-benzoquinone	C6H4O2	0.0801	108.10
148	11		2.24	2.39	2.46	106-54-7	4-chloro-thiophenol	C6H5Cl1S1	0.550	158.64
812	37		−1.40	−1.10	−0.86	106-89-8	epichlorohydrin	C3H5ClO1	670	92.53
595	50		1.92			107-02-8	acrolein	C3H4O1	0.674	56.07
760	35		−0.85		−0.97 *	107-06-2	1,2-dichloroethane	C2H4Cl2	924	98.96
467	25			−1.05		107-06-2	1,2-dichloroethane	C2H4Cl2	1110	98.96
612	21	7		−1.32		107-06-2	1,2-dichloroethane	C2H4Cl2	2068	98.96
313	14		−0.20			107-06-2	1,2-dichloroethane	C2H4Cl2	157	98.96
811	37		−2.21	−2.20	−2.19 *	107-07-3	2-chloroethanol	C2H5Cl1O1	12470	80.51
914	33			−0.69		107-07-3	2-chloroethanol	C2H5Cl1O1	394	80.51
324	2		−2.22			107-07-3	2-chloroethanol	C2H5Cl1O1	13361	80.51
384	16		0.46	0.54	*	107-11-9	allylamine	C3H7N1	16.5	57.10
51	3		−2.37		−2.35	107-11-9	allylamine	C3H7N1	12783	57.10
50	3		−1.98		−1.98	107-12-0	propionitrile	C3H5N1	5260	55.08

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
1320	8	>99%	−0.97	−0.84	−0.68 *	107-13-1	acrylonitrile	C3H3N1	254	53.06
596	50		−1.87			107-13-1	acrylonitrile	C3H3N1	3933	53.06
710	31	40% in wtr.		0.47	*	107-15-3	ethylenediamine	C2H8N2	20.4	60.12
1357	8	>99%	−1.02	−1.02	−1.00	107-21-1	ethylene glycol	C2H6O2	621	62.07
323	2		−1.41			107-41-5	2-methyl-2,4-pentanediol	C6H14O2	3038	118.18
333	2		0.10			108-10-1	4-methyl-2-pentanone	C6H12O1	79.6	100.16
837	8	97%	−0.80	−0.76	−0.77	108-13-4	malonamide	C3H6N2O2	601	102.09
608	50		−0.69			108-20-3	isopropylether	C6H14O1	500	102.18
308	8	99%	0.41	0.37	0.35	108-31-6	maleic anhydride	C4H2O3	43.8	98.06
874	8	99%+	1.20	1.16	1.14 *	108-39-4	m-cresol	C7H8O1	7.83	108.14
374	15		1.12			108-39-4	m-cresol	C7H8O1	8.20	108.14
396	17		0.99			108-39-4	m-cresol	C7H8O1	11.1	108.14
83	9		1.01	0.98	0.96	108-42-9	3-chloroaniline	C6H6Cl1N1	14.0	127.58
3	1		1.11	0.99	0.96 *	108-43-0	3-chlorophenol	C6H5Cl1O1	14.1	128.56
726	35		1.32		1.27	108-43-0	3-chlorophenol	C6H5Cl1O1	6.90	128.56
600	10				0.96	108-44-1	m-toluidine	C7H9N1	11.7	107.16
742	35		−0.53		−0.38 *	108-46-3	resorcinol	C6H6O2	264	110.11
369	15		−0.45			108-46-3	resorcinol	C6H6O2	310	110.11
697	8	96%+	0.78	0.77	0.76	108-47-4	2,4-lutidine	C7H9N1	18.6	107.16
696	8	97%	−0.04	−0.04	−0.04	108-48-5	2,6-lutidine	C7H9N1	117	107.16
694	8	99%+	0.99	0.99	0.99	108-68-9	3,5-dimethylphenol	C8H10O1	12.5	122.17
1177	8	98%	0.93	0.87	0.80	108-69-0	3,5-dimethylaniline	C8H11N1	19.2	121.18
28	1		1.15	1.11	1.11	108-70-3	1,3,5-trichlorobenzene	C6H3Cl3	14.1	181.45
1223	8				1.22	108-86-1	bromobenzene	C6H5Br1	9.46	157.02
1204	44		0.73	0.67	0.67 *	108-88-3	toluene	C7H8	19.7	92.15
1218	1				0.60	108-88-3	toluene	C7H8	23.1	92.15
472	25			0.71		108-88-3	toluene	C7H8	18.0	92.15

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
223	13		0.28			108-88-3	toluene	C7H8	48.4	92.15
394	17		0.27			108-88-3	toluene	C7H8	49.5	92.15
503	28		−2.56			108-88-3	toluene	C7H8	33458	92.15
688	8	98%+	0.51	0.52	0.54	108-89-4	4-picoline	C6H7N1	26.9	93.13
22	1		1.08	0.99	1.00 *	108-90-7	chlorobenzene	C6H5Cl1	11.3	112.56
474	25			0.88		108-90-7	chlorobenzene	C6H5Cl1	14.8	112.56
1066	21	7		0.75		108-90-7	chlorobenzene	C6H5Cl1	20.0	112.56
48	3		−1.63		−0.08	108-91-8	cyclo-hexylamine	C6H13N1	119	99.20
318	2		−0.06			108-93-0	cyclohexanol	C6H12O1	115	100.16
331	2		0.72			108-94-1	cyclohexanone	C6H10O1	18.7	98.15
1	1		0.50	0.44	0.42 *	108-95-2	phenol	C6H6O1	35.8	94.12
1205	44		0.67	0.65	0.65	108-95-2	phenol	C6H6O1	21.1	94.12
724	35		0.71		0.56	108-95-2	phenol	C6H6O1	25.9	94.12
69	6	pH 6.7	0.50	0.44	0.42	108-95-2	phenol	C6H6O1	35.8	94.12
1264	43		0.51	0.47		108-95-2	phenol	C6H6O1	31.9	94.12
310	14		0.63			108-95-2	phenol	C6H6O1	22.1	94.12
372	15		0.58			108-95-2	phenol	C6H6O1	24.8	94.12
428	19	2	0.58			108-95-2	phenol	C6H6O1	24.8	94.12
395	17		0.56			108-95-2	phenol	C6H6O1	25.9	94.12
456	24		0.49			108-95-2	phenol	C6H6O1	30.5	94.12
504	28		0.38			108-95-2	phenol	C6H6O1	39.2	94.12
355	2		0.37			108-95-2	phenol	C6H6O1	40.1	94.12
225	13		0.35			108-95-2	phenol	C6H6O1	42.0	94.12
180	12	99%	1.94	2.11	2.10 *	108-98-5	thiophenol	C6H6S1	0.875	110.18
1254	49		1.36			108-98-5	thiophenol	C6H6S1	4.81	110.18
686	8	97%	0.12	0.10	0.10	108-99-6	3-picoline	C6H7N1	74.0	93.13
992	8	98%	−0.78	−0.75	−0.71	109-00-2	3-hydroxypyridine	C5H5N1O1	488	95.10

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
684	8	98%+	−0.15	−0.13	−0.07	109-06-8	2-picoline	C6H7N1	109	93.13
1101	8	>99%	−0.67	−0.65	−0.66	109-08-0	2-methylpyrazine	C5H6N2	430	94.12
114	10		0.21	0.20	0.21	109-09-1	2-chloro-pyridine	C5H4Cl1N1	70.0	113.55
907	32			1.38		109-46-6	N,N'-di(n-butyl)thiourea	C9H20N2S1	7.85	188.34
771	35		−0.72		−0.90	109-69-3	1-chlorobutane	C4H9Cl1	735	92.57
52	3		−2.40		−2.40	109-73-9	n-butylamine	C4H11N1	18372	73.14
701	31	99%		0.53	*	109-89-7	diethylamine	C4H11N1	21.6	73.14
55	3		−2.72		−2.64	109-89-7	diethylamine	C4H11N1	31927	73.14
1124	8	99%	−0.84	−0.81	−0.79	109-97-7	pyrrole	C4H5N1	414	67.09
1323	8	>99%	−0.40	−0.32	−0.18	110-00-9	furan	C4H4O1	103	68.08
1327	8	>99%	−0.25	−0.25	−0.33	110-02-1	thiophene	C4H4S1	180	84.14
335	2	9	−0.93			110-12-3	5-methyl-2-hexanone	C7H14O1	972	114.19
337	2	9	−1.10			110-12-3	5-methyl-2-hexanone	C7H14O1	1438	114.19
1314	8	>99%	−0.62	−0.65	−0.68	110-80-5	2-ethoxyethanol	C4H10O2	431	90.12
792	35		−0.37		−0.43	110-82-7	cyclohexane	C6H12	227	84.16
675	8	99%+	−0.58	−0.47	−0.43 *	110-86-1	pyridine	C5H5N1	213	79.10
113	10				−0.97	110-86-1	pyridine	C5H5N1	738	79.10
387	16		−1.52	−1.43		110-86-1	pyridine	C5H5N1	2129	79.10
1154	8	>99%	0.16	0.23	0.18	110-91-8	morpholine	C4H9N1O1	57.6	87.12
330	2		0.86			110-93-0	6-methyl-5-hepten-2-one	C8H14O1	17.4	126.20
329	2		0.86			111-13-7	2-octanone	C8H16O1	17.7	128.22
1198	8		0.78	0.83	0.84	111-26-2	N-hexylamine	C6H15N1	14.6	101.19
755	35		0.68		0.57 *	111-27-3	1-hexanol	C6H14O1	27.5	102.18
468	25			0.18		111-27-3	1-hexanol	C6H14O1	67.5	102.18
317	2		0.40			111-27-3	1-hexanol	C6H14O1	40.7	102.18
601	50		0.12			111-30-8	glutaric dialdehyde	C5H8O2	75.9	100.12
224	13	1	0.16			111-42-2	diethanolamine	C4H11N1O2	72.8	105.16

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
459	25			−2.44	*	111-46-6	diethyleneglycol	C4H10O3	29228	106.12
590	50		−1.93			111-46-6	diethyleneglycol	C4H10O3	9032	106.12
793	35		−0.80		−0.89	111-65-9	octane	C8H18	887	114.23
1355	8	99%	−0.56	−0.57	−0.58	111-69-3	1,4-dicyanobutane	C6H8N2	411	108.14
471	25			1.07	*	111-70-6	1-heptanol	C7H16O1	9.89	116.23
379	16		0.90	0.76		111-70-6	1-heptanol	C7H16O1	20.2	116.23
777	35		−0.29		−0.43	111-85-3	1-chlorooctane	C8H17Cl1	400	148.68
551	30	>98%	1.34	1.22	1.25 *	111-87-5	1-octanol	C8H18O1	7.32	130.23
756	35		1.58		1.55	111-87-5	1-octanol	C8H18O1	3.67	130.23
475	25			1.44		111-87-5	1-octanol	C8H18O1	4.73	130.23
315	2		1.32			111-87-5	1-octanol	C8H18O1	6.23	130.23
365	2		−0.93		*	111-90-0	2-(2-ethoxyethoxy)ethanol	C6H14O3	1142	134.18
917	33			−1.91		111-90-0	2-(2-ethoxyethoxy)ethanol	C6H14O3	10907	134.18
436	20	4	2.60			112-02-7	cetyl-trimethyl ammonium chloride	C19H42Cl1N1	0.804	320.07
1149	8	97%	2.89	2.90	2.81	112-18-5	N,N-dimethyldodecylamine	C14H31N1	0.331	213.41
366	2		−2.34			112-27-6	triethylene glycol	C6H14O4	32854	150.17
757	35		2.08		2.03	112-30-1	1-decanol	C10H22O1	1.48	158.29
1151	8	98%	3.69	3.64	3.51	112-53-8	1-dodecanol	C12H26O1	0.0576	186.34
758	35		2.81		2.74	112-53-8	1-dodecanol	C12H26O1	0.339	186.34
790	35		0.45		0.35 *	115-20-8	2,2,2-trichloroethanol	C2H3Cl3O1	66.7	149.40
913	33			0.53		115-20-8	2,2,2-trichloroethanol	C2H3Cl3O1	44.1	149.40
321	2		−1.08			115-20-8	2,2,2-trichloroethanol	C2H3Cl3O1	1796	149.40
360	2		2.92			115-32-2	Kelthane; Dicofol	C14H9Cl5O1	0.445	370.48
607	50		0.76			116-16-5	hexachloroacetone	C3Cl6O1	46.0	264.75
111	10		1.56	1.57	1.50	117-18-0	2,3,5,6-tetrachloro-nitrobenzene	C6H1Cl4N1O2	8.25	260.89
818	37		−0.31	−0.31	−0.31	117-81-7	di(2-ethylhexyl)phthalate	C24H38O4	798	390.62
748	35		1.68		1.71 *	118-79-6	2,4,6-tribromophenol	C6H3Br3O1	6.45	330.82

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
344	2		2.09			118-79-6	2,4,6-tribromophenol	C6H3Br3O1	2.69	330.82
427	19	2	1.06			118-96-7	trinitrotoluene	C7H5N3O6	19.8	227.15
1366	8	99%	1.23	1.18	1.11	119-10-8	4-methyl-2-nitroanisole	C8H9N1O3	13.0	167.16
1121	8	97%	1.42	1.48	1.45	119-32-4	4-methyl-3-nitroaniline	C7H8N2O2	5.40	152.15
838	8		0.55	0.56	0.60 *	119-34-6	4-amino-2-nitrophenol	C6H6N2O3	38.7	154.13
354	2		0.63			119-34-6	4-amino-2-nitrophenol	C6H6N2O3	36.1	154.13
1216	11				1.31	119-61-9	benzophenone	C13H10O1	8.92	182.22
962	42	24, 25	1.88	1.77		119-65-3	isoquinoline	C9H7N1	2.19	129.16
879	8	97%	0.46	0.44	0.28	119-90-4	3,3'-dimethoxybenzidine	C14H16N2O2	128	244.14
556	8	99%	0.93	0.98	1.02	120-61-6	dimethylterephthalate	C10H10O4	18.5	194.19
1100	8	>99%	1.68	1.69	1.69	120-72-9	indole	C8H7N1	2.39	117.15
743	35		0.54		0.57 *	120-80-9	catechol	C6H6O2	29.6	110.11
370	15		0.54			120-80-9	catechol	C6H6O2	31.8	110.11
27	1		1.89	1.69	1.66 *	120-82-1	1,2,4-trichlorobenzene	C6H3Cl3	3.97	181.45
445	21	7		1.78		120-82-1	1,2,4-trichlorobenzene	C6H3Cl3	3.01	181.45
6	1		1.54	1.51	1.47 *	120-83-2	2,4-dichlorophenol	C6H4Cl2O1	5.52	163.00
219	12	95%	2.17	2.14	2.12	120-83-2	2,4-dichlorophenol	C6H4Cl2O1	1.24	163.00
729	35		1.85		1.86	120-83-2	2,4-dichlorophenol	C6H4Cl2O1	2.25	163.00
447	21	7		1.43		120-83-2	2,4-dichlorophenol	C6H4Cl2O1	6.06	163.00
345	2		1.65			120-83-2	2,4-dichlorophenol	C6H4Cl2O1	3.65	163.00
1250	49		1.51			120-83-2	2,4-dichlorophenol	C6H4Cl2O1	5.04	163.00
706	31	97%		−1.58		120-93-4	ethyleneurea	C3H6N2O1	3274	86.11
795	35		−1.98		−1.98	120-94-5	1-methylpyrrolidine	C5H11N1	8132	85.15
46	3		0.74		0.94	121-14-2	2,4-dinitrotoluene	C7H6N2O4	20.9	182.14
938	41			0.55		121-14-2	2,4-dinitrotoluene	C7H6N2O4	51.3	182.14
1110	8		−0.53	−0.56	−0.50	121-19-7	4-hydroxy-3-nitrobenzenearsonic acid	C6H6As1N1O6	832	263.04
526	8	99%	0.60	0.46	0.18	121-57-3	sulfanilic acid	C6H7O3S1	114	173.19

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
161	12	99%	0.95	0.95	0.95	121-69-7	N,N-dimethylaniline	C8H11N1	13.6	121.18
100	10		1.02	0.96	0.90 *	121-73-3	3-chloronitrobenzene	C6H4Cl1N1O2	19.8	157.56
922	41			1.08		121-73-3	3-chloronitrobenzene	C6H4Cl1N1O2	13.1	157.56
424	19	2	2.04			121-75-5	Malathion	C10H19O6P1S2	3.01	330.38
407	17		1.52			121-75-5	Malathion	C10H19O6P1S2	9.98	330.38
499	28	12	0.74			121-75-5	Malathion	C10H19O6P1S2	60.1	330.38
1268	52	32	−0.08			121-75-5	Malathion	C10H19O6P1S2	397	330.38
645	8	99%+	1.43	1.39	1.36	121-97-1	4'-methoxypropiophenone	C10H12O2	7.17	164.20
997	8	>98%	2.03	2.00	1.86	121-98-2	methyl-p-anisate	C9H10O3	2.29	166.18
270	8	90%	1.61	1.61	1.63	122-00-9	4-methylacetophenone	C9H10O1	3.15	134.18
141	11		1.56	1.48	1.48	122-01-0	4-chloro-benzoylchloride	C7H4Cl2O1	5.79	175.00
1209	11				0.99	122-04-3	4-nitrobenzoylchloride	C7H4Cl1N1O3	19.0	185.57
497	28	12	−0.07			122-34-9	Simazine	C7H12Cl1N5	237	201.69
197	12	99%	1.78	1.69	1.55	122-39-4	diphenylamine	C12H11N1	4.77	169.23
158	12	98%	0.36	0.34	0.31	122-59-8	phenoxyacetic acid	C8H8O3	74.5	152.15
200	12	97%	2.39	2.34	2.27	122-66-7	hydrazobenzene	C12H12N2	0.989	184.24
172	12	97%	1.07	1.11	1.09	122-79-2	phenyl acetate	C8H8O2	11.1	136.15
971	8	99%	−0.14	−0.02	−0.06	122-80-5	4-aminoacetanilide	C8H10N2O1	172	150.18
258	8	95%	1.36	1.35	1.44	122-84-9	4-methoxyphenylacetone	C10H12O2	5.96	164.20
123	11	98%	0.10	0.19	0.28	122-88-3	4-chloro-phenoxy acetic acid	C8H7Cl1O3	97.9	186.59
988	8	>98%	1.31	1.28	1.15	122-95-2	1,4-diethoxybenzene	C10H14O2	11.8	166.12
1232	2		0.63			122-99-6	2-phenoxyethanol	C8H10O2	32.4	138.17
851	8	99%	3.47	3.44	3.38	123-07-9	4-ethylphenol	C8H10O1	0.0509	122.17
37	1		1.31	1.20	1.14	123-08-0	4-hydroxy benzaldehyde	C7H6O2	8.85	122.12
845	8	98%+	2.08	2.13	2.15 *	123-30-8	4-aminophenol	C6H7N1O1	0.773	109.13
741	35		1.44		1.52	123-30-8	4-aminophenol	C6H7N1O1	3.30	109.13
39	1		3.42	3.46	3.46 *	123-31-9	hydroquinone	C6H6O2	0.0382	110.11

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
376	15		3.14			123-31-9	hydroquinone	C6H6O2	0.0798	110.11
912	33			−0.57		123-54-6	2,4-pentanedione	C5H8O2	372	100.12
336	2		−1.02			123-54-6	2,4-pentanedione	C5H8O2	1048	100.12
367	2		0.64			123-72-8	butanal	C4H8O1	16.5	72.11
1158	8	99%	0.22	0.15	0.07	123-86-4	butylacetate	C6H12O2	98.9	116.16
1313	8	>99%	−0.84	−0.88	−0.92	123-91-1	1,4-dioxane	C4H8O2	733	88.11
700	31	98%		0.23		124-40-3	dimethylamine	C2H7N1	26.6	45.09
1311	8	98%	1.44	1.71	1.81	126-11-4	tris(hydroxymethyl)nitromethane	C4H9N1O5	2.34	151.12
994	8	>98%	−0.98	−0.95	−0.92	127-07-1	hydroxyurea	C1H4N2O2	633	76.06
492	27	6	0.99	0.93	*	127-18-4	tetrachloroethylene	C2Cl4	19.5	165.83
782	35		0.27		0.15	127-18-4	tetrachloroethylene	C2Cl4	117	165.83
618	21	7		0.39		127-18-4	tetrachloroethylene	C2Cl4	67.6	165.83
794	35		−1.74		−1.44	127-19-5	N,N-dimethylacetamide	C4H9N1O1	2399	87.12
208	12	97%	1.10	1.14	1.14	127-63-9	phenyl sulfone	C12H10O2S1	15.8	218.28
1240	46	22		>2.36		127-65-1	Chloramine T (trishydrate)	C7H13Cl1N1Na1O4S1	<1.0	227.65
707	31	97%		2.45		128-04-1	NaDMDC; sodiumdimethyldithiocarbamate	C3H6N1Na1S2	0.508	143.21
1108	8	>99%	1.45	1.41	1.39	128-37-0	2,6-di-tert-butyl-4-methylphenol	C15H24O1	8.98	220.36
815	37		1.08	1.03	1.03	131-11-3	dimethylphthalate	C10H10O4	18.1	194.19
390	16		2.49	2.58	*	131-52-2	sodium pentachlorophenate	C6Cl5Na1O1	0.758	288.30
1277	53			2.53		131-52-2	sodium pentachlorophenate	C6Cl5Na1O1	0.851	288.30
74	7	93%		2.38		131-52-2	sodium pentachlorophenate	C6Cl5Na1O1	1.20	288.30
419	19	2	2.76			131-52-2	sodium pentachlorophenate	C6Cl5Na1O1	0.501	288.30
1130	8	99+%	2.33	2.29	2.19	132-64-9	dibenzofuran	C12H8O1	1.09	168.20
299	8	95%	3.28	3.23	3.18	132-65-0	dibenzothiophene	C12H8S1	0.122	184.26
1274	52	32	0.45			134-62-3	Deet	C12H17N1O1	67.9	191.26
195	12	98%	2.60	2.56	2.52	134-81-6	benzil	C14H10O2	0.635	210.24
146	11		2.31	2.25	2.19	134-85-0	4-chlorobenzophenone	C13H9Cl1O1	1.40	216.66

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
834	8	99%	2.82	2.78	2.72	135-19-3	2-naphthol	C10H8O1	0.275	144.17
713	31	98%		3.38		137-26-8	Thiram; tetromethylthiuramdisulfide	C6H12N2S4	0.100	240.44
711	31	95%		3.31		137-30-4	Ziram; zincdimethyldithiocarbamate	C6H12N2S4Zn1	0.136	277.79
662	8	99%	0.11	0.12	0.09	138-41-0	4-carboxybenzene sulfonamide	C7H7N1O4S1	164	201.20
217	8	99%	3.06	3.56	3.94	138-89-6	4-nitroso-N,N-dimethylaniline	C8H10N2O1	0.0172	150.18
1237	46	22		3.23		139-07-1	benzyldimethyldodecylammonium chloride	C21H38Cl1N1	0.200	339.99
72	6	pH 6.7		−0.72		139-13-9	nitrilotriacetic acid	C6H9N1O6	1003	191.14
1028	11				2.52	139-59-3	p-phenoxyaniline	C12H11N1O1	0.559	185.23
575	8	99%+	0.35	0.35	0.36	140-10-3	trans-cinnamic acid	C9H8O2	64.7	148.16
1319	8	>99%	1.66	1.59	1.52	140-11-4	benzylacetate	C9H10O2	4.54	150.18
181	12	99%	1.89	1.99	1.94	140-29-4	benzylcyanide	C8H7N1	1.35	117.15
151	11	recryst.	2.71	2.69	2.70	140-53-4	4-chlorobenzyl cyanide	C8H6Cl1N1	0.573	287.15
257	8	97%+	0.57	0.63	0.63	140-75-0	4-fluorobenzylamine	C7H8F1N1	29.3	125.15
813	37		0.54	0.56	0.62	141-32-2	butyl acrylate	C7H12O2	30.8	128.19
832	8	99%	0.63	0.70	0.65	141-43-5	ethanolamine	C2H7N1O1	13.7	61.08
380	16		−1.77	−1.82		141-78-6	ethylacetate	C4H8O2	5822	88.12
1062	8	>99%	−0.71	−0.68	−0.68	141-86-6	2,6-diaminopyridine	C5H7N3	522	109.13
1197	8	>99%	−0.41	−0.40	−0.39	141-97-9	ethylacetoacetate	C6H10O3	319	130.14
991	8	97%	−0.48	−0.43	−0.42	142-08-5	2-hydroxypyridine	C5H5N1O1	250	95.10
769	35		0.20		−0.03	142-28-9	1,3-dichloropropane	C3H6Cl2	121	112.99
702	31	99%		0.40		142-59-6	Nabam; disodiumethylenebisdithiocarbamate	C4H6N2Na2S4	102	256.34
1161	8	99%	1.14	1.42	1.57	142-87-0	decylsodium sulfate	C10H21Na1O4S1	7.01	260.33
364	2		0.32			142-96-1	n-butyl ether	C8H18O1	62.3	130.23
67	6	pH 6.7		1.24		143-33-9	sodium cyanide	C1N1Na1	2.82	49.02
1383	8		1.25	1.18	1.1	143-74-8	phenol red	C19H14O5S1	28.1	354.38
717	31	99%		2.15		148-18-5	NaDEDC; sodium diethyldithiocarbamate	C5H10N1S2Na1	1.21	171.27
1071	8	>99%	1.08	1.27	1.80	148-24-3	8-hydroxyquinoline	C9H7N1O1	2.30	145.16

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
410	17		−1.23			148-79-8	Thiabendazole	C10H7N3S1	3418	201.26
61	5		1.66	2.06		149-29-1	Patulin	C7H6O4	1.34	154.12
411	18	2	1.31	1.76		149-29-1	Patulin	C7H6O4	2.68	154.12
1364	8	98%	2.15	2.33	2.39	149-30-4	2-mercapto-benzothiazole	C7H5N1S2	0.681	167.25
1142	8		−0.16	−0.15	−0.39	149-45-1	Tiron	C6H6Na2O9S2	816	332.22
1026	11				0.70	150-13-0	p-aminobenzoic acid	C7H7N1O2	27.4	137.14
603	50		0.35			150-19-6	3-methoxyphenol	C7H8O2	55.5	124.14
173	12	99%	−0.43	−0.42	−0.39	150-30-1	phenylalanine, DL	C9H11N1O2	405	165.19
495	28	12	−0.06			150-68-5	Monuron	C9H11Cl1N2O1	228	198.67
33	1		1.53	1.46	1.43	150-76-5	4-methoxyphenol	C7H8O2	4.61	124.14
558	1	99%			1.52	150-78-7	1,4-dimethoxybenzene	C8H10O2	4.17	138.17
1201	44		1.92	2.26	2.38 *	151-21-3	sodium lauryl sulfate	C12H25Na1O4S1	1.20	288.38
555	30	>99%	2.28	2.60	2.80	151-21-3	sodium lauryl sulfate	C12H25Na1O4S1	0.457	288.38
79	7	99%		2.28		151-21-3	sodium lauryl sulfate	C12H25Na1O4S1	1.51	288.38
66	6	pH 6.7		2.20		151-21-3	sodium lauryl sulfate	C12H25Na1O4S1	1.82	288.38
1278	53			2.15		151-21-3	sodium lauryl sulfate	C12H25Na1O4S1	2.04	288.38
435	20	4	2.81			151-21-3	sodium lauryl sulfate	C12H25Na1O4S1	0.447	288.38
498	28		2.38			151-21-3	sodium lauryl sulfate	C12H25Na1O4S1	1.20	288.38
421	19	2	2.26			151-21-3	sodium lauryl sulfate	C12H25Na1O4S1	1.58	288.38
457	24		2.15			151-21-3	sodium lauryl sulfate	C12H25Na1O4S1	2.04	288.38
1242	47		1.98			151-21-3	sodium lauryl sulfate	C12H25Na1O4S1	3.02	288.38
592	8	98%	1.44	1.44	1.30	156-38-7	4-hydroxyphenylacetic acid	C8H8O3	7.63	152.15
131	11		0.71	0.77	0.77	156-41-2	2-(4-chlorophenyl)ethylamine	C8H10Cl1N1	26.3	155.09
779	35		−0.87		−0.97	156-59-2	cis-1,2-dichloroethylene	C2H2Cl2	905	96.94
780	35		−1.07		−1.20	156-60-5	trans-1,2-dichloroethylene	C2H2Cl3	1536	96.94
1049	8	98%	2.83	2.80	2.73	208-96-8	acenaphthylene	C12H8	0.283	152.20
863	8	98%	1.47	1.38	1.29	253-52-1	phthalazine	C8H6N2	6.67	130.15

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
868	8		1.43	1.41	1.38	260-94-6	acridine	C13H9N1	7.47	179.22
1380	8	99.5%	1.58	1.53	1.45	271-89-6	2,3-benzofuran	C8H6O1	4.19	118.14
895	8	99%	−0.53	−0.48	−0.53	288-32-4	imidazole	C3H4N2	231	68.08
568	8	99%	0.87	0.85	0.80	288-47-1	thiazole	C3H3N1S1	13.5	85.13
877	8	98%	−1.86	−1.87	−1.88	288-88-0	1,2,4-triazole	C2H3N3	5245	69.14
1385	8		0.17	0.16	0.16	288-94-8	1-H-tetrazole	C1H2N4	48.5	70.06
1019	8	99%	−1.27	−1.26	−1.26	289-80-5	pyridazine	C4H4N2	1457	80.09
1123	8	99%	−0.86	−0.81	−0.81	289-95-2	pyrimidine	C4H4N2	517	80.09
1111	8	>99%	−0.96	−0.94	−0.95	290-37-9	pyrazine	C4H4N2	714	80.09
819	38	23	3.20	3.51	3.51	302-01-2	hydrazine	H4N2	0.0099	32.06
416	18	2	1.34	1.40		303-47-9	Ochratoxin A	C20H18Cl1N1O6	16.1	403.84
826	38	23	1.33	1.38	1.46	303-81-1	Novobiocin	C31H36N2O11	21.2	612.69
509	28	11	1.59			314-40-9	Bromacil	C9H13Br1N2O2	6.71	261.15
1367	8	98%	0.14	0.14	0.12	315-14-0	1,3,5-trifluoro-2-nitrobenzene	C6H2F3N1O2	134	177.08
540	8	19			1.49	319-89-1	tetrahydroxyquinone	C6H4O6	5.56	172.13
399	17		1.77			326-91-0	thenoyltrifluoroacetone	C8H5F3O2S1	3.77	222.18
591	8	97%	2.87	3.28	3.50	327-92-4	1,5-difluoro-2,4-dinitrobenzene	C6H2F2N2O4	0.0645	204.09
1189	8	99%	2.43	2.99	3.27	327-92-4	1,5-difluoro-2,4-dinitrobenzene	C6H2F2N2O4	0.110	204.09
1097	8	>98%	0.72	0.83	0.99	328-75-6	3,5-bis(CF3)nitrobenzene	C8H3F6N1O2	26.5	259.11
491	27	6	2.14			328-84-7	3,4-dichlorobenzotrifluoride	C7H3Cl2F3	1.56	215.00
494	28	11	1.15			330-54-1	Diuron	C9H10Cl2N2O1	16.5	233.11
362	2		1.49		*	333-41-5	Diazinon	C12H21N2O3P1S1	9.85	304.38
403	17		2.25			333-41-5	Diazinon	C12H21N2O3P1S1	1.71	304.38
1249	49		1.47			333-41-5	Diazinon	C12H21N2O3P1S1	10.3	304.38
1269	52	32	−0.08			333-41-5	Diazinon	C12H21N2O3P1S1	365	304.38
1351	8	98%	1.61	1.54	1.42	344-38-7	5-bromo-2-nitro-benzotrifluoride	C7H3Br1F3N1O2	10.3	270.01
637	8		1.65	1.61	1.57	345-83-5	4-fluorobenzophenone	C13H9F1O1	5.39	200.21

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
1350	8	97%	1.31	1.29	1.26	349-03-1	4-bromo-3-nitro-benzotrifluoride	C7H3Br1F3N1O2	14.8	270.01
1079	8	95%	2.41	2.44	2.45	349-58-6	3,5-bis(trifluoromethyl)phenol	C8H4F6O1	0.816	230.11
256	8	98%	1.83	1.79	1.79	349-95-1	p-(trifluormethyl) benzyl alcohol	C8H7F3O1	2.86	176.14
969	8	98%	−0.02	0.06	0.01	350-03-8	3-acetylpyridine	C7H7N1O1	118	121.14
897	8	99%	0.26	0.25	0.18	350-46-9	1-fluoro-4-nitrobenzene	C6H4F1O2	93.2	141.10
625	8	99%	1.54	1.47	1.43	352-11-4	4-fluorobenzyl chloride	C7H6Cl1F1	5.37	144.58
880	8	97%	0.67	0.59	0.46	352-32-9	p-fluorotoluene	C7H7F1	38.2	110.30
121	11		0.12	0.04	−0.02	352-33-0	1-chloro-4-fluorobenzene	C6H4Cl1F1	137	130.54
626	8	99%	1.63	1.58	1.53	352-34-1	1-fluoro-4-iodobenzene	C6H4F1I1	6.55	222.00
545	8		−2.13	−2.01	−1.99	354-38-1	trifluoroacetamide	C2H2F3N1O1	11047	113.04
1374	8	98%	0.08	0.04	−0.01	363-73-5	2,3,4,6-tetrafluoroaniline	C6H3F4N1	169	165.09
1137	8	99+%	0.09	0.14	0.19	366-18-7	2,2'-dipyridyl	C10H8N2	101	156.19
307	8	99%	0.12	0.12	0.14	367-25-9	2,4-difluoroaniline	C6H5F2N1	93.5	129.11
1083	8	99%	0.43	0.42	0.36	367-27-1	2,4-difluorophenol	C6H4F2O1	56.8	130.10
1349	8	90%	1.80	1.76	1.70	367-67-9	2-bromo-5-nitro-benzotrifluoride	C7H3Br1F3N1O2	5.39	270.01
293	8	99%	1.40	1.35	1.33	368-77-4	3-trifluoromethylbenzonitrile	C8H4F3N1	8.00	171.12
63	8		0.14	0.18	0.19	371-40-4	4-fluoroaniline	C6H6F1N1	71.7	111.12
1231	11				0.76	371-41-5	4-fluorophenol	C6H5F1O1	19.5	112.10
635	8	98%	0.24	0.33	0.44	385-00-2	2,6-difluorobenzoic acid	C7H4F2O2	57.4	158.11
1347	8	98%	2.62	2.59	2.54	393-11-3	5-amino-2-nitrobenzotrifluoride	C7H5F3N2O2	0.594	206.12
288	8	97%	1.98	2.53	2.73	393-75-9	4-chloro-3,5-dinitrobenzotrifluoride	C7H2Cl1F3N2O4	0.504	270.55
1361	8	99%	0.84	0.90	0.92	394-33-2	4-fluoro-2-nitrophenol	C6H4F1N1O3	18.9	157.10
1359	8	98%	0.75	0.69	0.63	400-74-8	2-fluoro-5-nitro-benzotrifluoride	C7H3F4N1O2	49.0	209.10
1134	8	99%	0.98	1.65	1.80	401-99-0	3,5-dinitrobenzotrifluoride	C7H3F3N2O4	3.74	236.11
650	8	99%	1.79	1.64	1.55	402-43-7	4-bromobenzotrifluoride	C7H4Br1F3	6.34	225.01
661	8	98%+	0.48	0.37	0.30	402-44-8	4-fluorobenzotrifluoride	C7H4F4	82.2	164.10
43	1		2.44	2.33	2.31	402-45-9	4-hydroxybenzotrifluoride	C7H5F3O1	0.794	162.11

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
218	8	96%	1.07	1.11	1.10	402-54-0	4-nitro-1',1',1'-trifluorotoluene	C7H4F3N1O2	15.2	191.11
1338	8	97%	0.29	0.28	0.25	402-67-5	1-fluoro-3-nitrobenzene	C6H4F1N1O2	79.3	141.10
1360	8	99%	1.21	1.22	1.20	403-19-0	2-fluoro-4-nitrophenol	C6H4F1N1O3	9.91	157.10
628	48		1.17	1.13	1.10	403-33-8	methyl-4-fluorobenzoate	C8H7F1O2	12.2	154.14
624	8	99%	0.48	0.45	0.42	403-42-9	4-fluoroacetophenone	C8H7F1O1	52.5	138.14
263	8	98%	1.17	1.08	1.01	403-43-0	4-fluorobenzoyl chloride	C7H4Cl1F1O1	15.5	158.56
522	8	98%	0.50	0.48	0.44 *	405-50-5	4-fluorophenylacetic acid	C8H7F1O2	56.0	154.14
617	8		0.16	0.15	0.09	405-79-8	4-fluorophenoxyacetic acid	C8H7F1O3	138	170.14
878	8	97%	1.40	1.29	1.13	405-99-2	4-fluorostyrene	C8H7F1	9.05	122.07
156	12	99%	0.10	0.16	0.26	434-45-7	2',2',2'-trifluoroacetophenone	C8H5F3O1	95.7	174.12
1068	8	98%	0.51	0.50	0.47	445-83-0	4-fluoro-2-nitroquinoline	C7H6F1N1O3	58.0	171.13
1061	8	98%	−0.80	−0.76	−0.74	452-58-4	2,3-diaminopyridine	C5H7N3	600	109.13
687	8	98%+	2.36	2.43	2.46	452-86-8	4-methyl catechol	C7H8O2	0.430	124.14
570	8	97%	−0.80	−0.83	−0.84	453-20-3	3-hydroxytetrahydrofuran	C4H8O2	610	88.12
656	8	99%	1.37	1.36	1.33	455-18-5	1',1',1'-trifluoro-p-tolunitrile	C8H4F3N1	8.00	171.12
886	8	98%	0.49	0.44	0.36	455-24-3	1',1',1'-trifluoro-p-toluic acid	C8H5F3O2	83.0	190.12
1139	8	98%	0.64	0.60	0.54	455-93-6	2-fluoro-4-nitroanisole	C7H6F1N1O3	49.4	171.13
636	8	99%	1.02	1.02	1.00	456-03-1	4'-fluoropropiophenone	C9H9F1O1	15.2	152.17
622	8	98%	0.88	0.90	0.91	459-03-0	(4-fluorophenyl) acetone	C9H9F1O1	18.7	152.17
1193	8	97%	1.77	1.76	1.71 *	459-22-3	4-fluorophenylacetonitrile	C8H6F1N1	2.64	135.14
605	8	97%	1.81	1.70	1.49	459-22-3	4-fluorophenylacetonitrile	C8H6F1O1	4.37	135.14
616	8	99%	0.57	0.51	0.47	459-32-5	4-fluorocinnamic acid	C9H7F1O2	56.3	166.15
291	8	98%	−0.11	−0.08	−0.04	459-56-3	4-fluorobenzyl alcohol	C7H7F1O1	138	126.13
627	8	97%	0.30	0.26	0.24	459-57-4	4-fluorobenzaldehyde	C7H5F1O1	71.4	124.11
630	8		1.24	1.23	1.22	459-59-6	4-fluoro-N-methylaniline	C7H8F1N1	7.54	125.15
623	8	99%	0.84	0.80	0.76	459-60-9	4-fluoroanisole	C7H7F1O1	23.7	136.13
642	8	99%	0.88	0.86	0.78	460-00-4	1-bromo-4-fluorobenzene	C6H4Br1F1	29.0	175.01

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
179	12	99%	−0.30	−0.23	−0.28	462-06-6	fluorobenzene	C6H5F1	183	96.10
974	8	99%	−0.83	−0.82	−0.86	462-08-8	3-aminopyridine	C5H6N2	682	94.12
831	8	97%	1.03	0.98	0.95	479-27-6	1,8-diaminonaphthalene	C10H10N2	17.8	158.20
987	8	98%	1.70	1.68	1.57	486-25-9	fluorenone	C13H8O1	4.85	180.21
1081	8	97%	0.62	0.76	0.76	489-01-0	3,5-di-tert-butyl-4-hydroxyanisole	C15H24O2	41.1	236.36
982	8	>99%	1.19	1.36	1.44	490-78-8	2,5-dihydroxyacetophenone	C8H8O3	5.52	152.15
523	8	99%	1.57	1.53	1.45	491-35-0	4-methylquinoline, lepidine	C10H9N1	5.08	143.19
1065	8	97%	0.48	0.64	0.69	496-72-0	3,4-diaminotoluene	C7H10N2	24.9	122.17
245	8	98%	0.00	0.03	0.06	498-00-0	4-hydroxy-3-methoxybenzyl alcohol	C8H10O3	134	154.17
1040	8	99%	−0.49	−0.40	−0.36	500-22-1	3-pyridinecarboxyaldehyde	C6H5N1O1	245	107.11
1075	8	98%	2.22	2.22	2.20	501-94-0	4-hydroxyphenethyl alcohol	C8H10O2	0.872	138.17
1321	8	99%	−0.18	−0.11	0.05	503-17-3	2-butyne	C4H6	48.2	54.09
899	8	99%+	0.55	0.60	0.56	504-24-5	4-aminopyridine	C5H6N2	25.9	94.12
973	8	>99%	−0.42	−0.43	−0.48	504-29-0	2-aminopyridine	C5H6N2	284	94.12
786	35		−0.70		0.73	513-37-1	1-chloro-2-methylpropene	C4H7Cl1	16.9	90.55
414	18	2	0.96	1.17		518-75-2	Citrinin	C13H14O5	16.9	250.27
669	8	98%	0.46	0.44	0.45	519-58-9	4-iodobenzoic acid	C7H5I1O2	88.0	248.02
290	8	97%	0.80	0.81	0.83	525-65-4	2,7-diaminofluorene	C13H12N2	29.0	196.25
872	8	97%	1.58	1.56	1.56	526-75-0	2,3-dimethylphenol	C8H10O1	3.36	122.17
1178	8	97%	1.96	2.17	2.08	527-17-3	duroquinone	C10H12O2	1.37	164.20
97	9	10	1.31	1.34	1.35	527-20-8	pentachloroaniline	C6H2Cl5N1	11.9	265.37
695	8	99%	1.08	1.06	1.06	527-60-6	2,4,6-trimethylphenol	C9H12O1	11.9	136.19
280	8	99%	1.24	1.41	1.50 *	528-29-0	1,2-dinitrobenzene	C6H4N2O4	5.32	168.11
935	41			1.23		528-29-0	1,2-dinitrobenzene	C6H4N2O4	9.90	168.11
606	11	98%			3.53	530-44-9	4-dimethylaminobenzophenone	C15H15N1O1	0.0665	225.29
1114	8	>95%	1.92	2.47	2.81	534-07-6	1,3-dichloroacetone	C3H4Cl2O1	0.197	126.97
876	8		1.44	1.53	1.51 *	534-52-1	4,6-dinitro-o-cresol	C7H6N2O5	6.12	198.13

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
44	3		1.50		2.12	534-52-1	4,6-dinitro-o-cresol	C7H6N2O5	1.50	198.13
348	2		1.48			534-52-1	4,6-dinitro-o-cresol	C7H6N2O5	6.56	198.13
882	8	98%	0.74	0.73	0.68	535-87-5	3,5-diaminobenzoic acid	C7H8N2O2	31.8	152.15
125	11		0.46	0.42	0.45	536-40-3	4-chloro-benzoic acid hydrazide	C7H7Cl1N2O1	60.5	170.60
847	8	98%	1.39	1.35	1.25	536-74-3	phenylacetylene	C8H6	5.74	102.14
857	8	98%	1.35	1.34	1.29	536-75-4	4-ethylpyridine	C7H9N1	5.50	107.16
159	12	97%	0.25	0.34	0.42	537-47-3	4-phenylsemicarbazide	C7H9N3O1	57.5	151.17
126	11		0.65	0.58	0.54	539-03-7	4-chloro-N-acetyl aniline	C8H8Cl1N1O1	48.9	169.61
1023	8	99%+	−0.17	−0.01	0.04	540-36-3	1,4-difluorobenzene	C6H4F2	104	114.09
898	8	99%	2.60	2.56	2.49	540-37-4	4-iodoaniline	C6H6I1N1	0.709	219.03
1230	11				2.94	540-38-5	4-iodophenol	C6H5I1O1	0.253	220.01
766	35		−1.02		−1.23	540-54-5	1-chloropropane	C3H7Cl1	1334	78.54
589	8	98%	1.65	1.57	1.46 *	541-73-1	1,3-dichlorobenzene	C6H4Cl2	5.10	147.00
24	1		1.68	1.55	1.46	541-73-1	1,3-dichlorobenzene	C6H4Cl2	5.10	147.00
477	25			1.65		541-73-1	1,3-dichlorobenzene	C6H4Cl2	3.29	147.00
783	35		−0.01		0.19	542-75-6	1,3-dichloropropene	C3H4Cl2	71.6	110.97
774	35		−0.33		−0.36	543-59-9	1-chloropentane	C5H11Cl1	244	106.60
776	35		−0.23		−0.33	544-10-5	1-chlorohexane	C6H13Cl1	258	120.62
1003	8		2.38	2.38	2.33	548-39-0	perinaphthenone	C13H8O1	0.843	180.21
1138	8	98%	0.29	0.25	0.17	553-26-4	4,4'-dipyridyl	C10H8N2	106	156.19
86	9		1.61	1.55	1.54	554-00-7	2,4-dichloroaniline	C6H5Cl2N1	4.67	162.02
212	8	99%	1.11	1.26	1.35 *	555-16-8	4-nitrobenzaldehyde	C7H5N1O3	6.75	151.12
1208	11				1.33	555-16-8	4-nitrobenzaldehyde	C7H5N1O3	7.07	151.12
524	8	16	1.42	1.40	1.36	555-21-5	4-nitrophenylacetonitrile	C8H6N2O2	7.08	162.15
233	8	98%	0.24	0.26	0.27	556-08-1	4-acetamidobenzoic acid	C9H9N1O3	96.2	179.18
297	8	99%	−1.52	−1.53	−1.54	556-48-9	1,4-cyclohexanediol	C6H12O2	4028	116.16
1322	8	98%	−0.05	−0.15	−0.23	563-47-3	methallylchloride	C4H7Cl1	154	90.55

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
5	1		1.58	1.53	1.52 *	576-24-9	2,3-dichlorophenol	C6H4Cl2O1	4.92	163.00
728	35		1.58		1.49	576-24-9	2,3-dichlorophenol	C6H4Cl2O1	5.27	163.00
693	8	99%+	0.70	0.73	0.73	576-26-1	2,6-dimethylphenol	C8H10O1	22.7	122.17
1329	8	98%	2.11	2.11	2.10	577-19-5	1-bromo-2-nitrobenzene	C6H4Br1N1O2	1.60	202.01
1365	8	95%	0.65	0.73	0.77	577-72-0	4-methoxy-3-nitroaniline	C7H8N2O3	28.6	168.15
1315	8	98%	0.33	0.29	0.24	583-39-1	2-mercaptobenzimidazole	C7H6N2S1	86.4	150.20
1017	8	98%	1.15	1.10	1.03	583-58-4	3,4-lutidine	C7H9N1	10.0	107.16
7	1		1.29	1.23	1.24 *	583-78-8	2,5-dichlorophenol	C6H4Cl2O1	9.38	163.00
730	35		1.25		1.19	583-78-8	2,5-dichlorophenol	C6H4Cl2O1	10.5	163.00
1266	43		1.13	1.12		583-78-8	2,5-dichlorophenol	C6H4Cl2O1	12.4	163.00
465	25			−1.23		584-02-1	3-pentanol	C5H12O1	1497	88.15
1112	8	99%	−1.04	−1.03	−1.00	584-13-4	4-amino-1,2,4-triazole	C2H4N4	841	84.08
543	8	99%	1.63	1.61	1.64	586-37-8	3'-methoxyacetophenone	C9H10O2	3.44	150.18
528	8		1.16	1.12	1.08	586-78-7	1-bromo-4-nitrobenzene	C6H4Br1N1O2	16.8	202.01
676	8	98%	0.24	0.22	0.21	586-89-0	4-acetylbenzoic acid	C9H8O3	101	164.16
1045	8	99%	−0.33	−0.35	−0.37 *	586-95-8	4-pyridinemethanol	C6H7N1O1	256	109.13
1056	8		−0.32	−0.35	−0.39	586-95-8	4-pyridinemethanol	C6H7N1O1	268	109.13
169	12	99%	3.48	3.45	3.42	587-85-9	diphenyl mercury	C12H10Hg1	0.135	354.80
529	8	99%+	2.79	2.78	2.76	589-16-2	4-ethylaniline	C8H11N1	0.211	121.18
243	8	98%	0.94	0.93	0.98	589-18-4	p-methylbenzyl alcohol	C8H10O1	12.8	122.17
723	8	99%	−0.23	−0.10	−0.06	589-29-7	1,4-benzenedimethanol	C8H10O2	159	138.17
643	8	98%	2.37	2.30	2.25	589-87-7	1-bromo-4-iodobenzene	C6H4Br1I1	1.59	282.91
745	35		1.65		1.69	591-20-8	3-bromophenol	C6H5Br1O1	3.53	173.01
1202	44		1.57	1.64	1.62 *	591-35-5	3,5-dichlorophenol	C6H4Cl2O1	3.91	163.00
73	7	99%	1.62	1.71	1.77	591-35-5	3,5-dichlorophenol	C6H4Cl2O1	2.77	163.00
10	1		1.62	1.71	1.77	591-35-5	3,5-dichlorophenol	C6H4Cl2O1	2.77	163.00
733	35		1.32		1.30	591-35-5	3,5-dichlorophenol	C6H4Cl2O1	8.17	163.00

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
71	6	pH 6.7		1.75		591-35-5	3,5-dichlorophenol	C6H4Cl2O1	2.90	163.00
453	22		1.56	1.59		591-35-5	3,5-dichlorophenol	C6H4Cl2O1	4.19	163.00
438	20	4	1.77			591-35-5	3,5-dichlorophenol	C6H4Cl2O1	2.77	163.00
1222	11				1.80	591-50-4	iodobenzene	C6H5I1	3.23	204.01
787	35		1.35		1.29	594-37-6	1,2-dichloro-2-methylpropane	C4H8Cl2	6.51	127.01
797	36				<4.02	595-90-4	tetraphenyltin	C24H20Sn1	>41.	427.11
901	32			−1.30		598-52-7	N-methylthiourea	C2H6N2S1	1799	90.15
1060	8	98%	0.10	0.16	0.21 *	598-78-7	2-chloropropionic acid	C3H5Cl1O2	66.9	108.52
789	35		−1.77		−1.57	598-78-7	2-chloropropionic acid	C3H5Cl1O2	4032	108.52
940	41			1.48		602-01-7	2,3-dinitrotoluene	C7H6N2O4	6.03	182.14
651	8	98%+	2.05	2.16	2.17	603-34-9	triphenylamine	C18H15N1	1.66	245.33
653	8	99%	2.11	2.23	2.23	603-35-0	triphenylphosphine	C18H15P1	1.54	262.30
1117	8	97%	1.72	1.71	1.68	603-83-8	2-methyl-3-nitroaniline	C7H8N2O2	3.18	152.15
289	8	97%	2.48	2.48	2.49	604-44-4	4-chloro-1-naphthol	C10H7Cl1O1	0.578	178.62
939	41			1.80		606-20-2	2,6-dinitrotoluene	C7H6N2O4	2.89	182.14
1183	8	98%	1.74	1.74	1.70	607-32-9	5-nitroisoquinoline	C9H6N2O2	3.47	174.16
1260	49		1.51			607-85-2	isopropylsalicylate	C10H12O3	5.57	180.21
873	8		0.19	0.26	0.30	608-25-3	2,6-dihydroxytoluene	C7H8O2	62.2	124.14
85	9		1.81	1.77	1.77	608-27-5	2,3-dichloroaniline	C6H5Cl2N1	2.75	162.02
88	9		2.04	1.98	1.97	608-31-1	2,6-dichloroaniline	C6H5Cl2N1	1.74	162.02
747	35		1.17		1.22	608-33-3	2,6-dibromophenol	C6H4Br2O1	15.2	251.92
749	35		2.74		3.03	608-71-9	pentabromophenol	C6Br5O1	0.456	488.62
16	1		2.65	2.71	2.74	609-19-8	3,4,5-trichlorophenol	C6H3Cl3O1	0.359	197.45
1115	8	90%	1.33	1.35	1.34	609-93-8	2,6-dinitro-p-cresol	C7H6N2O5	9.06	198.13
519	8	98%	0.13	0.15	0.14	609-99-4	3,5-dinitrosalicylic acid	C7H4N2O7	165	228.12
1371	8	98%	0.81	0.95	0.99	610-22-0	dimethyl-4-nitrophthalate	C10H9N1O6	24.5	239.19
941	41			1.42		610-39-9	3,4-dinitrotoluene	C7H6N2O4	6.92	182.14

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
1332	8	90%	1.92	2.36	2.59	610-40-2	1-chloro-3,4-dinitrobenzene	C6H3Cl1N2O4	0.521	202.55
1354	8	99%	1.62	1.66	1.66	610-78-6	4-chloro-3-nitrophenol	C6H4Cl1N1O3	3.80	173.56
1122	8	97%	2.27	2.23	2.15	611-05-2	5-methyl-2-nitroaniline	C7H8N2O2	1.08	152.15
103	10		1.82	1.80	1.78 *	611-06-3	2,4-dichloronitrobenzene	C6H3Cl2N1O2	3.19	192.00
925	41			2.05		611-06-3	2,4-dichloronitrobenzene	C6H3Cl2N1O2	1.71	192.00
943	42	24, 25	1.21	1.20		611-32-5	8-methylquinoline	C10H9N1	9.03	143.19
975	8	97%	1.08	1.03	0.96	611-34-7	5-aminoquinoline	C9H8N2	15.8	144.18
1070	8	98%	−0.25	−0.14	−0.12	611-36-9	4-hydroxyquinoline	C9H7N1O1	191	145.16
1002	8	98%	0.65	0.65	0.61	613-50-3	6-nitroquinoline	C9H6N2O2	42.8	174.16
192	12	98%	1.32	1.42	1.60	613-90-1	benzoyl cyanide	C8H5N1O1	3.29	131.14
155	12	98%	0.22	0.32	0.25	613-94-5	benzhydrazide	C7H8N2O1	76.6	136.15
1180	8	97%	0.68	0.69	0.64	615-16-7	2-hydroxybenzimidazole	C7H6N2O1	30.7	134.14
296	8	95%	1.11	1.30	1.40	615-67-8	chlorohydroquinone	C6H5Cl1O2	5.76	144.56
1239	46	22		2.11		615-74-7	2-chloro-5-methylphenol	C7H7Cl1O1	1.11	142.59
772	35		0.32		0.15	616-21-7	1,2-dichlorobutane	C4H8Cl2	89.9	127.01
1156	8	>99%	−0.88	−0.90	−0.95	616-45-5	2-pyrrolidinone	C4H7N1O1	759	85.11
106	10		0.93	1.00	1.05 *	618-62-2	3,5-dichloronitrobenzene	C6H3Cl2N1O2	17.1	192.00
927	41			1.03		618-62-2	3,5-dichloronitrobenzene	C6H3Cl2N1O2	17.9	192.00
894	8	97%	0.71	0.91	0.98	618-87-1	3,5-dinitroaniline	C6H5N3O4	19.2	183.12
1162	8	99%	1.24	1.22	1.18	618-95-1	methyl-3-nitrobenzoate	C8H7N1O4	12.0	181.15
244	8	97%	0.10	0.12	0.16	619-05-6	3,4-diaminobenzoic acid	C7H8N2O2	105	152.15
615	8		1.89	1.86	1.78	619-42-1	methyl-4-bromobenzoate	C8H7Br1O2	3.52	212.05
230	8	98%	1.08	1.09	1.14	619-45-4	methyl-p-aminobenzoate	C8H9N1O2	11.0	151.17
1034	11				1.11	619-50-1	methyl-4-nitrobenzoate	C8H7N1O4	14.1	181.15
657	8	99%	0.59	0.58	0.58	619-55-6	p-toluamide	C8H9N1O1	35.6	135.17
127	11		0.56	0.56	0.55	619-56-7	4-chloro-benzoic acid amide	C7H6Cl1N1O1	43.8	155.58
560	8	98%	0.33	0.30	0.24	619-57-8	4-hydroxybenzamide	C7H7N1O2	78.9	137.14

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
885	8	99%	0.30	0.26	0.20	619-65-8	p-cyanobenzoic acid	C8H5N1O2	92.8	147.13
251	8	97%	0.15	0.34	0.48	619-67-0	4-hydrazinobenzoic acid	C7H8N2O2	50.4	152.15
1263	8				1.79	619-72-7	4-cyanonitrobenzene	C7H4N2O2	2.40	148.12
214	8	97%	0.68	0.66	0.63	619-73-8	4-nitrobenzylalcohol	C7H7N1O3	35.9	153.14
1207	11				0.36	619-80-7	4-nitrobenzamide	C7H6N2O3	50.7	116.14
220	8	98%	0.31	0.32	0.33	619-89-6	trans-4-nitro-cinnamic acid	C9H7N1O4	90.3	193.16
535	8		1.33	1.32	1.32	619-90-9	4-nitrobenzyl acetate	C9H9N1O4	9.34	195.18
275	8	98%	2.38	2.33	2.28	620-20-2	3-chlorobenzyl chloride	C7H6Cl2	0.845	161.03
1033	11				2.29	620-88-2	4-nitrophenylphenyl ether	C12H9N1O3	1.10	215.21
977	8	97%	2.06	2.01	1.95	620-95-1	3-benzylpyridine	C12H11N1	1.90	169.23
227	8	97%	1.29	1.27	1.31	621-95-4	4,4'-diaminobibenzyl	C14H16N2	10.4	212.30
561	8	99%	1.58	1.60	1.64	622-58-2	p-tolylisocyanate	C8H7N1O1	3.05	133.15
567	8	99%	3.19	3.18	3.20	622-75-3	1,4-phenylenediacetonitrile	C10H8N2	0.0985	156.19
193	12	97%	4.02	4.11	4.16	622-78-6	benzylisothiocyanate	C8H7N1S1	0.0103	149.22
259	8	98%	1.79	1.73	1.66	622-96-8	4-ethyltoluene	C9H12	2.63	120.20
638	8	98%	1.35	1.34	1.32	623-00-7	4-bromobenzonitrile	C7H4Br1N1	8.71	182.03
80	8		1.53	1.55	1.49	623-03-0	4-chlorobenzonitrile	C7H4Cl1N1	4.45	137.57
36	1		1.35	1.38	1.39	623-05-2	4-hydroxy benzylalcohol	C7H8O2	5.06	124.14
142	11		1.65	1.61	1.60	623-12-1	4-chloro-anisole	C7H7Cl1O1	3.58	142.59
1020	8		3.60	3.53	3.51	623-25-6	1',4'-dichloro-p-xylene	C8H8Cl2	0.0541	175.06
539	8	18	0.19	0.24	0.26	623-26-7	terephthalodinitrile	C8H4N2	70.4	128.13
1021	1	98%			1.28	623-27-8	terephthalaldehyde	C8H6O2	7.04	134.13
784	35		−0.03		0.48	624-65-7	3-chloro-1-propyne	C3H3Cl1	24.7	74.51
903	32			−1.32		625-53-6	N-ethylthiourea	C3H8N2S1	2176	104.17
246	8	97%	0.80	0.91	0.03	626-10-7	isophthaladehyde	C8H6O2	125	134.13
267	8	99%+	−0.01	0.03	0.08	626-17-5	isophthalonitrile	C8H4N2	107	128.13
599	8				1.03	626-19-7	isophthalaldehyde	C8H8O2	15.5	166.13

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
90	9		1.23	1.18	1.19	626-43-7	3,5-dichloroaniline	C6H5Cl2N1	10.5	162.02
115	10		0.23	0.32	0.22	626-60-8	3-chloropyridine	C5H4Cl1N1	68.4	113.55
1343	8	98%	0.28	0.28	0.28	627-05-4	1-nitrobutane	C4H9N1O2	54.1	103.12
775	35		0.95		0.83	628-76-2	1,5-dichloropentane	C5H10Cl2	20.9	141.04
1152	8	>99%	−0.15	−0.14	−0.24	629-11-8	1,6-hexanediol	C6H14O2	205	118.18
762	35		1.92		1.78	630-20-6	1,1,1,2-tetrachloroethane	C2H2Cl4	2.79	167.85
716	31	98%		−0.98		632-22-4	tetramethylurea	C5H12N2O1	1110	116.19
29	1		1.98	1.81	1.73 *	634-66-2	1,2,3,4-tetrachlorobenzene	C6H2Cl4	4.02	215.89
480	25	1		2.06		634-66-2	1,2,3,4-tetrachlorobenzene	C6H2Cl4	1.88	215.89
91	9		2.02	1.96	1.92	634-67-3	2,3,4-trichloroaniline	C6H4Cl3N1	2.36	196.46
95	9		2.31	2.29	2.37	634-83-3	2,3,4,5-tetrachloroaniline	C6H3Cl4N1	0.985	230.91
30	1		1.82	1.79	1.94	634-90-2	1,2,3,5-tetrachlorobenzene	C6H2Cl4	2.48	215.89
94	9		1.77	1.69	1.77	634-91-3	3,4,5-trichloroaniline	C6H4Cl3N1	3.34	196.46
93	9		1.66	1.65	1.63	634-93-5	2,4,6-trichloroaniline	C6H4Cl3N1	4.61	196.46
92	9		2.05	2.08	2.12	636-30-6	2,4,5-trichloroaniline	C6H4Cl3N1	1.49	196.46
564	8		1.63	1.65	1.63	636-98-6	1-iodo-4-nitrobenzene	C6H4I1N1O2	5.84	249.01
1141	8	>99%	1.13	1.08	1.06	637-01-4	N,N,N',N'-(CH3)4–1,4-phenylenediamine (HCl)2	C10H18Cl2N2	20.7	237.17
609	8	96%	0.96			637-01-4	Wurster's reagent, dihydrochloride	C10H18Cl2N2	26.0	237.17
145	11		2.04	2.08	2.16	637-87-6	1-chloro-4-iodobenzene	C6H4Cl1I1	1.65	238.44
1126	8	90%	2.98	3.06	3.04	637-89-8	4-hydroxythiophenol	C6H6O1S1	0.115	126.18
801	36				4.39	639-58-7	triphenyltinchloride	C18H15Cl1Sn1	0.0157	385.46
986	8	>98%	0.53	0.56	0.59	643-43-6	2,4-dinitrophenylacetic acid	C8H6N2O6	58.1	226.15
660	8	95%	2.27	2.09	2.02	643-93-6	3-phenyltoluene	C13H12	1.61	168.24
209	12	98%	2.22	2.03	1.88 *	644-08-6	4-phenyltoluene	C13H12	2.22	168.24
573	8	98%	2.14	1.97	1.85	644-08-6	4-phenyltoluene	C13H12	2.38	168.24
188	12	98%	1.25	1.25	1.23	658-78-6	4-nitrophenyl trifluoroacetate	C6H4F3N1O4	13.8	235.12
1106	8	99%	1.96	1.89	1.80	673-32-5	1-phenyl-1-propyne	C9H8	1.84	116.16

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
804	36				3.15	683-18-1	dibutyltindichloride	C8H18Cl2Sn1	0.215	303.85
858	8	99%	−0.30	−0.32	−0.40	693-02-7	1-hexyne	C6H10	206	82.15
328	2		1.30			693-54-9	2-decanone	C10H20O1	7.83	156.27
1043	8	95%	−1.42	−1.51	−1.53	694-59-7	pyridine-N-oxide	C5H5N1O1	3222	95.10
1009	8	98%	0.75	0.74	0.69	696-54-8	4-pyridinealdoxime	C6H6N2O1	24.9	122.13
237	8	98%	2.30	2.26	2.27	696-62-8	4-iodoanisole	C7H7I1O1	1.26	234.04
678	8	95%	2.52	2.61	2.63	696-63-9	4-methoxythiophenol	C7H8O1S1	0.329	140.20
683	8	98%+	1.19	1.17	1.15	697-82-5	2,3,5-trimethylphenol	C9H12O1	9.64	136.19
633	8	98%	1.48	1.47	1.48	702-23-8	4-methoxyphenethyl alcohol	C9H12O2	5.04	152.19
240	8	95%	1.46	1.42	1.40	709-63-7	4-trifluoromethyl acetophenone	C9H7F3O1	7.49	188.15
634	8		0.95	0.92	0.87	711-38-6	4'-methoxy-2,2,2-trifluoroacetophenone	C9H7F3O2	27.5	204.15
1099	8	98%	1.30	1.44	1.48	719-22-2	2,6-di-tert-butyl-1,4-benzoquinone	C14H20O2	7.30	220.31
658	8	97%	3.19	3.13	3.02	728-86-9	4-(trifluoromethyl) benzophenone	C14H9F3O1	0.239	250.22
1379	8	98.8%	0.72	0.65	0.58	759-94-4	EPTC; S-ethyldipropylthiocarbamate	C9H19N1O1S1	49.8	189.31
965	8	99%	0.49	0.74	0.85	764-35-2	2-hexyne	C6H10	11.6	82.15
32	1		2.24	2.15	2.18	767-00-0	4-hydroxy-benzonitrile	C7H5N1O1	0.787	119.12
1128	8	95%	−0.62	−0.57	−0.52	767-15-7	2-amino-4,6-dimethylpyrimidine	C6H9N3	408	123.16
298	8	97%	1.07	1.10	1.12	771-97-1	2,3-diaminonaphthalene	C10H10N2	12.0	158.20
302	8	98%	1.02	1.07	1.07	772-33-8	2-hydroxy-5-nitrobenzyl bromide	C7H6Br1N1O3	19.7	232.04
1184	8	99%	2.83	3.39	3.54	778-94-9	2-nitro-4-(trifluoromethyl)benzonitrile	C8H3F3N2O2	0.0623	216.12
916	33			−1.10		815-57-6	2-methyl-2,4-pentanedione	C6H10O2	1437	114.15
1171	8	98%	0.50	0.82	1.03	822-06-0	1,6-diisocyanatohexane	C8H12N2O2	15.7	168.20
1192	8	98%	−0.21	−0.21	−0.22 *	824-75-9	4-fluorobenzamide	C7H6F1N1O1	231	139.13
594	8	98%	−0.14	−0.20	−0.31	824-75-9	4-fluorobenzamide	C7H6F1N1O1	284	139.13
667	8	98%	1.40	1.39	1.36	824-94-2	4-methoxybenzyl chloride	C8H9Cl1O1	6.84	156.61
953	42	24, 25	1.59	1.55		826-77-7	4,6-dimethylquinoline	C11H11N1	4.43	157.22
698	8	98%	0.92	0.97	0.97	826-81-3	8-hydroxyquinaldine	C10H9N1O1	17.1	159.19

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
1035	11				1.25	830-03-5	4-nitrophenylacetate	C8H7N1O4	10.2	181.15
691	8	97%	1.12	1.12	1.13	830-09-1	4-methoxycinnamic acid	C10H10O3	13.2	178.19
34	1		1.95	1.71	1.48	831-82-3	4-phenoxyphenol	C12H10O2	6.17	186.21
1032	11				2.47	836-30-6	4-nitrophenylphenylamine	C12H10N2O2	0.726	214.22
198	12	97%	−0.24	−0.22	−0.23	838-85-7	diphenyl phosphate	C12H11O4P1	425	250.19
1317	8	98%	−0.40	−0.40	−0.47	872-35-5	2-mercaptoimidazole	C3H4N2S1	296	100.14
1041	8	98%	−0.12	−0.01	0.07	872-85-5	4-pyridinecarboxaldehyde	C6H5N1O1	91.2	107.11
134	11		1.14	1.09	1.13	873-76-7	4-chloro-benzylalcohol	C7H7Cl1O1	10.6	142.59
990	8	98%	0.77	0.85	0.90	874-24-8	3-hydroxypicolinic acid	C6H5N1O3	17.5	139.11
271	8	98%	1.73	1.68	1.68	874-60-2	p-toluoyl chloride	C8H7Cl1O1	3.23	154.60
232	8	99%	1.26	1.28	1.35	874-90-8	4-methoxybenzonitrile	C8H7N1O1	5.95	133.15
979	8	98%	2.13	2.11	1.99	876-08-4	4-(chloromethyl)benzoyl chloride	C8H6Cl2O1	1.93	189.04
946	42	24, 25	1.44	1.40		877-43-0	2,6-dimethylquinoline	C11H11N1	6.26	157.22
110	10		1.92	2.08	2.27	879-39-0	2,3,4,5-tetrachloro-nitrobenzene	C6H1Cl4N1O2	1.40	260.89
1018	8	98%	0.54	0.52	0.50	881-07-2	8-nitroquinaldine	C10H8N2O2	59.5	188.19
144	11		2.19	2.15	2.14	932-96-7	4-chloro-N-methylaniline	C7H8Cl1N1	1.03	141.60
13	1		1.15	1.17	1.19 *	933-75-5	2,3,6-trichlorophenol	C6H3Cl3O1	12.7	197.45
735	35		0.97		0.97	933-75-5	2,3,6-trichlorophenol	C6H3Cl3O1	21.2	197.45
12	1		2.05	2.16	2.25 *	933-78-8	2,3,5-trichlorophenol	C6H3Cl3O1	1.11	197.45
734	35		2.02		2.13	933-78-8	2,3,5-trichlorophenol	C6H3Cl3O1	1.46	197.45
989	8		0.17	0.12	0.06	933-90-4	3-hydroxypicolinamide	C6H6N2O2	120	138.13
1058	8	97%	0.49	0.71	0.73	934-32-7	2-aminobenzimidazole	C7H7N3	24.8	133.15
1105	8	99%	3.52	3.83	3.94	935-16-0	1,4-phenylenediisocyanide	C8H4N2	0.0147	128.13
19	1		1.92	1.96	2.02 *	935-95-5	2,3,5,6-tetrachlorophenol	C6H2Cl4O1	2.21	231.89
737	35		1.90		2.05	935-95-5	2,3,5,6-tetrachlorophenol	C6H2Cl4O1	2.07	231.89
655	8	97%	2.38	2.36	2.37	937-30-4	4'-ethylacetophenone	C10H12O1	0.632	148.21
205	12	99%	1.91	1.88	1.84	939-23-1	4-phenylpyridine	C11H9N1	2.24	155.20

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
210	49		1.68			944-22-9	Fonofos	C10H15O1P1S2	5.15	246.32
778	35		0.21		0.08	1002-69-3	1-chlorodecane	C10H21Cl1	147	176.73
1007	8	97%	2.22	2.18	2.15	1008-88-4	3-phenylpyridine	C11H9N1	1.10	155.20
557	1	98%			1.74	1009-61-6	1,4-diacetylbenzene	C10H10O2	2.95	162.19
511	28	11	1.19			1024-57-3	Heptachlorepoxide	C10H5Cl7O1	25.1	389.30
406	17		1.34			1071-83-6	Glyphosate	C3H8N1O5P1	7.73	169.09
1157	8	>99%	−0.35	−0.34	−0.36	1072-63-5	1-vinylimidazole	C5H6N2	216	94.12
584	8	99%	2.09	2.00	1.92	1073-67-2	4-chlorostyrene	C8H7Cl1	1.67	138.60
842	8	98%	1.94	1.85	1.70	1073-70-7	(p-chlorophenyl)hydrazine HCl	C6H7Cl1N2•HCl	3.57	179.05
1345	8	98%	1.92	1.92	1.90	1083-48-3	4-(4-nitrobenzyl)pyridine	C12H10N2O2	2.70	214.22
1057	8		−0.07	0.31	0.55	1112-67-0	tetrabutylammonium chloride	C16H36Cl1N1	78.3	277.92
1163	8	93%	1.03	0.99	0.84	1120-04-3	octadecylsodium sulfate	C18H37Na1O4S1	53.8	372.55
314	2		2.13			1120-06-5	2-decanol	C10H22O1	1.17	158.29
1010	8	99%	−0.19	−0.07	−0.02	1121-60-4	2-pyridinecarboxaldehyde	C6H5N1O1	112	107.11
970	8	97%	−0.29	−0.28	−0.31	1122-54-9	4-acetylpyridine	C7H7N1O1	247	121.14
985	8	99%	0.70	0.76	0.72 *	1122-58-3	4-dimethylaminopyridine	C7H10N2	23.3	122.17
301	8	99%	0.66	0.69	0.66	1122-58-3	4-dimethylaminopyridine	C7H10N2	26.7	122.17
968	8	>99%	−0.51	−0.54	−0.54	1122-62-9	2-acetylpyridine	C7H7N1O1	420	121.14
1001	8		1.59	2.03	2.18	1124-33-0	4-nitropyridine-N-oxide	C5H4N2O3	0.926	140.10
585	8	99%	1.72	1.70	1.67	1126-46-1	methyl-4-chlorobenzoate	C8H7Cl1O2	3.65	170.60
861	8	99%+	3.02	2.91	2.81	1127-76-0	1-ethylnaphthalene	C12H12	0.242	156.23
644	8		0.32	0.30	0.22	1129-26-6	4-methoxybenzene sulfonamide	C7H9N1O3S1	113	187.22
619	8	99%	0.90	0.97	0.97	1129-35-7	methyl-4-cyanobenzoate	C9H7N1O2	17.3	161.16
537	8	98%	1.06	1.03	0.99	1137-41-3	4-aminobenzophenone	C13H11N1O1	20.2	197.24
41	1		1.36	1.40	1.40	1137-42-4	4-hydroxy benzophenone	C13H10O2	7.89	198.22
1030	11				1.51	1144-74-7	4-nitrobenzophenone	C13H9N1O3	7.02	227.22
654	8		0.35	0.37	0.37	1153-05-5	triphenylarsine oxide	C18H15As1O1	137	322.24

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
417	18	2	1.15	1.21		1162-65-8	Aflatoxin B1	C17H12O6	19.3	312.29
64	5		1.15	1.13		1162-65-8	Aflatoxin B1	C17H12O6	23.2	312.29
827	39	23	0.90	0.93	0.96	1165-39-5	Aflatoxin-G1	C17H12O7	36.0	328.29
1305	8	99%	0.75	0.79	0.67	1191-50-0	tetradecylsodium sulfate	C14H29Na1S1O4	67.7	316.54
629	8	99%	0.28	0.30	0.30	1194-02-1	4-fluorobenzonitrile	C7H4F1N1	60.7	121.12
264	8	99%	0.63	0.72	0.83	1195-45-5	4-fluorophenyl isocyanate	C7H4F1N1O1	20.3	137.11
231	8	98%	2.91	2.91	2.94	1197-19-9	4-(dimethylamino) benzonitrile	C9H10N2	0.168	146.19
247	8	96%	−0.05	0.08	0.08	1197-55-3	4-aminophenylacetic acid	C8H9N1O2	126	151.17
869	8	97%	0.92	0.96	1.02 *	1198-37-4	2,4-dimethylquinoline	C11H11N1	15.0	157.22
945	42	24, 25	0.72	0.85		1198-37-4	2,4-dimethylquinoline	C11H11N1	22.2	157.22
261	8	98%	0.48	0.53	0.58	1202-34-2	2,2'-dipyridylamine	C10H9N3	45.0	171.20
1147	8	97%	3.30	3.58	3.74	1204-21-3	2-bromo-2',5'-dimethoxyacetophenone	C10H11Br1O3	0.0471	259.10
823	38	23	1.86	2.30	2.39 *	1239-45-8	Ethidium bromide	C21H20Br1N3	1.61	394.32
1276	53			2.13		1239-45-8	Ethidium bromide	C21H20Br1N3	2.92	394.32
708	31	99%		1.26		1313-82-2	sodium sulfide	Na2S1	4.29	78.04
222	13		0.82			1330-20-7	xylene	C8H10	16.1	106.18
646	8	99%	0.32	0.38	0.45	1443-80-7	4-acetylbenzonitrile	C9H7N1O1	51.5	145.16
995	8	99%	−0.63	−0.59	−0.62	1453-82-3	isonicotinamide	C6H6N2O1	509	122.13
796	36				5.50	1461-25-2	tetrabutyltin	C16H36Sn1	0.0011	347.15
948	42	24, 25	1.05	1.05		1463-17-8	2,8-dimethylquinoline	C11H11N1	14.0	157.22
1308	8	99%	2.15	2.04	2.00	1484-12-4	9-methylcarbazole	C13H11N1	1.81	181.24
1146	8	98%	2.17	1.97	1.90	1484-13-5	9-vinylcarbazole	C14H11N1	2.43	193.25
1337	8	99%	0.54	0.53	0.50	1493-27-2	1-fluoro-2-nitrobenzene	C6H4F1N1O2	44.6	141.10
1376	8	98%	1.02	1.01	0.97	1504-63-8	4-nitrocinnamyl alcohol	C9H9N1O3	19.2	179.18
286	8	99%	2.07	2.08	2.11	1529-41-5	3-chlorobenzyl cyanide	C8H6Cl1N1	1.18	151.60
621	8	98%	2.18	2.24	2.28	1544-68-9	4-fluorophenyl isothiocyanate	C7H4F1N1S1	0.804	153.18
1257	49		0.43			1563-38-3	Carbofuran phenol	C10H12O2	61.0	164.20

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
1247	49		1.03			1563-66-2	Carbofuran	C12H15N1O3	20.6	221.26
1270	52	32	0.39			1563-66-2	Carbofuran	C12H15N1O3	90.1	221.26
888	8	97%	−0.09	−0.13	−0.19	1578-63-8	4-fluorophenylacetic acid	C8H7F1O2	239	154.14
128	11		0.63	0.63	0.65	1615-02-7	trans-4-chloro-cinnamic acid	C9H7Cl1O2	40.9	182.60
1309	8	tech.	0.84	0.77	0.68	1620-30-0	alpha-(4-pyridyl)benzhydrol	C18H15N1O1	54.6	261.32
996	8	98%	−0.40	−0.38	−0.38	1628-89-3	2-methoxypyridine	C6H7N1O1	262	109.13
1067	8	99%	1.58	1.89	2.05	1629-58-9	ethylvinylketone	C5H8O1	0.750	84.12
722	31	95%		<0.83		1634-02-2	TBTD; tetra-n-butyl-thiuramdisulfide	C18H36N2S4	>60.	408.80
1341	8	>99%	1.03	0.96	0.89	1634-04-4	tert-butyl-methyl ether	C5H12O1	11.4	88.15
685	8	98%+	0.64	0.85	0.98	1634-82-8	2-(4-hydroxyphenylazo) benzoic acid	C13H10N2O3	25.4	242.24
672	8	99%	0.58	0.62	0.71	1642-81-5	4-(chloromethyl) benzoic acid	C8H7Cl1O2	33.3	170.60
1167	8	98%	0.02	0.03	0.04	1682-20-8	4-amino-2,3,5,6-tetrafluoropyridine	C5H2F4N2	151	166.08
1229	11				2.33 *	1689-82-3	4-phenylazophenol	C12H10N2O1	0.927	198.24
342	2		2.41			1689-82-3	4-phenylazophenol	C12H10N2O1	0.771	198.24
1310	8	99%	1.61	1.58	1.55	1696-60-2	vanillin azine	C16H16N2O4	8.46	300.32
674	8	97%	1.83	1.83	1.86	1711-02-0	4-iodobenzoyl chloride	C7H4Cl1I1O1	3.68	266.47
350	2		1.13			1745-81-9	2-allylphenol	C9H10O1	9.95	134.18
1055	8	80%	2.57	2.66	2.66	1849-36-1	4-nitrothiophenol	C6H5N1O2S1	0.339	155.18
1000	8	>99%	2.14	2.10	1.88	1865-01-6	4-nitrophenylformate	C7H5N1O4	2.20	167.12
959	42	24, 25	1.40	1.30		1873-54-7	3-ethylquinoline	C11H11N1	7.88	157.22
586	8	99%	2.03	1.97	1.92	1875-88-3	4-chlorophenethyl alcohol	C8H9Cl1O1	1.88	156.61
659	8		0.09	0.07	0.06	1877-75-4	2-(4-methoxyphenoxy) acetic acid	C9H10O4	159	182.18
124	11		0.42	0.39	0.33	1878-66-6	4-chloro-phenyl acetic acid	C8H7Cl1O2	79.8	170.60
202	12	97%	1.46	1.48	1.44	1885-14-9	phenyl chloroformate	C7H5Cl1O2	5.68	156.57
639	8	98%	0.40	0.40	0.38	1897-52-5	2,6-difluorobenzonitrile	C7H3F2N1	58.0	139.11
1272	52	32	−0.71		*	1910-42-5	Paraquat [cation]	C12H14Cl2N2	1319	257.17
408	17		−0.48			1910-42-5	Paraquat	C12H14Cl2N2	777	257.18

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
1185	8	96%	1.54	1.67	1.71 *	1948-92-1	4-(4-nitrophenylsulfonyl)aniline	C12H10N2O4S1	5.43	278.29
1031	11				1.61	1948-92-1	4-(p-nitrophenylsulfonyl)aniline	C12H10N2O4S1	6.83	278.29
186	12	98%	1.94	1.96	1.99	1956-06-5	4-nitrophenyl propionate	C9H9N1O4	2.00	195.18
1377	8	98%	1.16	1.13	1.08	2008-41-5	Butylate	C11H23N1O1S1	18.1	217.37
836	8	98%	3.08	3.10	3.10	2050-76-2	2,4-dichloro-1-naphthol	C10H6Cl2O1	0.169	213.06
1127	8	98%	1.56	1.55	1.52	2103-99-3	2-amino-4-(4-chlorophenyl)thiazole	C9H7Cl1N2S1	6.36	210.69
978	8	>99%	1.66	1.66	1.60	2116-65-6	4-benzylpyridine	C12H11N1	4.25	169.23
150	11		2.48	2.53	2.62	2131-55-7	4-chlorophenyl-isothiocyanate	C7H4Cl1N1S1	0.364	151.59
664	8		4.25	4.26	4.25	2179-45-5	1',1',1'-trichloro-p-tolunitrile	C8H4Cl3N1	0.0124	220.49
647	8		2.97	2.98	2.99	2184-88-5	4-chloro-1'-methyl-phenylacetonitrile	C9H8Cl1N1	0.168	164.62
1326	8	98%	1.48	1.45	1.19	2196-13-6	thioisonicotinamide	C6H6N2S1	8.92	138.19
671	8	98%	1.04	1.05	1.07	2215-77-2	4-phenoxybenzoic acid	C13H10O3	18.2	214.22
1219	11				0.65	2227-79-4	thiobenzamide	C7H7N1S1	30.7	137.20
1195	8	97%	0.54	0.62	0.64	2243-62-1	1,5-diaminonaphthalene	C10H10N2	36.2	158.20
496	28	11	2.94			2282-34-0	Bufencarb	C13H19N1O2	0.254	221.33
887	8		0.98	1.03	0.97	2297-64-5	4-bromobenzenesulfonichydrazide	C6H7Br1N2O2S1	26.9	251.11
1073	8	98%	1.02	1.06	1.11	2338-12-7	5-nitrobenzotriazole	C6H4N4O2	12.7	164.12
648	8	98%	3.26	3.22	3.22	2338-75-2	p-(trifluoromethyl) phenylacetonitrile	C9H6F3N1	0.112	185.15
670	8	98%	0.53	0.58	0.64	2345-34-8	4-acetoxybenzoic acid	C9H8O4	41.3	180.16
1077	8	98%	1.92	1.82	1.64	2349-67-9	5-amino-1,3,4-thiadiazole-2-thiol	C2H3N3S2	3.05	133.20
1086	8	97%	−0.04	0.11	0.31	2379-55-7	2,3-dimethylquinoxaline	C10H10N2	77.5	158.20
309	8	95%	1.69	1.71	1.72	2382-96-9	2-mercaptobenzoxazole	C7H5N1O1S1	2.88	151.19
1316	8	95%	1.09	1.12	1.12	2382-96-9	2-mercaptobenzoxazole	C7H5N1O1S1	11.5	151.19
265	8	98%	0.74	0.74	0.73	2393-23-9	4-methoxybenzylamine	C8H11N1O1	35.5	190.65
303	8	99%	3.31	3.29	3.28	2396-60-3	4-methoxyazobenzene	C13H12N2O1	0.111	212.25
116	10		0.62	0.64	0.64	2402-77-9	2,3-dichloropyridine	C5H3Cl2N1	33.9	147.99
118	10		0.26	0.25	0.25	2402-78-0	2,6-dichloropyridine	C5H3Cl2N1	83.2	147.99

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
682	8	97%+	1.32	1.29	1.30	2416-94-6	2,3,6-trimethylphenol	C9H12O1	6.83	136.19
400	17		1.70			2425-06-1	Captafol	C10H9Cl4N1O2S1	6.96	349.06
957	42	24, 25	1.85	1.82		2436-93-3	6,8-dimethylquinoline	C11H11N1	2.38	157.22
1179	8	99%	2.64	2.56	2.43	2443-58-5	2-hydroxyfluorene	C13H10O1	0.677	182.22
119	10		0.30	0.31	0.32	2457-47-8	3,5-dichloropyridine	C5H3Cl2N1	70.8	147.99
292	8	98%	−0.16	−0.18	−0.20	2459-09-8	methylisonicotinate	C7H7N1O2	217	137.14
721	31	95%		<0.55		2556-42-5	TPTD; tetra-n-propylthiuramdisulfide	C14H28N2S4	>100.	352.68
1089	8	99%	1.46	1.42	1.36	2562-38-1	nitrocyclopentane	C5H9N1O2	5.03	115.13
1168	8	99%	3.20	3.64	3.77	2578-45-2	2-chloro-3,5-dinitropyridine	C5H2Cl1N3O4	0.0346	203.54
1302	8	98%	2.11	2.10	2.07	2581-34-2	3-methyl-4-nitrophenol	C7H7N1O3	1.30	153.14
839	8	99%	2.14	2.08	2.02	2612-57-9	2,4-dichlorophenylisocyanate	C7H3Cl1N1O1	1.80	188.01
542	8	99%	1.66	1.68	1.54	2637-34-5	2-mercaptopyridine	C5H5N2S1	3.21	111.17
1334	8	98%	1.42	1.42	1.39	2683-43-4	2,4-dichloro-6-nitroaniline	C6H4Cl2N2O2	8.43	207.02
1064	8	97%	0.64	0.79	0.84	2687-25-4	2,3-diaminotoluene	C7H10N2	17.7	122.17
1084	8	99%	0.60	0.65	0.65	2713-33-9	3,4-difluorophenol	C6H4F2O1	29.1	130.10
1085	8	99%	0.48	0.49	0.47	2713-34-0	3,5-difluorophenol	C6H4F2O1	44.1	130.10
906	32			0.26		2782-91-4	tetramethylthiourea	C5H12N2S1	72.7	132.23
715	31	97%		0.26		2782-91-4	tetramethylthiourea	C5H12N2S1	72.7	132.23
316	2		0.44			2799-17-9	1-amino-2-propanol	C3H9N1O1	27.3	75.11
203	12	98%	1.40	1.44	1.44	2835-06-5	alpha-phenylglycine, DL	C8H9N1O2	5.49	151.17
1166	8	99%	0.66	0.72	0.70	2840-00-8	4-amino-3,5-dichloro-2,6-difluoropyridine	C5H2Cl2F2N2	39.7	198.99
295	8	95%	1.14	1.28	1.44	2845-62-7	benzenesulfonyl isocyanate	C7H5N1O3S1	6.65	183.19
1012	8	99%	0.27	0.23	0.20	2859-67-8	3-pyridinepropanol	C8H11N1O1	86.6	137.18
1306	8	95%	−0.40	−0.42	−0.45	2875-18-5	2,3,5,6-tetrafluoropyridine	C5H1F4N1	426	151.07
576	8	99%	2.97	2.97	2.99	2920-38-9	4-biphenylcarbonitrile	C13H9N1	0.183	179.22
1246	49		0.88			2921-88-2	Chlorpyrifos	C9H11Cl3N1O3P1S1	46.2	350.57
531	8		1.40	1.62	1.74	2922-40-9	4-nitrophenylalanine, DL	C9H10N2O4	3.82	210.19

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
1153	8	99%	−0.32	−0.31	−0.36	2935-44-6	2,5-hexanediol	C6H14O2	271	118.18
284	8	98%	3.06	3.05	3.03	2947-61-7	p-tolylacetonitrile	C9H9N1	0.122	131.18
1186	8	99%	2.40	2.37	2.31	2967-66-0	methyl-4-(trifluoromethyl)benzoate	C9H7F3O2	1.00	204.15
562	8	99%	1.28	1.32	1.40	2983-74-6	4-methoxyphenyl isocyanate	C8H7N1O2	5.94	149.15
165	12	97%	2.44	2.47	2.52	3012-37-1	benzylthiocyanate	C8H7N1S1	0.451	149.22
1253	49		1.69			3112-85-4	methylphenylsulfone	C7H8O2S1	3.19	156.21
1087	8	95%	−0.33	−0.34	−0.36	3149-28-8	2-methoxypyrazine	C5H6N2O1	252	110.12
441	20	4	0.01			3179-31-5	mercaptotriazole	C2H3N3S1	98.8	101.13
102	10		2.17	2.14	2.12 *	3209-22-1	2,3-dichloronitrobenzene	C6H3Cl2N1O2	1.46	192.00
924	41			2.11		3209-22-1	2,3-dichloronitrobenzene	C6H3Cl2N1O2	1.49	192.00
665	8	97%	1.28	1.55	1.65	3261-62-9	2-(p-tolyl) ethylamine	C9H13N1	3.03	135.21
1362	8	98%	1.10	1.11	1.11	3272-08-0	4-hydroxy-3-nitrobenzonitrile	C7H4N2O3	12.7	164.12
663	8	98%	0.63	0.72	0.73	3300-51-4	4-(trifluoromethyl)benzylamine	C8H8F3N1	32.6	175.16
215	8	98%	1.23	1.29	1.30	3316-09-4	4-nitrocatechol	C6H5N1O4	7.77	155.11
889	8	97%	1.30	1.32	1.24	3424-93-9	4-methoxybenzamidine	C8H9N1O2	8.70	151.17
1303	8	99%	−0.40	−0.44	−0.45	3438-46-8	4-methylpyrimidine	C5H6N2	265	94.12
96	9		2.20	2.15	2.16	3481-20-7	2,3,5,6-tetrachloroaniline	C6H4Cl4N1	1.60	230.91
1330	8	97%	0.98	1.04	1.03	3531-19-9	6-chloro-2,4-dinitroaniline	C6H4Cl1N3O4	20.3	217.57
798	36				5.96	3540-84-9	tetraoctyltin	C32H68Sn1	0.0006	571.60
806	36				5.44	3542-36-7	dioctyltindichloride	C16H34Cl2Sn1	0.0015	416.09
563	8	99%	2.52	2.53	2.56	3544-25-0	4-aminobenzyl cyanide	C8H8N2	0.364	132.17
254	8		1.82	1.87	1.85	3597-91-9	4-biphenylmethanol	C13H12O1	2.60	184.24
632	8		1.24	1.20	1.10	3609-53-8	methyl-4-acetylbenzoate	C10H10O3	14.2	178.19
1140	8		2.78	2.93	2.99	3625-57-8	Nile Blue	C40H40N6O6S1	0.750	732.84
58	4	40%	3.09			3811-73-2	sodium Omadine 40%	C5H5N1Na1O1S1	0.122	150.16
1022	1	98%			4.03	4044-65-9	1,4-phenylenediisothiocyanate	C8H4N2S2	0.0179	192.26
1342	8	97%	1.58	2.17	2.44	4110-35-4	3,5-dinitrobenzonitrile	C7H3N3O4	0.701	193.12

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
963	8	99%	0.23	0.26	0.19	4214-76-0	2-amino-5-nitropyridine	C5H5N3O2	89.8	139.11
840	8	99%	−0.46	−0.43	−0.47	4214-79-3	5-chloro-2-pyridinol	C5H4Cl1N1O1	382	129.55
1133	8	97%	2.76	3.06	3.11	4248-33-3	3,4-dinitrobenzonitrile	C7H3N3O4	0.150	193.12
273	8	98%	−0.28	−0.24	−0.22	4383-06-6	3-hydroxy-4-methoxybenzyl alcohol	C8H10O3	256	154.17
1300	8	98%	0.45	0.43	0.44	4421-08-3	4-hydroxy-3-methoxybenzonitrile	C8H7N1O2	54.2	149.15
184	12	97%	1.44	1.40	1.38	4457-32-3	4-nitrobenzyl chloroformate	C8H6Cl1N1O4	8.99	215.60
1155	8	98%	−0.62	−0.63	−0.68	4542-47-6	4-morpholinepropionitrile	C7H12N2O1	671	140.19
993	8	>98%	−0.85	−0.80	−0.83	4562-27-0	4-hydroxypyrimidine	C4H4N2O1	650	96.09
1261	49		−0.97			4562-27-0	4-hydroxy-pyrimidine	C4H4N2O1	897	96.09
1011	8	97%	−0.37	−0.35	−0.36	4664-01-1	3,4-pyridinedicarboximide	C7H4N2O2	339	148.12
56	4	78%	0.71	0.88		4719-04-4	Grotan	C9H21N3O3	28.9	219.29
850	8	98%	2.48	2.44	2.38	4748-78-1	4-ethylbenzaldehyde	C9H10O1	0.559	134.18
1074	8	97%	2.47	2.44	2.41	4769-97-5	4-nitroindole	C8H6N2O2	0.631	162.15
17	1		2.84	3.05	3.12	4901-51-3	2,3,4,5-tetrachlorophenol	C6H2Cl4O1	0.176	231.89
136	11		1.56	1.50	1.33	5216-25-1	4-chloro-1',1',1'-trichlorotoluene	C7H4Cl4	10.8	229.90
1088	8	98%	2.71	2.70	2.67	5263-87-6	6-methoxyquinoline	C10H9N1O1	0.340	159.19
534	8		0.73	0.74	0.74	5332-96-7	1-(4-nitrophenyl) acetone	C9H9N1O3	32.6	179.18
175	12	98%	1.32	1.57	1.71	5351-69-9	4-phenyl thiosemicarbazide	C7H9N3S1	3.26	167.23
1113	8	98%	1.54	1.73	1.76	5388-62-5	4-chloro-2,6-dinitroaniline	C6H4Cl1N3O4	3.78	217.57
640	8		0.84	0.85	0.87	5394-57-0	2-(4-methyoxyphenoxy) ethanol	C9H12O3	22.7	168.19
1091	8	97%	2.01	1.98	1.91	5401-94-5	5-nitroindazole	C7H5N3O2	2.01	163.14
1301	8		2.55	2.50	2.32	5418-32-6	indophenol sodium salt	C12H8N1Na1O2	1.06	221.19
1169	8	99%	0.60	0.67	0.66	5470-18-8	2-chloro-3-nitropyridine	C5H3Cl1N2O2	34.7	158.54
140	11		1.50	1.46	1.48	5586-88-9	4-chlorophenyl-acetone	C9H9Cl1O1	5.58	168.62
1188	8	97%	2.28	2.67	2.83	5655-61-8	(-)-bornylacetate	C12H20O2	0.290	196.29
532	8		1.55	1.53	1.49	5676-48-2	tetrahydroxyquinone-bishydrate	C6H8O8	6.73	208.13
984	8	97%	0.09	0.09	0.05	5683-33-0	2-dimethylaminopyridine	C7H10N2	109	122.17

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
206	12	97%	2.06	2.23	2.12	5707-04-0	phenyl selenylchloride	C6H5Cl1Se1	1.45	191.52
577	8	98%	0.99	1.01	1.01	5728-52-9	4-biphenylacetic acid	C14H12O2	20.7	212.25
1092	8	98%	3.28	3.26	3.24	6146-52-7	5-nitroindole	C8H6N2O2	0.0933	162.15
255	8	98%	0.67	0.68	0.71	6214-44-4	p-ethoxybenzyl alcohol	C9H12O2	29.7	152.19
187	12	98%	0.74	0.82	0.84	6217-68-1	4-nitrophenylsulfate potassium salt	C6H4K1N1O6S1	37.2	257.28
1054	8		2.81	2.83	2.61	6258-60-2	4-methoxy-alpha-toluenethiol	C8H10O1S1	0.379	154.23
149	11	98%	2.47	2.57	2.54	6258-66-8	4-chlorobenzyl-mercaptan	C7H7Cl1S1	0.489	169.62
276	8	98%	1.01	0.98	0.94 *	6283-25-6	2-chloro-5-nitroaniline	C6H5Cl1N2O2	19.8	172.57
964	8	98%	0.98	0.95	0.81	6283-25-6	2-chloro-5-nitroaniline	C6H5Cl1N2O2	26.7	172.57
583	8	97%	1.55	1.51	1.50	6285-05-8	4'-chloropropiophenone	C9H9Cl1O1	5.33	168.62
1059	8	>97%	1.75	1.66	1.56	6285-57-0	2-amino-6-nitrobenzothiazole	C7H5N3O2S1	5.38	195.20
153	12	98%	−0.43	−0.46	−0.48	6303-58-8	4-phenoxybutyric acid	C10H12O3	544	180.21
1131	8	98%	2.38	2.86	3.08	6306-39-4	1,2-dichloro-4,5-dinitrobenzene	C6H2Cl2N2O4	0.197	237.00
843	8	98%	2.38	2.35	2.27	6306-60-1	2,4-dichlorophenylacetonitrile	C8H5Cl2N1	0.999	186.04
78	7	99%		3.75		6317-18-6	methylenedithiocyanate	C3H2N2S2	0.0232	130.19
1244	48	95%		3.38		6317-18-6	methylenedithiocyanate	C3H2N2S2	0.0543	130.19
433	20	4	3.11			6317-18-6	methylenedithiocyanate	C3H2N2S2	0.101	130.19
1211	11				2.52	6325-93-5	4-nitrobenzenesulfonamide	C6H6N2O4S1	0.611	202.19
1116	8	99%	1.16	1.20	1.18	6393-42-6	2,6-dinitro-4-methylaniline	C7H7N3O4	13.0	197.15
1082	8	98%	0.17	0.21	0.23	6418-38-8	2,3-difluorophenol	C6H4F2O1	76.6	130.10
835	8		1.02	1.01	0.97	6489-09-4	5-phenoxy-1H-tetrazole	C7H6N4O1	17.4	162.15
1256	49		1.03			6515-38-4	3,5,6-trichloro-2-pyridinol	C5H2Cl3N1O1	18.5	198.45
1333	8	97%	0.96	0.90	0.84	6575-00-4	3,5-dichlorobenzonitrile	C7H3Cl2N1	24.9	172.01
1336	8	96%	1.40	1.40	1.37	6641-64-1	4,5-dichloro-2-nitroaniline	C6H4Cl2N2O2	8.83	207.02
904	32			−1.05		6972-05-0	N,N-dimethylthiourea	C3H8N2S1	1169	104.17
581	8	99%	0.80	0.94	1.04	6996-92-5	benzeneseleninic acid	C6H6O2Se1	17.2	189.07
1164	8	99%	1.50	1.63	1.74	7036-61-5	propyl()-1-(1-phenylethyl)imidazole-5-carbox.	C15H20Cl1N2O2	5.36	294.78

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
828	39	23	0.76	0.72	0.70	7220-81-7	Aflatoxin-B2	C17H14O6	62.7	314.31
829	39	23	0.68	0.65	0.68	7241-98-7	Aflatoxin-G2	C17H14O7	69.0	330.31
1076	8	99%	0.43	0.48	0.44	7242-92-4	exo-2-aminonorbornane	C7H13N1	40.4	111.19
1072	8	97%	0.41	0.40	0.37	7251-61-8	2-methylquinoxaline	C9H8N2	61.5	144.18
566	8	97%	0.40	0.38	0.37	7292-73-1	4-fluoro-alpha-phenylglycine, DL	C8H8F1N1O2	72.1	169.13
538	8	98%	0.25	0.24	0.24 *	7424-00-2	3-(4-chlorophenyl)alanine, DL	C9H10Cl1N1O2	115	199.64
120	11				−0.67	7424-00-2	3-(4-chlorophenyl)alanine, DL	C9H10Cl1N1O2	934	199.64
631	8	97%	1.18	1.13	1.09	7589-27-7	4-fluorophenethyl alcohol	C8H9F1O1	11.4	140.16
853	8	98%	0.73	0.71	0.63	7605-28-9	(phenylsulfonyl)acetonitrile	C8H7N1O2S1	42.5	181.22
942	42	24, 25	2.18	2.16		7661-55-4	5-methylquinoline	C10H9N1	0.991	143.19
422	19	2	0.93			7664-41-7	ammonia (free)	H3N1	2.00	17.04
213	8	99%	1.68	1.75	1.75	7669-54-7	2-nitrobenzene sulfenylchloride	C6H4Cl1N1O2S1	3.37	189.62
1150	8	98%	−0.02	−0.05	−0.09	7681-99-4	5,7-dimethyl-s-triazolo[1,5-a]pyrimidine	C7H8N4	182	148.17
1346	8	97%	2.14	2.53	2.83	7693-46-1	4-nitrophenylchloroformate	C7H4Cl1N1O4	0.298	201.57
1352	8	99%	1.28	1.30	1.31	7693-52-9	4-bromo-2-nitrophenol	C6H4Br1N1O3	10.7	218.01
1370	8	98%	2.75	2.72	2.66	7745-91-7	3-bromo-4-methylaniline	C7H8Br1N1	0.407	186.06
1095	8	97%	2.76	2.75	2.73	10041-02-8	4-(imidazol-1-yl)phenol	C9H8N2O1	0.298	160.18
277	8	98%	1.68	1.64	1.62	10298-80-3	4-chloro-3-nitroanisole	C7H6Cl1N1O3	4.50	187.58
234	8	97%	0.25	0.25	0.28	10541-83-0	4-methylaminobenzoic acid	C8H9N1O2	79.3	151.17
1233	45				2.12	12122-67-7	Zineb	C4H6N2S4Zn1	2.09	275.73
703	31	95%		1.65		12122-67-7	Zineb; zincethylenebisdithiocarbamate	C4H6N2S4Zn1	6.17	275.73
1234	45	95%			3.31	12427-38-2	Maneb	C4H6Mn1N2S4	0.130	266.31
709	31	90%		2.34		12427-38-2	Maneb; manganese ethylenebisdithiocarbamate	C4H6Mn1N2S4	1.22	266.31
865	8	98%	3.26	3.33	3.35	13103-75-8	4-(2-pyridylazo)N,N-dimethlaniline	C13H14N4	0.101	226.28
802	36				3.00	13121-70-5	Cyhexatin	C18H34O1Sn1	0.385	385.16
402	17		1.59			13121-70-5	Cyhexatin	C18H34O1Sn1	9.90	385.21
1044	8	98%	0.65	0.61	0.55	13121-99-8	4-pyridylacetonitrile hydrochloride	C7H7Cl1N2	43.6	154.60

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
1093	8		1.73	1.75	1.75	13331-27-6	3-nitrophenylboronic acid	C6H6B1N1O4	2.97	166.93
803	36				<5.23	13356-08-6	Fenbutatinoxide	C60H78O1Sn2	>6.	1052.76
954	42	24, 25	1.97	1.90		13362-80-6	4,8-dimethylquinoline	C11H11N1	1.98	157.22
785	35		0.65		0.81	14267-92-6	5-chloro-1-pentyne	C5H7Cl1	15.9	102.57
718	31	90%		2.33		14324-55-1	ZnDEDC; zinc diethyldithiocarbamate	C10H2N2S4Zn1	1.70	363.95
712	31	95%		3.32		14484-64-1	Ferbam; ferric dimethyldithiocarbamate	C9H18N3S6Fe1	0.199	416.51
966	8	98%	0.83	0.80	0.68	14548-46-0	4-benzoylpyridine	C12H9N1O1	38.3	183.21
1170	8	96%	−0.38	−0.42	−0.45	14906-59-3	4-cyanopyridine N-oxide	C6H4N2O1	339	120.11
1046	8	98%	0.06	0.00	−0.09	15707-24-1	2,3-diethylpyrazine	C8H12N2	168	136.20
593	50		−0.37			15892-23-6	2-butanol	C4H10O1	174	74.12
11	1		2.05	2.09	2.20	15950-66-0	2,3,4-trichlorophenol	C6H3Cl3O1	1.25	197.45
117	10		0.26	0.25	0.26	16110-09-1	2,5-dichloropyridine	C5H3Cl2N1	81.3	147.99
525	8	17	0.16	0.19	0.23	16365-27-8	2-(4-nitrophenoxy) ethanol	C8H9N1O4	108	183.18
614	8	97%	3.15	3.11	3.02	16532-79-9	4-bromophenylacetonitrile	C8H6Br1N1	0.187	196.05
668	8	99%	0.83	0.83	0.84	16642-92-5	trans-p-(trifluoromethyl) cinnamic acid	C10H7F3O2	31.2	216.16
1144	8	98%	−0.42	−0.38	−0.35	16867-04-2	2,3-dihydroxypyridine	C5H5N1O2	249	111.10
249	8	98%	2.28	2.54	2.78	17201-43-3	4-(bromomethyl)benzonitrile	C8H6Br1N1	0.325	196.05
870	8	97%	0.89	1.04	1.03	17241-59-7	2-(hydroxymethyl)anthraquinone	C15H10O3	22.2	238.24
864	8		1.93	1.89	1.81	17377-30-9	benzylthioacetonitrile	C9H9N1S1	2.53	163.24
107	10		1.94	1.92	1.90	17700-09-3	2,3,4-trichloro-nitrobenzene	C6H2Cl3N1O2	2.85	226.45
415	18	2	1.35	1.38		17924-92-4	Zearalenone	C18H22O5	13.3	318.36
1353	8	98%	0.96	0.88	0.79	18349-11-6	4-chloro-2-fluoro-5-nitrotoluene	C7H5Cl1F1N1O2	30.7	189.58
109	10		2.50	2.46	2.41	18708-70-8	2,4,6-trichloro-nitrobenzene	C6H2Cl3N1O2	0.881	226.45
1052	8		0.96	0.93	0.92	19524-06-2	4-bromopyridine hydrochloride	C5H5Br1Cl1N1	23.4	194.46
527	8	99%	0.34	0.36	0.38	19719-28-9	2,4-dichlorophenyl acetic acid	C8H7Cl2O2	85.5	205.04
950	42	24, 25	2.72	2.64		20668-26-2	3,6-dimethylquinoline	C11H11N1	0.360	157.22
949	42	24, 25	2.20	2.16		20668-27-3	3,5-dimethylquinoline	C11H11N1	1.09	157.22

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
951	42	24, 25	1.54	1.62		20668-28-4	3,7-dimethylquinoline	C11H11N1	3.77	157.22
952	42	24, 27	1.53	1.49		20668-29-5	3,8-dimethylquinoline	C11H11N1	5.09	157.22
955	42	24, 25	2.33	2.24		20668-30-8	5,6-dimethylquinoline	C11H11N1	0.905	157.22
956	42	24, 25	2.08	1.92		20668-33-1	6,7-dimethylquinoline	C11H11N1	1.89	157.22
958	42	24, 26	1.35	1.30		20668-35-3	7,8-dimethylquinoline	C11H11N1	7.88	157.22
129	11		0.47	0.59	0.77	20753-53-1	4-chlorophenyl seleninic acid	C6H5Cl1O2Se1	38.0	223.97
418	18	2	1.21	1.17		21794-01-4	Rubratoxin B	C26H30O11	35.1	518.56
332	2		0.49			22104-62-7	4-dimethylamino-3-methyl-2-butanone	C7H15N1O1	41.8	129.20
1262	8		1.30	1.32	1.24	22265-37-8	4-methoxybenzamidine	C8H10N2O1	8.64	150.18
565	8	98%+	0.06	0.06	0.04	22818-40-2	4-hydroxyphenylglycine, D	C8H9N1O3	152	167.17
689	8		2.61	2.65	2.66	23138-50-3	4-ethylphenylisocyanate	C9H9N1O1	0.322	147.18
800	36				4.55	24124-25-2	tributyltinlinoleate	C30H58O2Sn1	0.0161	569.57
1328	8	98%	−0.60	−0.61	−0.61	25112-68-9	2-thiophenecarboxylic acid sodium	C5H3Na1O2S1	612	150.13
1248	49		0.55			25311-71-1	Isofenphos	C15H24N1O4P1S1	97.3	345.40
358	2		1.29			25322-20-7	tetrachloroethane	C2H2Cl4	8.61	167.85
59	4	8.6%	3.11	3.37		26172-55-4	Kathon 886-MW, "a" + "impurities"	C4H6Cl1N1O1S1	0.0647	151.62
809	36				<3.11	26410-42-4	butylthiostannous acid	C4H10O1S1Sn1	>200.	259.14
1368	8	96%	1.21	1.17	1.09	26961-27-3	2-amino-4,5-dimethoxybenzonitrile	C9H10N2O2	14.5	178.19
1132	8	98%	2.48	2.99	3.17	28689-08-9	1,5-dichloro-2,3-dinitrobenzene	C6H2Cl2N2O4	0.160	237.00
854	8	97%	1.04	1.05	0.94	30806-83-8	ethyl-4-isocyanatobenzoate	C10H9N1O3	22.0	191.19
1096	8	98%	0.61	0.68	0.69	32707-89-4	3,5-bis(CF3)benzylalcohol	C9H6F6O1	49.9	244.16
704	31	98%		3.77		33813-20-6	DIDT	C4H4N2S3	0.0299	176.28
1267	51		−0.16			34014-18-1	Tebuthiuron	C9H16N4O1S1	330	228.31
677	8	99%	0.55	0.61	0.61	35303-76-5	4-(2-aminoethyl)benzene sulfonamide	C8H12N1O2S1	49.2	200.26
1016	8	98%	1.76	2.08	2.26	35975-00-9	5-amino-6-nitroquinoline	C9H7N3O2	1.04	189.17
1187	8	99%	0.65	0.64	0.59	36394-22-6	4-hydroxy-5-phenyl-4-cyclopentene-1,3-dione	C11H7O3	48.4	188.18
1094	8	99%	0.88	0.90	0.93	37595-74-7	N-phenyl-N-bis(trifluoromethylsulfone)	C8H5F6N1O4S2	42.0	357.25

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
554	30	21	0.25	0.47	0.56	38641-94-0	Roundup	C6H17N2O5P1	62.9	228.22
512	28	12	1.11			38641-94-0	Roundup	C6H17N2O5P1	17.7	228.22
1348	8	99%	1.22	1.15	1.05	40371-64-0	2-bromo-4-chloro-5-nitrotoluene	C7H5Br1Cl1N1O2	22.3	250.49
1372	8	98%	0.19	0.56	0.68	41687-30-3	2-(3-nitrophenylsulfonyl)ethanol	C8H9N1O5S1	48.3	231.23
896	8		0.15	0.17	0.14	49621-50-3	3-(3,4,5-trimethoxyphenyl)propionitrile	C12H15N1O3	160	221.26
235	8	98%	1.28	1.27	1.30	50438-75-0	4-(dimethylamino)phenethyl alcohol	C10H15N1O1	8.28	165.24
998	8		3.12	3.41	3.48	52080-58-7	Methylviolet B base	C24H27N3	0.118	357.50
773	35		1.58		1.56	52134-24-4	1,2,3,4-tetrachlorobutane	C4H6Cl4	5.40	195.90
1378	8	74%	1.89	1.8	1.69	52315-07-8	Cypermethrin	C22H19Cl2N1O3	8.50	416.30
1382	8	99%	0.78	0.68	0.60	52334-81-3	2-chloro-5-trifluoromethyl-pyridine	C6H3Cl1F3N1	45.6	181.55
361	2		2.84		*	52645-53-1	Permethrin	C21H20Cl2O3	0.566	391.31
1143	8	91%	1.23	1.15	1.09	52645-53-1	Permethrin	C21H20Cl2O3	31.8	391.30
60	4	2.6%	3.11	3.37		55965-84-9	Kathon 886-MW "b" + "impurities"	C4H7N1O1S1	0.05	117.13
412	18	2	1.63	2.20		56299-00-4	PR Toxin	C17H15O7	2.09	331.32
808	36	28			2.51	57583-34-3	methyltin(TGAIOE)3	C31H60O6S3Sn1	2.30	743.71
807	36	28			3.74	57583-35-4	dimethyltin(TGAIOE)2	C22H44O4S2Sn1	0.101	555.41
409	17		0.37			57837-19-1	Ridomil	C15H21N1O4	119	279.37
281	8		1.39	1.43	1.41	60123-64-0	2,2',4,4',5-pentachlorodiphenyl ether	C12H5Cl5O1	13.2	340.00
1363	8	97%	0.68	0.70	0.71	60463-12-9	5-hydroxy-2-nitro-benzyl alcohol	C7H7N1O4	33.0	169.14
810	36	99%, 28			<3.11	63397-60-4	bis(2-carbobutoxyethyl)tin(TGAIOE)2	C34H64O6S2Sn1	>590.	751.66
1109	8	98%	0.73	0.94	1.02	65303-82-4	4-fluoro-3-nitrophenylisocyanate	C7H3F1N2O3	17.4	182.11
1373	8	99%	0.22	0.23	0.26	66286-21-3	2,3,4,5-tetrafluoroacetophenone	C8H4F4O1	106	192.11
211	8	90%	2.16	1.83	1.56	69806-50-4	Fluazifopbutyl; Fusilade	C19H20F3N1O4	10.6	383.38
1136	8	98%	0.48	0.71	0.78	71022-43-0	3,5-dinitrobenzyl alcohol	C7H6N2O5	32.9	198.13
960	42	24, 25	1.23	1.26		72359-42-3	3-isopropylquinoline	C12H13N1	9.41	171.25
961	42	24, 25	1.09	1.12		72804-93-4	2-methyl-8-ethylquinoline	C12H13N1	13.0	171.25
1358	8	98%	1.07	1.04	1.01	77532-79-7	5-fluoro-2-methyl-benzonitrile	C8H6F1N1	13.2	135.14

Table 1. Toxicity data (see Explanatory Notes to Table 1). *(Continued on following page)*

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#	Ref.	Footnote	5m-pT	15m-pT	30m-pT	CAS	Name	Formula	ppm	MW
1053	8	98%	0.70	0.86	0.98	78056-39-0	4,5-difluoro-2-nitroaniline	C6H4F2N2O2	18.2	174.11
1318	8		2.14	2.48	2.62	78338-22-4	thionin	C14H13N3O2S1	0.689	287.34
1135	8	99%	1.30	1.45	1.53	79544-31-3	3,4-dinitrobenzyl alcohol	C7H6N2O5	5.85	198.13
679	8	98%+	1.77	1.74	1.73	81029-02-9	2-(2-chloro-1,1,2-trifluoroethylthio)aniline	C8H7Cl1F3N1S1	4.50	241.66
57	4	39%	−0.08	0.19		83245-20-9	Grotan HDII + "impurities"	C3H6Cl1N1O2	79.8	123.54
1356	8	97%	0.37	0.29	0.19	93343-10-3	3,5-difluoroanisole	C7H6F2O1	93.1	144.12
1369	8	98%	0.39	0.42	0.39	133622-66-9	2-amino-3,5,6-trifluoroterephthalonitrile	C8H2F3N2	80.3	197.12

Footnotes:

1. By extrapolation.
2. Freshly reconstituted bacterial suspension.
3. Mean of range given.
4. Lowest concentration (highest toxicity) of range given.
5. Recrystallized.
6. Measurements at 20°C.
7. Exposure time 10 min.
8. Isomer not stated in reference; value listed for each possible isomers.
9. More than one compound with same name in reference.
10. Values may be too low due to solubility limitations.
11. Analytical reference standard grade.
12. Agrichemical grade.
13. *Photobacterium fisherii*.
14. Molecular weight assumed to be that of 2,4-D.
15. Recrystallized from toluene/hexane.
16. Recrystallized from toluene.
17. Recrystallized from hexane.
18. Recrystallized from methanol.
19. Values calculated from those for bishydrate.
20. Recrystallized from H_2O; toluene.
21. Measured at 10°C; pH 6.0.
22. Test duration not given, 15 min assumed.
23. Values given for 30 min exposure are results for 20 min exposure.
24. Test pH: 5.1.
25. Purity of compound: >97%.
26. Purity of compound: 69%.
27. Purity of compound: 94%.
28. TGAIOE: Thioglycolic acid iso-octyl ester.
29. pH 2.9 to 4.
30. pH 6.7.
31. Exposure times 5 min, 10 min, and 20 min, respectively.
32. "Some test substances were tested at concentrations above their solubility by using sonicated suspensions" [quoted from original publication].

Table 1. Toxicity data (see Explanatory Notes to Table 1).

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Ref #	Authors	Ref #	Authors
1	Ribo and Kaiser (1983)	28	McFeters *et al.* (1983)
2	Curtis *et al.* (1982)	29	Miller *et al.* (1985)
3	Indorato *et al.* (1984)	30	Tarkpea *et al.* (1986)
4	Mallak and Brunker (1984)	31	Van Leeuwen *et al.* (1985)
5	Yates and Porter (1984)	32	Govers *et al.* (1986)
6	Dutka and Kwan (1981)	33	Nacci *et al.* (1986)
7	King (1984)	34	Greene *et al.* (1985)
8	this work*	35	R. Speece (1987)
9	Ribo and Kaiser (1984)	36	Steinhäuser *et al.* (1985)
10	Kaiser and Ribo (1985)	37	Benson and Stackhouse (1986)
11	Kaiser *et al.* (1985)	38	Yates (1985a)
12	Kaiser *et al.* (1987)	39	Yates (1985b)
13	Samak and Noiseux (1981)	40	Devillers *et al.* (1990)
14	Qureshi *et al.* (1982)	41	Deneer *et al.* (1988)
15	Lebsack *et al.* (1981)	42	Birkholz *et al.* (1990)
16	DeZwart and Slooff (1983)	43	Ribo and Rogers (1990)
17	Chang *et al.* (1981)	44	Elnabarawy *et al.* (1988)
18	Yates and Porter (1982)	45	Vasseur *et al.* (1988)
19	Bulich *et al.* (1981)	46	Reynolds *et al.* (1987)
20	King and Painter (1981)	47	Awong *et al.* (1989)
21	Bazin *et al.* (1987)	48	Maas-Diepeveen and van Leeuwen (1988)
22	Reteuna *et al.* (1986)	49	Somasundaram *et al.* (1990)
23	Vasseur *et al.* (1986)	50	Microtox Application Notes (1982)
24	Beaubien *et al.* (1986)	51	Blaise and Harwood (1991)
25	Hermens *et al.* (1985)	52	Aqua Survey Newsletter (1991)
26	Schiewe *et al.* (1985)	53	Rychert and Mortimer (1991)
27	Casseri (1985)		

*Includes values published by Gough and Kaiser (1988), Holdway *et al.* (1991), Kaiser (1987), Kaiser and Esterby (1991), Kaiser and Gough (1988), Kaiser *et al.* (1984) and Leal *et al.* (1991).

Table 2. Authors of reference source numbers as used in Table 1.

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References

Ankley, G.T., G.S. Peterson, J.R. Amato and J.J. Jenson (1990), "Evaluation of sucrose as an alternative to sodium chloride in the Microtox assay: Comparison to fish and cladoceran tests with freshwater effluents". *Environ. Toxicol. Chem.* **9**, 1305–1310.

Aqua Survey Newsletter (1991). Aqua Survey, Inc., Flemington, New Jersey, fall 1991.

Awong, J., G. Bitton, B. Koopman and J.L. Morel (1989), "Evaluation of ATP photometer for toxicity testing using Microtox luminescent bacterial reagent". *Bull. Environ. Contam. Toxicol.* **43**, 118–122.

Bazin, C., P. Chambon, M. Bonnefille and G. Larbaigt (1987), "Comparaison des sensibilites du test de luminescence bacterienne (*Photobacterium phosphoreum*) et du test Daphnie (*Daphnia magna*) pour 14 substances a risque toxique eleve". *Sci. l'Eau* **6**, 403–413.

Beaubien, A., L. Lapierre, A. Bouchard and C. Jolicoeur (1986), "A multispecies toxicity assessment procedure using flow microcalorimetry: Comparison with other toxicity evaluation methods". *Tox. Assess.* **1**, 187–200.

Becker, D.S., G.R. Bilyard and T.C. Ginn (1990), "Comparisons between bioassays and alterations of benthic macroinvertebrate assemblages at a marine superfund site, Commencement Bay, Washington, USA". *Environ. Toxicol. Chem.* **9**, 669–686.

Benson, W.H. and R.A. Stackhouse (1986), "Evaluation of a new approach to the safety assessment of biomaterials". *Drug Chem. Toxicol.* **9**, 275–283.

Birkholz, D.A., R.T. Coutts, S.E. Hrudey, R.W. Danell and W.L. Lockhart (1990), "Aquatic toxicology of alkyl-quinolines". *Wat. Res.* **24**, 67–73.

Blaise, C. and M. Harwood (1991), "Ecotoxicological assessment of Tebuthiuron a substituted urea class herbicide". *Sci. l'Eau.* **4**, 121–134.

Brooke, L.T., D.J. Call, D.L. Geiger and C.E. Northcott (eds.) (1984), "Acute toxicities of organic chemicals to fathead minnows (*Pimephales promelas*). Center for Lake Superior Environmental Studies, University of Wisconsin-Superior, 414 p.

Brouwer, H., T. Murphy and L. McArdle (1990), "A sediment-contact bioassay with *Photobacterium phosphoreum*". *Environ. Toxicol. Chem.* **9**, 1353–1358.

Bulich, A.A., M.W. Greene and D.L. Isenberg (1981), "Reliability of the bacterial luminescence assay for determination of the toxicity of pure compounds and complex effluents". In *Aquatic Toxicology and Hazard Assessment: Fourth Conference*, D.R. Branson and K.L. Dickson (eds). ASTM STP 737, American Society for Testing and Materials, Philadelphia, pp. 338–347.

Bulich, A.A., K.-K. Tung and G. Scheibner (1990), "The luminescent bacteria toxicity test, its potential as an in-vitro alternative". *J. Biolumin. Chemilumin.* **5**, 71–78.

Calleja, A., J.M. Baldasano and A. Mulet (1986), "Toxicity analysis of leachates from hazardous wastes via Microtox and *Daphnia magna*". *Tox. Assess.* **1**, 73–83.

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Casseri, N.A. (1985). Occidental Chemical Corporation, Grand Island, NY, private communication.

Chang, J.C., P.B. Taylor and F.R. Leach (1981), "Use of the Microtox assay system for environmental samples". *Bull. Environ. Contam. Toxicol.* **26**, 150–156.

Chao, X., Y. Jing and L. Li (1990), "Toxicities of lead, cadmium and mercury to microbes *Saccharomyces cerevisiae, Pseudomonas fluorescens, Escherichia coli* and *Photobacterium phosphoreum*". *Trace Elem. Med.* **7**, 73.

Curtis, C., A. Lima, S.J. Lozano and G.D. Veith (1982), "Evaluation of a bacterial bioassay as a method for predicting acute toxicity of organic chemicals to fish". In *Aquatic Toxicology and Hazard Assessment: Fifth Conference*, J.G. Pearson, R.B. Foster and W.E. Bishop (eds). ASTM STP 766, American Society for Testing and Materials, Philadelphia, pp. 170–178.

Deneer, J.W., C.J. van Leeuwen, W. Seinen, J.L. Maas-Diepeveen and J.L.M. Hermens (1989), "A QSAR study of the toxicity of nitrobenzene derivatives towards *Daphnia magna, Chlorella pyrenoidosa* and *Photobacterium phosphoreum*". *Aquat. Toxicol.* **15**, 83–89.

Devillers, J., R. Steiman, F. Seigle-Murandi, P. Prevot, C. Andre and J.L. Benoit-Guyod (1990), "Combination of single-species laboratory tests for the assessment of the ecotoxicity of *p*-benzoquinone. *Tox. Assess.* **5**, 405–416.

DeZwart, D. and W. Slooff (1983), "The Microtox as an alternative assay in the acute toxicity assessment of water pollutants". *Aquat. Toxicol.* **4**, 129–138.

Dutka, B.J. and K.K. Kwan (1988), "Batttery of screening tests approach applied to sediment extracts". *Tox. Assess.* **3**, 303–314.

Dutka, B.J. and K.K. Kwan (1981), "Comparison of three microbial toxicity screening tests with the Microtox test". *Bull. Environ. Contam. Toxicol.* **27**, 753–757.

EC (1990), "Toxicity test using luminescent bacteria (*Photobacterium phosphoreum*)". Conservation and Protection, Environment Canada, Ottawa, Ontario, Report EPS 1/SRM/, 52 p.

Elmore, E. and M.P. Fitzgerald (1990), "Evaluation of the bioluminescence assays as screens for genotoxic chemicals". In *Progress in Clinical and Biological Research, Vol. 340, Mutation and the Environment, Part D: Carcinogenesis*, M.L. Mendelsohn and R.H. Albertini (eds). Wiley-Liss, New York, NY, pp. 379–388.

Elnabarawy, M.T., R.R. Robideau and S.A. Beach (1988), "Comparison of three rapid toxicity test procedures: Microtox, Polytox and activated sludge respiration inhibition". *Tox. Assess.* **3**, 361–370.

EPS (1990), "Guidance Document on Control of Toxicity Test Precision Using Reference Toxicants". Report EPS 1/RM/12, August 1990, Environmental Protection, Conservation and Protection, Environment Canada, 85 p.

Geiger, D.L., C.E. Northcott, D.J. Call and L.T. Brooke (eds.) (1985), "Acute toxicities of organic chemicals to fathead minnows (*Pimephales*

promelas), Vol. II". Center for Lake Superior Environmental Studies, University of Wisconsin-Superior, 326 p.

Geiger, D.L., S.H. Poirier, L.T. Brooke and D.J. Call (eds.) (1986), "Acute toxicities of organic chemicals to fathead minnows (*Pimephales promelas*), Vol. III". Center for Lake Superior Environmental Studies, University of Wisconsin-Superior, 328 p.

Geiger, D.L., D.J. Call and L.T. Brooke (eds.) (1988), "Acute toxicities of organic chemicals to fathead minnows (*Pimephales promelas*), Vol. IV". Center for Lake Superior Environmental Studies, University of Wisconsin-Superior, 355 pp.

Geiger, D.L., L.T. Brooke and D.J. Call (eds.) (1990), "Acute toxicities of organic chemicals to fathead minnows (*Pimephales promelas*), Vol. V". Center for Lake Superior Environmental Studies, University of Wisconsin-Superior, 332 pp.

Giesy, J.P. and R.A. Hoke (1989), "Freshwater sediment toxicity bioassessment: Rationale for species selection and test design". *J.Great Lakes Res.* **15**, 539–569.

Giesy, J.P., C.J. Rosiu, R.L. Graney and M.G. Henry (1990), "Benthic invertebrate bioassays with toxic sediment and pore water". *Environ. Toxicol. Chem.* **9**, 233–248.

Giesy, J.P., C.J. Rosiu, R.L. Graney, J.L. Newsted, A. Benda, R.G. Kreis, Jr. and F.J. Horvath (1988), "Toxicity of Detroit River sediment interstitial water to the bacterium *Photobacterium phosphoreum*". *J. Great Lakes Res.* **14**, 502–513.

Gombar, V.K. and K. Enslein (1989), "Topological shape and electronic descriptors and their correlation with toxicity to *Photobacterium phosphoreum*". *In Vitro Toxicol.* **2**, 117–127.

Gough, K.M. and K.L.E. Kaiser (1988), "QSAR of the acute toxicity of para-substituted nitrobenzene and aniline derivatives to *Photobacterium phosphoreum*". In *QSAR-88, Proc. 3rd Intl. Workshop on QSAR in Environmental Toxicology*, May 22–26, 1988, Knoxville, Tennessee, J.E. Turner, M.W. England, T.W. Schultz and N.J. Kwaak (eds). National Technical Information Service, US Dep. Commerce, Springfield, VA, CONF-880520, pp. 111–121.

Govers, H., C. Ruepert, T. Stevens and C.J. van Leeuwen (1986), "Experimental determination and prediction of partition coefficients of thioureas and their toxicity to *Photobacterium phosphoreum*". *Chemosphere* **15**, 383–393.

Greene, J.C., W.E. Miller, M.K. Debacon, M.A. Long and C.L. Bartels (1985), "A comparison of three microbial assay procedures for measuring toxicity of chemical residues". *Arch. Environ. Contam. Toxicol.* **14**, 659–667.

Hansch, C., D. Kim, A.J. Leo, E. Novellino, C. Silipo and A. Vittoria (1989), "Toward a quantitative comparative toxicology of organic compounds". *Crit. Rev. Toxicol.* **19**, 185–226.

Hansch, C. and A.J. Leo (1979). *Substituent Constants for Correlation Analysis in Chemistry and Biology*. J.Wiley & Sons, New York, 339 p.

Hermens, J., F. Busser, P. Leeuwangh and A. Musch (1985), "Quantitative structure-activity relationships and mixture toxicity of organic chemicals in *Photobacterium phosphoreum*: The Microtox test". *Ecotoxicol. Environ. Saf.* **9**, 17–25.

Hickey, J.P., A.J. Aldridge, D.R.M. Passino and A.M. Frank (1990), "An expert system for prediction of aquatic toxicity of contaminants". In *American Chemical Society Symposium Series, No. 431, Expert Systems for Environmental Applications*, J.M. Hushon (ed). American Chemical Society, Washington, D.C., pp. 90–107.

Hoke, R.A., J.P. Giesy, G.T. Ankley, J.L. Nested and J.R. Adams (1990), "Toxicity of sediments from western Lake Erie and the Maumee River at Toledo, Ohio, USA. Implications for current dredged material disposal practices". *J. Great Lakes Res.* **16**, 457–470.

Holdway, D.A., D.G. Dixon and K.L.E. Kaiser (1991), "The acute toxicity of pulse-dosed para-substituted phenols to larval American flagfish (*Jordanella floridae*): a comparison with predicted toxicity to photoluminescent bacteria and predicted toxicity using $\log K_{ow}$". *Sci. Total Environ.* **104**, 229–237.

Indorato, A.M., K.B. Snyder and P.J. Usinowics (1984), "Toxicity screening using Microtox analyzer". In *Toxicity Screening Procedures Using Bacterial Systems*, D. Liu and B.J. Dutka (eds). Marcel Dekker, New York, pp. 37–53.

Kaiser, K.L.E. (1984), "Organic contaminants in the environment: Research progress and needs", *Environ. Internatl.* **10**, 241–250.

Kaiser, K.L.E. (1987), "QSAR of acute toxicity of 1,4-di-substituted benzene derivatives and relationships with the acute toxicity of corresponding mono-substituted benzene derivatives". In *QSAR in Environmental Toxicology - II*, K.L.E. Kaiser (ed). D. Reidel Publ. Co., Dordrecht, pp. 169–188.

Kaiser, K.L.E. and S.R. Esterby (1991), "Regression and cluster analysis of the acute toxicity of 267 chemicals to six species of biota and the octanol/water partition coefficient". *Sci. Total Environ.* **109/110**, 499–514.

Kaiser, K.L.E. and K.M. Gough (1988), "Predictability of unusually high acute toxicity to *Photobacterium phosphoreum* of 1,4-disubstituted benzene derivatives". In *Proc. 11th Symp. Aquatic Toxicology and Hazard Assessment*, G.W. Suter II and M.A. Lewis (eds). ASTM STP 1007, American Society for Testing and Materials, Philadelphia, pp. 424–441.

Kaiser, K.L.E., P.V. Hodson and D.G. Dixon (1984), "QSAR studies on chlorophenols, chlorobenzenes and para-substituted phenols". In *QSAR in Environmental Toxicology*, K.L.E. Kaiser (ed). D. Reidel Publ. Co., Dordrecht, pp. 189–206.

Kaiser, K.L.E., K.R. Lum and V.S. Palabrica (1988), "A review of field applications of the Microtox test in Great Lakes and St. Lawrence River waters". *Water Poll. Res. J. Canada* **23**, 270–278.

Kaiser, K.L.E., V.S. Palabrica and J.M. Ribo (1987), "QSAR of acute toxicity of mono-substituted benzene derivatives to *Photobacterium*

phosphoreum". In *QSAR in Environmental Toxicology - II*, K.L.E. Kaiser (ed). D. Reidel Publ. Co., Dordrecht, pp. 153–168.

Kaiser, K.L.E. and J.M. Ribo (1985), "QSAR of toxicity of chlorinated aromatic compounds". In *QSAR in Toxicology and Xenobiochemistry*, M. Tichy (ed). Elsevier, Amsterdam, pp. 27–38.

Kaiser, K.L.E. and J.M. Ribo (1988), "*Photobacterium phosphoreum* toxicity bioassay, II. Toxicity data compilation". *Tox. Assess.* **3**, 195–237.

Kaiser, K.L.E., J.M. Ribo and B.M. Zaruk (1985), "Toxicity of para-substituted benzene derivatives in the Microtox test". *Water Poll. Res. J. Canada* **20**, 36–43.

King, E.F. (1984), "A comparative study of methods for assessing the toxicity to bacteria of single chemicals and mixtures". In *Toxicity Screening Procedures Using Bacterial Systems*, D. Liu and B.J. Dutka (eds). Marcel Dekker, New York, pp. 175–194.

King, E.F. and A.H. Painter (1981), "Assessment of toxicity of chemicals to activated sludge microorganisms". In *Acute Aquatic Ecotoxicological Tests*, H. Leclerc and D. Dive (Eds.), INSERM 106, pp. 143–153.

Krebs, F. (1983), "Toxicity test using freeze-dried luminescent bacteria". *Gewässerschutz, Wasser Abwasser* **63**, 173–230.

Kwan, K.K., B.J. Dutka, S.S. Rao and D. Liu (1990), "Mutatox test, a new test for monitoring environmental genotoxic agents". *Environ. Poll.* **65**, 323–332.

Leal, J.S., J.J. Gonzalez, K.L.E. Kaiser, V.S. Palabrica, F. Comelles and M.T. Garcia (1991), "On the toxicity and biodegradation of cationic surfactants". *Acta hydrochim. hydrobiol.*, in press.

Lebsack, M.E., A.D. Anderson, G.M. DeGraeve and H.L. Bergman (1981), "Comparison of bacterial luminescence and fish bioassay results for fossil-fuel process waters and phenolic constituents". In *Aquatic Toxicology and Hazard Assessment: Fourth Conference*, D.R. Branson and K.L. Dickson (eds). ASTM STP 737, American Society for Testing and Materials, Philadelphia, pp. 348–356.

Logue, C.L., B. Koopman, G.K. Brown and G. Bitton (1989), "Toxicity screening in a large municipal wastewater system". *J. Water Pollut. Control Fed.* **61**, 632–640.

Maas-Diepeveen, J.L. and C.J. van Leeuwen (1988), "Toxicity of methylene-bisthiocyanate (MBT) to several freshwater organisms". *Bull. Environ. Contam. Toxicol.* **40**, 517–524.

Mallak, F.P. and R.L. Brunker (1984), "Determination of the toxicity of selected metal working fluid preservatives by use of the Microtox system and an *in vitro* enzyme assay". In *Toxicity Screening Procedures Using Bacterial Systems*, D. Liu and B.J. Dutka (eds). Marcel Dekker, New York, pp. 65–66.

McFeters, G.A., P.J. Bond, S.B. Olson and Y.T. Tchan (1983), "A comparison of microbial bioassays for the detection of aquatic toxicants". *Water Res.* **17**, 1757–1762.

McInnes, C., D. Engel and R.W. Martin (1990), "Bacterial luminescence, a new tool for investigating the effects of acoustic energy and cavitation". *J. Acoust. Soc. Am.* **88**, 2527–2532.

ED_001593_00021264

Microtox™ Application Notes (1982). Beckman Instruments, Inc., Carlsbad, CA.

Miller, W.E., S.A. Peterson, J.C. Greene and C.A. Callahan (1985), "Comparative toxicology of laboratory organisms for assessing hazardous waste sites". *J. Environ. Qual.* **14**, 569–574.

Munkittrick, K.R., E.A. Power and G.A. Sergy (1991), "The relative sensitivity of Microtox, daphnid, rainbow trout, and fathead minnow acute lethality tests". *Tox. Assess.* **6**, 35–62.

Nacci, D., E. Jackim and R. Walsh (1986), "Comparative evaluation of three rapid marine toxicity tests: Sea urchin early embryo growth test, sea urchin sperm cell toxicity test and Microtox". *Environ. Toxicol. Chem.* **5**, 521–525.

Qureshi, A.A., K.W. Flood, S.R. Thompson, S.M. Janhurst, C.S. Inniss and D.A. Rokosh (1982), "Comparison of a luminescent bacterial test with other bioassays for determining toxicity of pure compounds and complex effluents". In *Aquatic Toxicology and Hazard Assessment: Fifth Conference*, J.G. Pearson, R.B. Foster and W.E. Bishop (eds). ASTM STP 766, American Society for Testing and Materials, Philadelphia, pp. 179–195.

Plotkin, S. and N.M. Ram (1984), "Multiple bioassays to assess the toxicity of a sanitary landfill leachate". *Arch. Environ. Contam. Toxicol.* **13**, 197–206.

Rao, S.S. and K.K. Kwan (1990), "Method for measuring toxicity of suspended particulates in waters". *Tox. Assess.* **5**, 91–101.

Reteuna, C., P. Vasseur, R. Cabridenc and H. Lepailleur (1986. "Comparison of respiration and luminescent tests in bacterial toxicity assessment". *Tox. Assess.* **1**, 159–168.

Reynolds, L., J. Blok, A. de Morsier, P. Gerike, H. Wellens and W.J. Bontinck (1987), "Evaluation of the toxicity of substances to be assessed for biodegradability". *Chemosphere* **16**, 2259–2277.

Ribo, J.M. and K.L.E. Kaiser (1983), "Effects of selected chemicals to photoluminescent bacteria and their correlations with acute and sublethal effects on other organisms". *Chemosphere* **12**, 1421–1442.

Ribo, J.M. and K.L.E. Kaiser (1984), "Toxicities of aniline derivatives to *Photobacterium phosphoreum* and their correlations with effects on other organisms and structural parameters". In *QSAR in Environmental Toxicology*, K.L.E. Kaiser (ed). D. Reidel Publ. Co., Dordrecht, pp. 319–336.

Ribo, J.M. and K.L.E. Kaiser (1987), "*Photobacterium phosphoreum* toxicity bioassay, I. Test procedures and applications". *Tox. Assess.* **2**, 305–323.

Ribo, J.M. and F. Rogers (1990), "Toxicity of mixtures of aquatic contaminants using the luminescent bacteria bioassay". *Tox. Assess.* **5**, 135–152.

Ribo, J.M., J.E. Yang and P.M. Huang (1989), "Luminescent bacteria toxicity assay in the study of mercury speciation". In *Environmental Bioassay Techniques and their Application*, M. Munawar, G. Dixon, C.I. Mayfield, T. Reynoldson and M.H. Sadar (eds). Kluwer Acad. Publ., pp. 155–162.

ED_001593_00021264

Rychert, R. and M. Mortimer (1991), "Inhibition of bioluminescence in a recombinant *Escherichia coli*". *Tox. Assess.* **6**, 415–421.

Samak, Q.M. and R. Noiseux (1981), "Evaluation of the Microtox as a tool for monitoring aquatic toxicity of industrial origin". *Can. Tech. Rep. Fish. Aquat. Sci.* **990**, 288–308.

Schiewe, M.H., E.G. Hawk, D.I. Actor and M.M. Krahn (1985), "Use of a bacterial bioluminescence assay to assess toxicity of contaminated marine sediments". *Can. J. Fish. Aquat. Sci.* **42**, 1244–1248.

Snell, T.W., B.D. Moffat, C. Janssen and G. Persoone (1991), "Acute toxicity tests using rotifers. III. Effects of temperature, strain and exposure time on the sensitivity of *Brachionus plicatilis*". *Tox. Assess.* **6**, 63–75.

Somasundaram, L., J.R. Coats, K.D. Racke and H.M. Stahr (1990), "Application of the Microtox system to assess the toxicity of pesticides and their hydrolysis metabolites". *Bull. Environ. Contam. Toxicol.* **44**, 254–259.

Speece, R. (1987). Drexel University, Pittsburgh, PA, private communication.

Steinhäuser, K.G., W. Amann, A. Späth and A. Polenz (1985), "Untersuchungen zur aquatischen Toxizität zinnorganischer Verbindungen". *Vom Wasser* **65**, 203–214.

Symons, B.D. and R.C. Sims (1988), "Assessing detoxicification of a complex hazardous waste using the Microtox bioassay". *Arch. Environ. Contam. Toxicol.* **17**, 497–506.

Tarkpea, M., M. Hansson and B. Samuelsson (1986), "Comparison of the Microtox test with the 96-hr LC_{50} test for the harpacticoid *Nitocra spinipes*". *Ecotoxicol. Environ. Saf.* **11**, 127–143.

True, C.J. and A.A. Heyward (1990), "Relationships between Microtox test results extraction methods and physical and chemical compositions of marine sediment samples". *Tox. Assess.* **5**, 29–46.

Van Leeuwen, C.J., J.L Maas-Diepeveen, G. Niebeek, W.H.A. Vergouw, P.S. Griffioen and M.W. Luijken (1985), "Aquatic toxicological aspects of dithiocarbamates and related compounds. I. Short-term toxicity tests". *Aquat. Toxicol.* **7**, 145–164.

Vasseur, P., F. Bois, J.F. Ferard, C. Rast and G. Larbaigt (1986. "Influence of physicochemical parameters on the Microtox test response". *Tox. Assess.* **1**, 282–300.

Vasseur, P., D. Dive, Z. Sokar and H. Bonnemain (1988), "Interactions between copper and some carbamates used in phytosanitary treatments". *Chemosphere* **17**, 767–782.

Yates, I.E. (1985a), "Differential sensitivity to mutagens by *Photobacterium phosphoreum*". *J. Microbiol. Meth.* **3**, 171–180.

Yates, I.E. (1985b), "Cytotoxicity and mutagenicity of aflatoxins B_1, B_2, G_1 and G_2 in *Photobacterium phosphoreum*". *J. Microbiol. Meth.* **3**, 181–186.

Yates, I.E. and J.K. Porter (1982), "Bacterial bioluminescence as a bioassay for mycotoxins". *Appl. Environ. Microbiol.* **44**, 1072–1075.

Yates, I.E. and J.K. Porter (1984), "Temperature and pH affect the toxicological potential of mycotoxins in the bacterial bioluminescence bioassay". In *Toxicity Screening Procedures Using Bacterial Systems*, D. Liu and B.J. Dutka (eds). Marcel Dekker, New York, pp. 77–88.

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Subject: February 2015 GMAP monitoring report review
ExternalDraftReport SP0351.pdf
externaldraftmemo.pdf

For Martha and South Coast: **Dial-In Number: (866) 299-3188; Conference Code: 415-258-3007**

I've attached the NEIC draft report and transmittal cover: note that this report is subject to the usual NEIC conditions: don't share outside of the project team, destroy/return once review is completed:

Due to size (roughly 220 MB), I have not attached the Appendices, but for those that have access to the Enforcement G: drive, they are temporarily available at G:\ENF-2-1\AIR\Inspections\FY15\GMAP feb15\External Draft\Appendices

Although NEIC should lead the discussion, my thoughts on a preliminary draft discussion outline (please review/comment):

Basic summary of the report's findings (NEIC unless noted otherwise):

•□□□□□□□ *Primarily intended to collect/evaluate data, not to quantify or to find/determine violations*

•□□□□□□□ *62 total runs completed including one corrupt data file, resulting in 15 elevated methane readings, 9 elevated benzene readings, and 6 elevated toluene readings*

•□□□□□□□ *At the Phillips66 Los Angeles Refinery site in Wilmington, elevated benzene appeared to be coming from naphtha Tank 91, based on an infrared video taken.*

•□□□□□□□ *Nine air canister samples were collected and were compared to the GMAP*

readings; roughly, methane appeared fairly close (within 15-20%), benzene less so (within 50-75%), and toluene worst (more than 200% or negative values calculated)

Discuss how future GMAP surveys might be expanded/developed/improved to make using GMAP more viable/useful.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
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June 8, 2015

MEMORANDUM

SUBJECT: Transmittal of External Draft Report "Trip Report, Region 9 Next Generation Monitoring 2015, Los Angeles Metropolitan Area, California" SP0351

FROM: Eric Nottingham, Special Program Coordinator E. Nottingham
National Enforcement Investigations Center

TO: Matt Salazar, Air Enforcement Supervisor, EPA Region 9

U.S. EPA Region 9

Included with this memorandum are three copies of the subject report. The GMAP monitoring was conducted from February 2 through 12, 2015. The field work associated with GMAP monitoring was conducted at various potential sources located in the Los Angeles, California, area including, but not limited to, the cities of Carson, Commerce, El Segundo, Long Beach, Los Angeles, San Pedro, Torrance, Vernon, and Wilmington.

Your comments on the draft report would be appreciated. In keeping with NEIC document control procedures, all drafts should be destroyed or returned to Martha Hamre when your review is completed. Please do not duplicate or distribute the draft reports outside the project team members.

NEIC would like to receive your comments on the draft by July 10, 2015. If more time is needed to comment on the reports, please contact us with a date that will allow adequate time for your review. If you have any questions, contact Ms. Hamre at (303) 462-9271 or myself at (303) 462-9101.

Attachment

United States Environmental Protection Agency
Office of Enforcement and Compliance Assurance
Office of Criminal Enforcement, Forensics and Training

National Enforcement Investigations Center

NEIC

NEICSP0351Z01

TRIP REPORT

Region 9 Next Generation Monitoring 2015
Los Angeles Metropolitan Area, California
NEIC Project No.: SP0351

June 2015

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APPENDICES *(*NEIC-created documents)*

A NEIC Photographs* (7 pages)
B Region 9 Next Generation – GMAP Surveys* (62 pages)
C NEIC Google Earth Pro KML files (all mapping runs)* (187 files)
D Region 9 Next Generation – Potential Elevated Readings from GMAP Survey* (11 pages)
E NEIC FLIR GasFindIR Camera Video (1 video – MOV0001)
F NEIC Laboratory Report * (11 pages)

This Contents page shows all of the sections contained in this report and provides a clear indication of the end of this report.

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INTRODUCTION

At the request of U.S. Environmental Protection Agency (EPA) Region 9, EPA's National Enforcement Investigations Center (NEIC) conducted next generation air monitoring in the greater Los Angeles, California, metropolitan geographic area. The field work associated with Geospatial Measurement of Air Pollutants (GMAP) monitoring was conducted at various potential sources located in the Los Angeles, California, area. The field work was conducted February 2 through 12, 2015.

NEIC is developing mobile monitoring capabilities for NEIC's GMAP unit. The GMAP unit consists of a mobile vehicle equipped with: laser absorption technology in the form of an integrated cavity output spectrometer (ICOS) for methane and carbon dioxide measurements; a differential ultraviolet absorption spectrometer (DUVAS) for benzene, toluene, ethylbenzene, and xylene (BTEX) measurements; a global positioning system (GPS); a compact weather station; an anemometer; and a collection station for air canister sampling.

All field sampling, field measurements/monitoring, and/or laboratory measurements described in this report are within the scope of NEIC's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board (certificate No. AT-1646), with the exception of GMAP field measurement/monitoring and meteorological station measurements. The field work associated with GMAP monitoring was conducted at various potential sources located in the Los Angeles, California, area including, but not limited to, the cities of Carson, Commerce, El Segundo, Long Beach, Los Angeles, San Pedro, Torrance, Vernon, and Wilmington. NEIC Photographs are located in **Appendix A**.

SUMMARY OF ACTIVITIES AND RESULTS

NEIC conducted 62 mapping runs using the GMAP unit to analyze for benzene, toluene, and methane. Multiple runs were conducted in several areas. NEIC also collected nine 1.4-liter air canisters at six stationary collection sampling stations that were analyzed by the NEIC laboratory. A comparison of the NEIC laboratory results and GMAP readings is located in the air canister section of the report.

GMAP elevated readings:

- 15 elevated methane readings during the mapping runs
- 9 elevated benzene readings during the mapping runs
- 6 elevated toluene readings during the mapping runs

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FIELD ACTIVITIES

GMAP

All GMAP monitoring was conducted in February 2015. The DUVAS instrument (3rd version) used for this project has been updated from previous GMAP sampling projects having been installed in the GMAP unit in the 4th quarter of the 2014 calendar year. Outside air temperatures can affect the DUVAS instrument cell temperature and instrument operating temperature, which can cause measurement drift.

Data collected from the GMAP unit is intended to be used only for screening and targeting purposes. During NEIC's development of this technology, data is not intended to be used quantitatively. Concentrations represented during each individual mapping survey can only be compared to the concentrations generated during the specific mapping run. Generally, colors shown on mapping run bar graphs are relative only to the data set in the specific mapping run, with green representing lower relative concentrations and red representing higher relative concentrations.

OVERVIEW OF GMAP MAPPING SURVEYS

NEIC collected GMAP measurements for methane, benzene, and toluene from February 2 through 7, and from February 9 through 12, 2015. For each GMAP mapping run, portable document format (PDF) images were created for methane, benzene, and toluene measurements (**Appendix B**). The Google Earth keyhole markup language (KML) files for all individual mapping runs are provided in **Appendix C.** For each GMAP mapping run conducted, a separate KML was created for the methane, benzene, and toluene concentrations along the same mapping route. **Table 1** presents the daily list of the GMAP mapping runs and the number of mapping runs for the day.

The mapping file for the 5th mapping run on February 6, 2015 (020615_05) was corrupt; therefore, PDF images or KML files for that specific mapping run are not available. The mapping files for mapping runs one through seven on February 4, 2015, were saved as stationary collections but are actually mapping runs and are included.

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Table 1. DAILY LIST OF GMAP MAPPING RUNS
Region 9 Next Generation Monitoring 2015
Los Angeles Metropolitan Area, California

Date	Overall Mapping Areas	Number of Mapping Runs
February 2, 2015	Long Beach, Wilmington, and Carson, California **(Figure 1)**	9
February 3, 2015	Long Beach, Compton, Gardena, Torrance, and Carson, California **(Figure 2)**	5
February 4, 2015	Los Angeles and Vernon, California **(Figure 3)**	9
February 5, 2015	Southgate, Vernon, Playa del Rey, Manhattan Beach, and Signal Hill, California **(Figure 4)**	7
February 6, 2015	Long Beach and San Pedro, California **(Figure 5)**	9*
February 7, 2015	Azusa, Paramount, and Santa Ana, California **(Figure 6)**	3
February 9, 2015	El Segundo, Torrance, Rolling Hills, and Carson, California **(Figure 7)**	8
February 10, 2015	Long Beach, California **(Figure 8)**	3
February 11, 2015	Phillips 66 Los Angeles Refinery – On-site, Wilmington, California **(Figure 9)**	5
February 12, 2015	Chevron El Segundo Refinery – On-site, El Segundo, California **(Figure 10)**	4
Total Runs		**62**

*One corrupt file

ED_001593_00021271

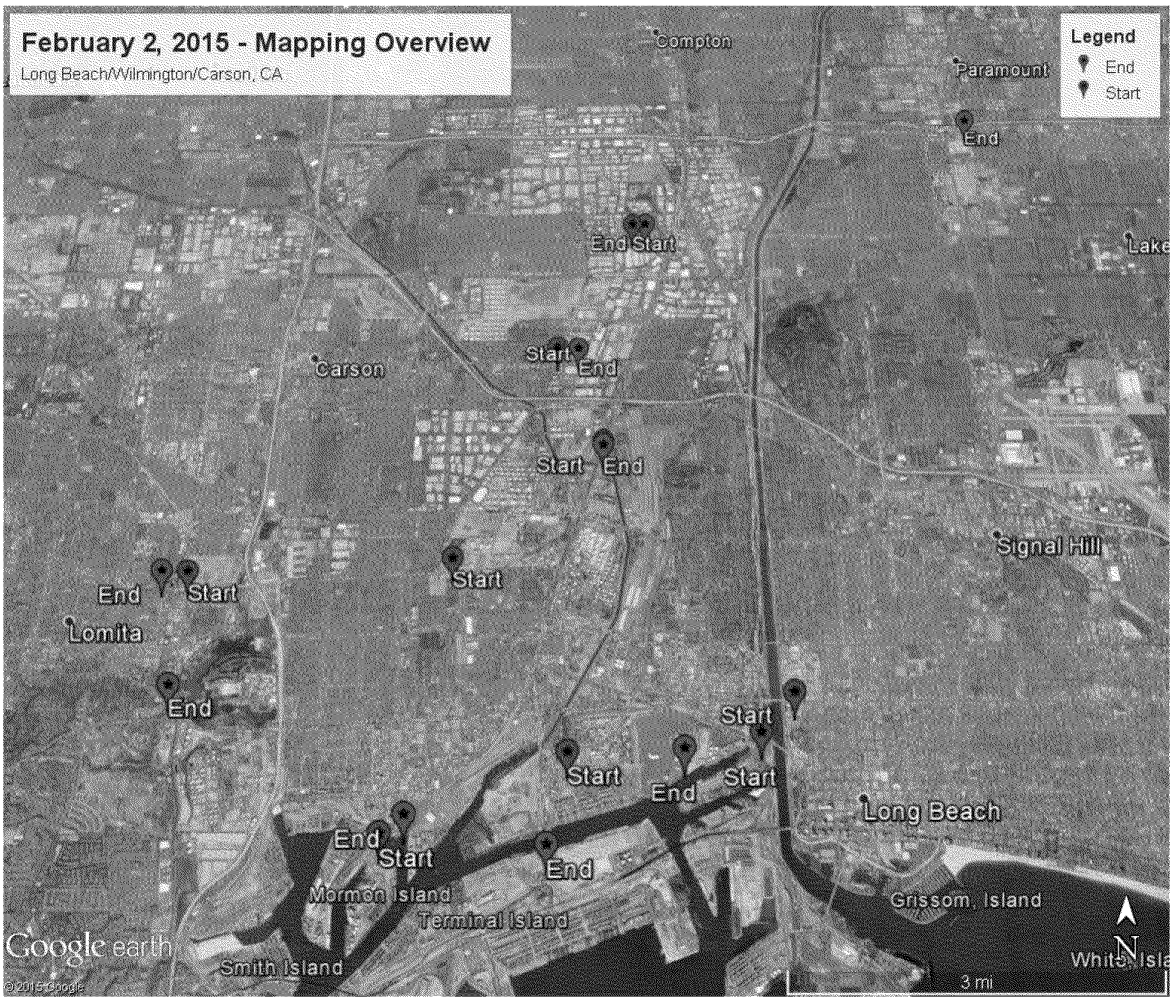

Figure 1. GMAP Route: Long Beach/Wilmington/Carson
Region 9 Next Generation Monitoring 2015
Los Angeles Metropolitan Area, California

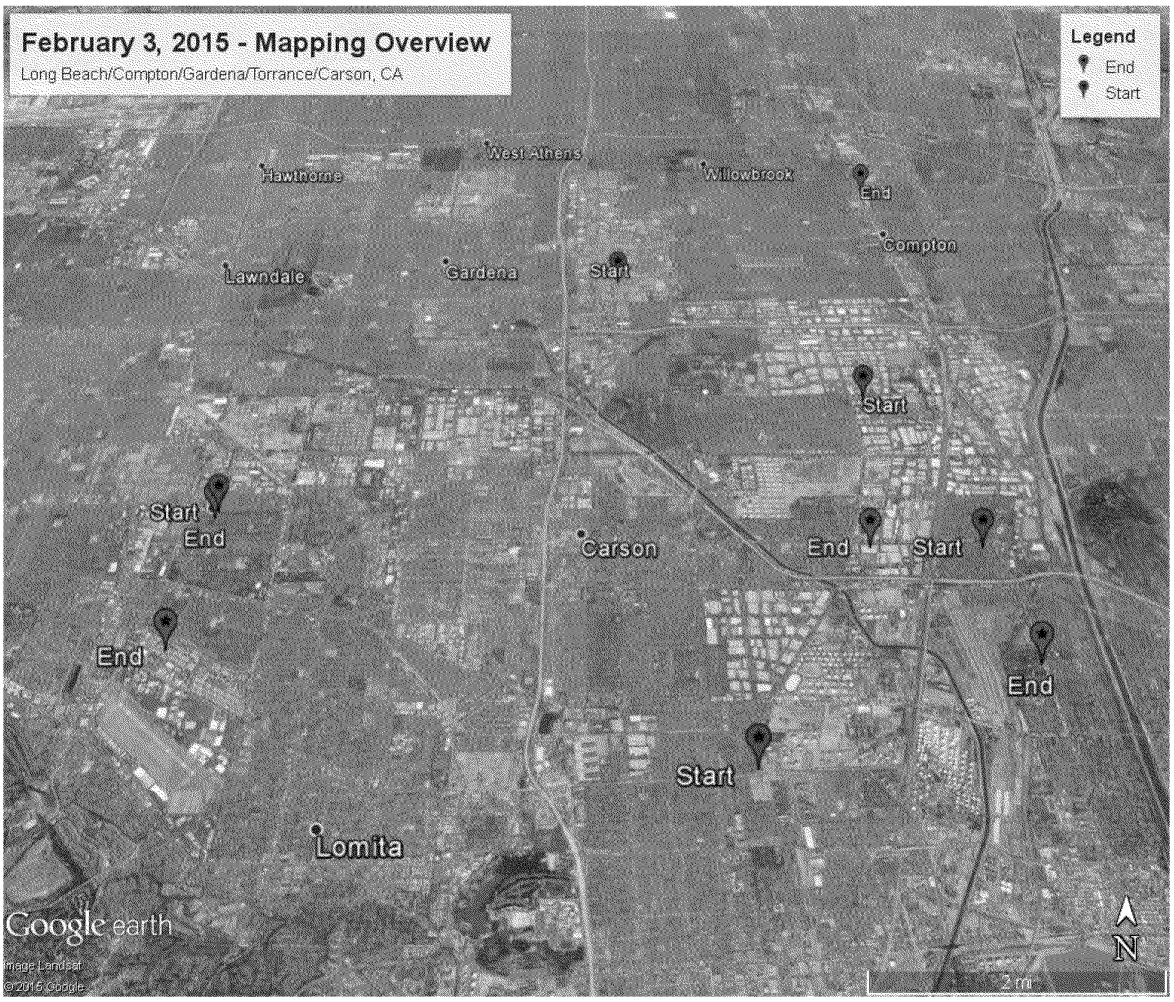

Figure 2. GMAP Route: Long Beach/Compton/Gardena/Torrance/Carson
Region 9 Next Generation Monitoring 2015
Los Angeles Metropolitan Area, California

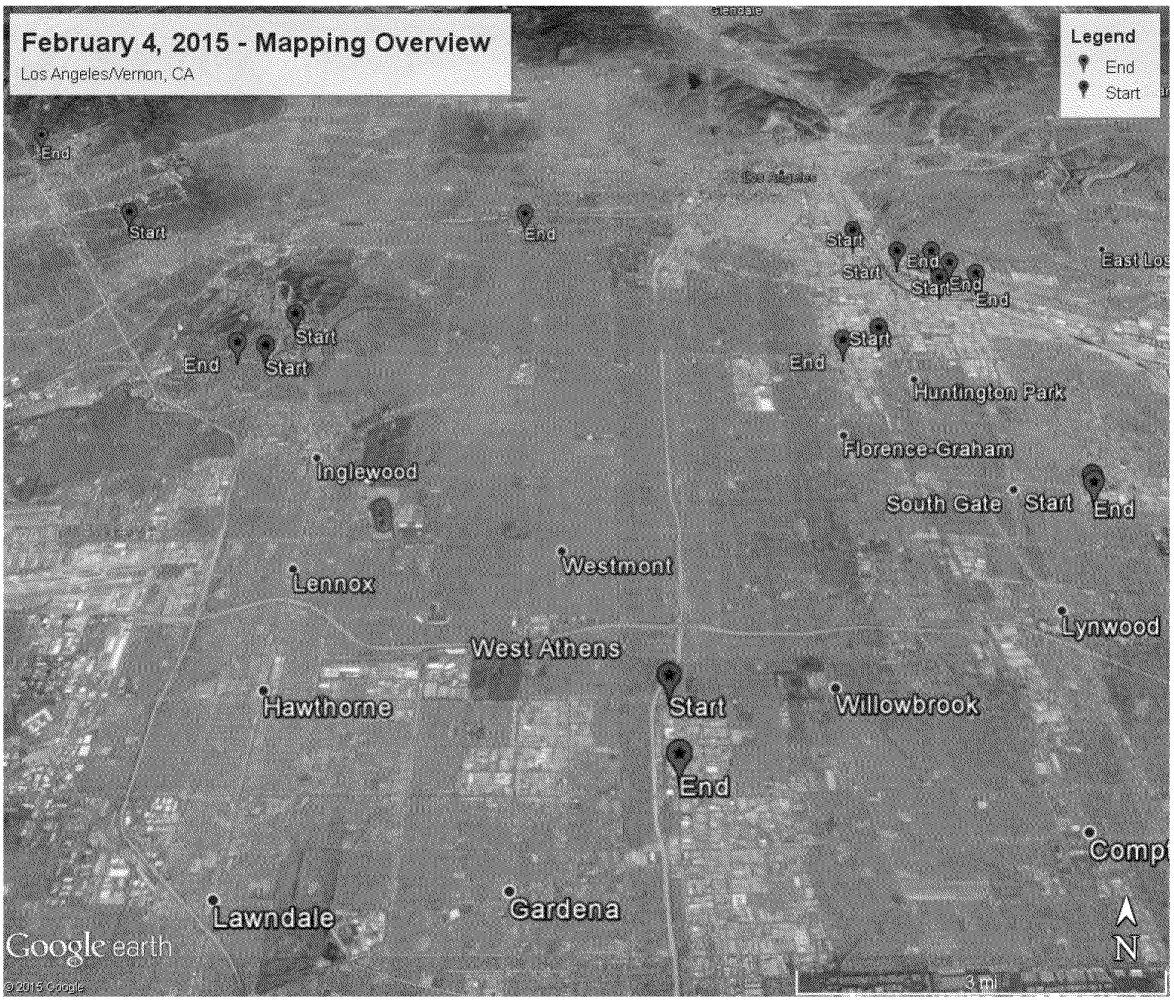

Figure 3. GMAP Route: Los Angeles/Vernon
Region 9 Next Generation Monitoring 2015
Los Angeles Metropolitan Area, California

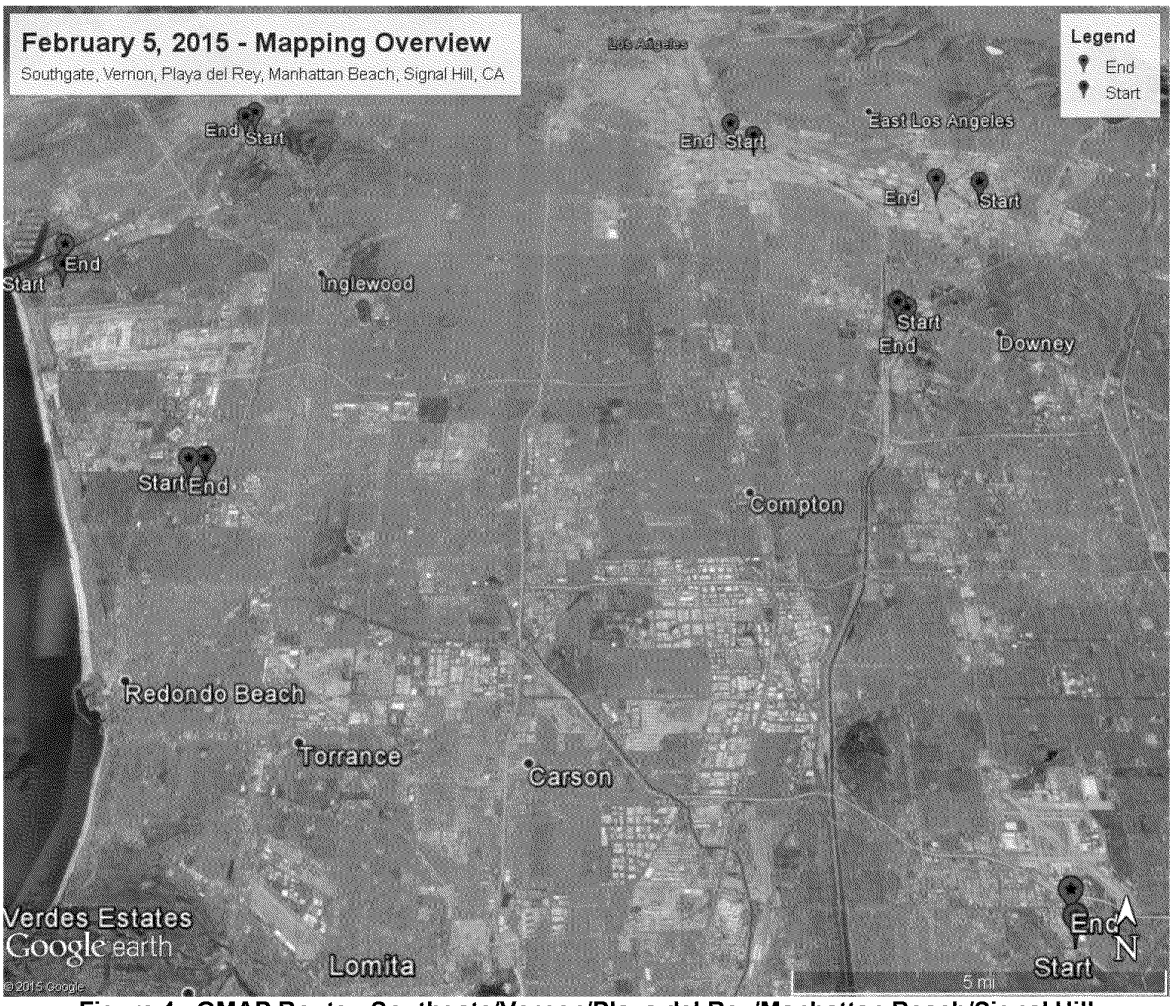

Figure 4. GMAP Route: Southgate/Vernon/Playa del Rey/Manhattan Beach/Signal Hill
Region 9 Next Generation Monitoring 2015
Los Angeles Metropolitan Area, California

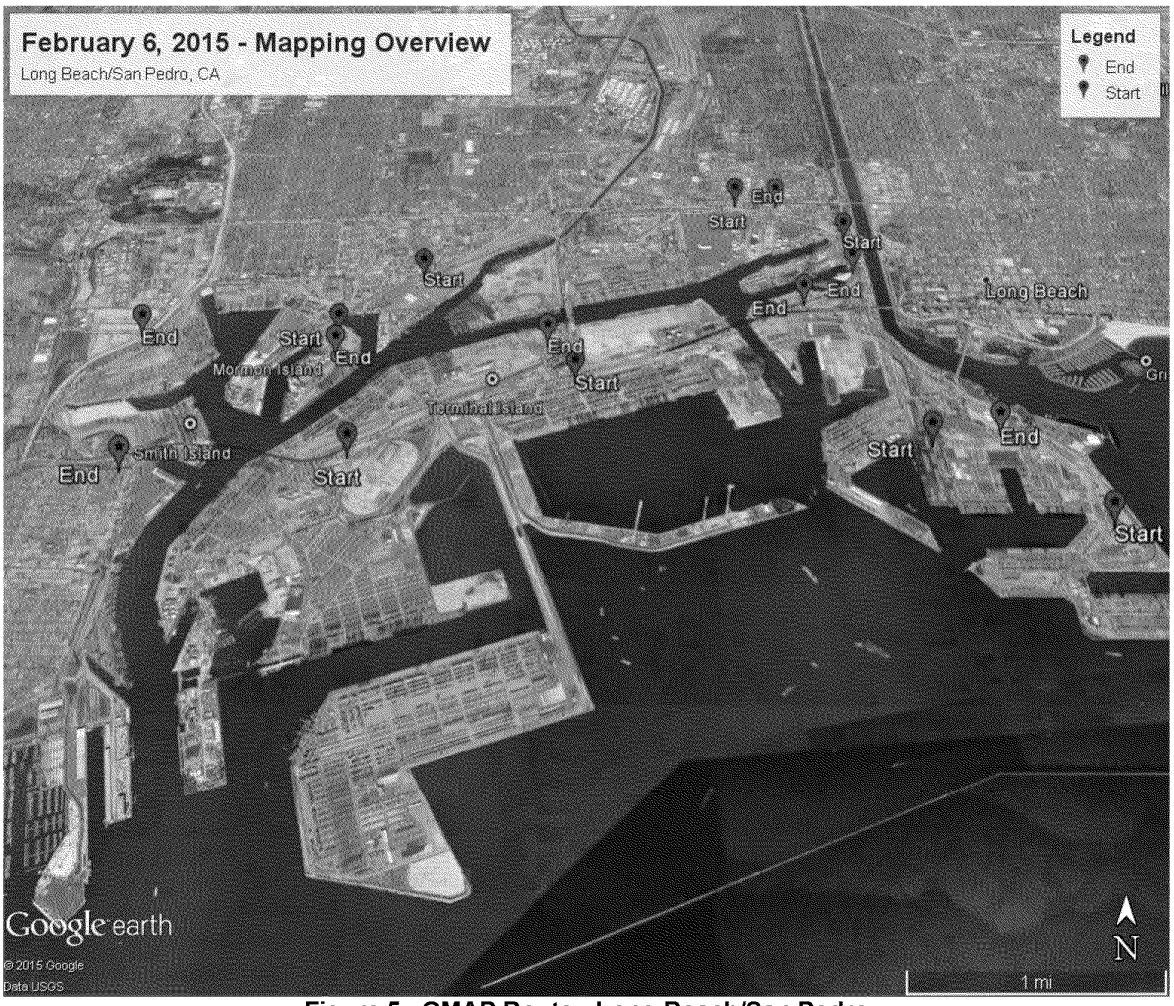

Figure 5. GMAP Route: Long Beach/San Pedro
Region 9 Next Generation Monitoring 2015
Los Angeles Metropolitan Area, California

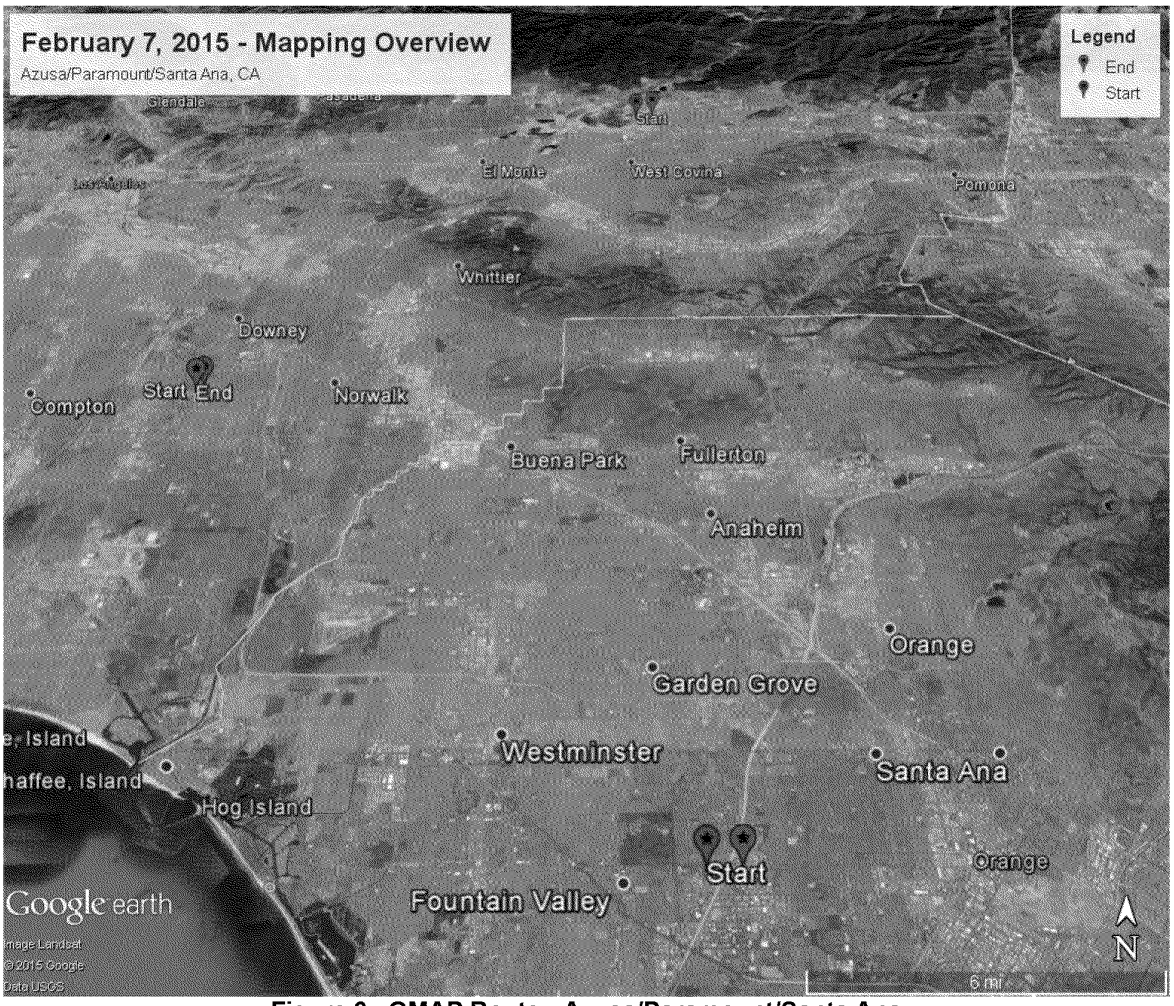

Figure 6. GMAP Route: Azusa/Paramount/Santa Ana
Region 9 Next Generation Monitoring 2015
Los Angeles Metropolitan Area, California

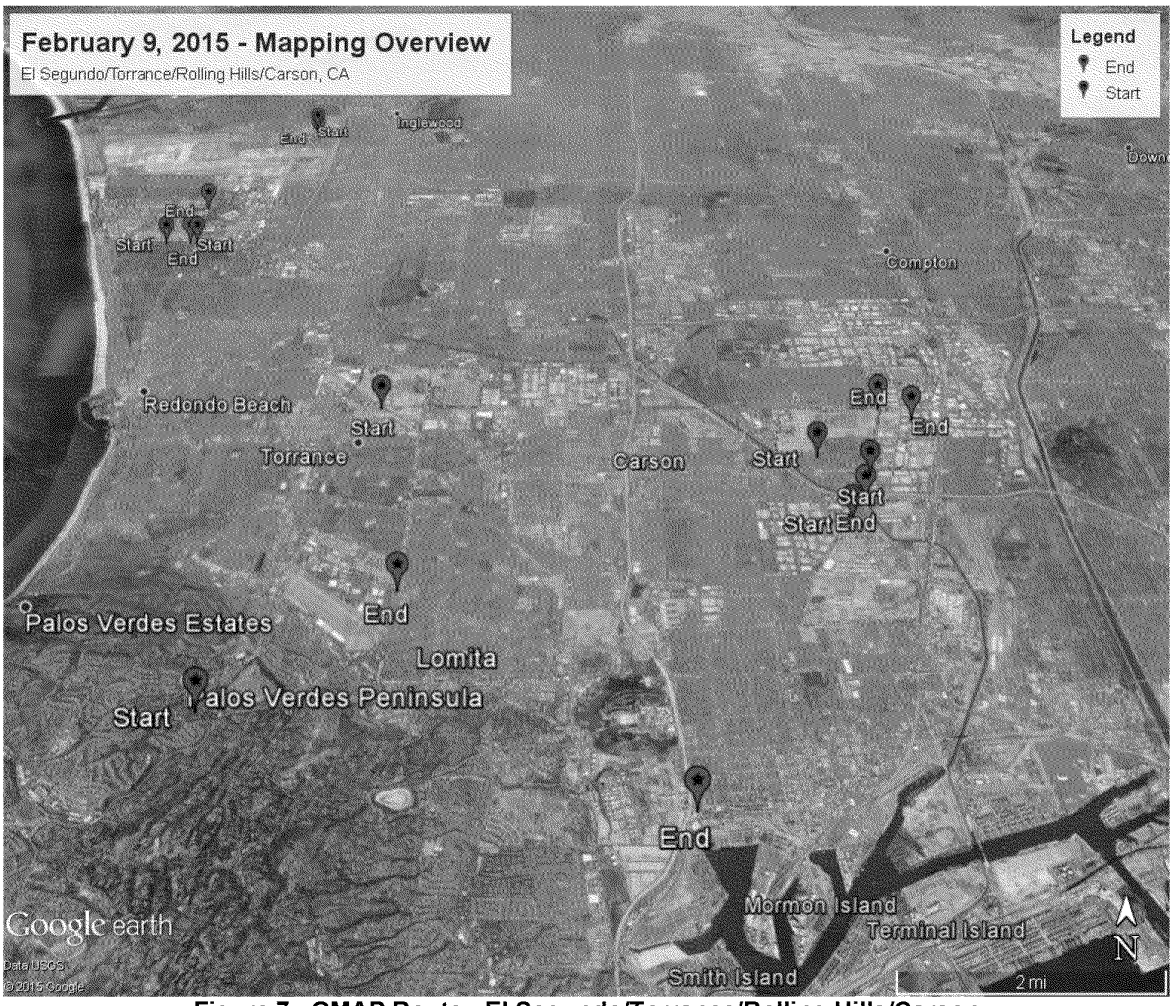

Figure 7. GMAP Route: El Segundo/Torrance/Rolling Hills/Carson
Region 9 Next Generation Monitoring 2015
Los Angeles Metropolitan Area, California

Figure 8. GMAP Route: Long Beach
Region 9 Next Generation Monitoring 2015
Los Angeles Metropolitan Area, California

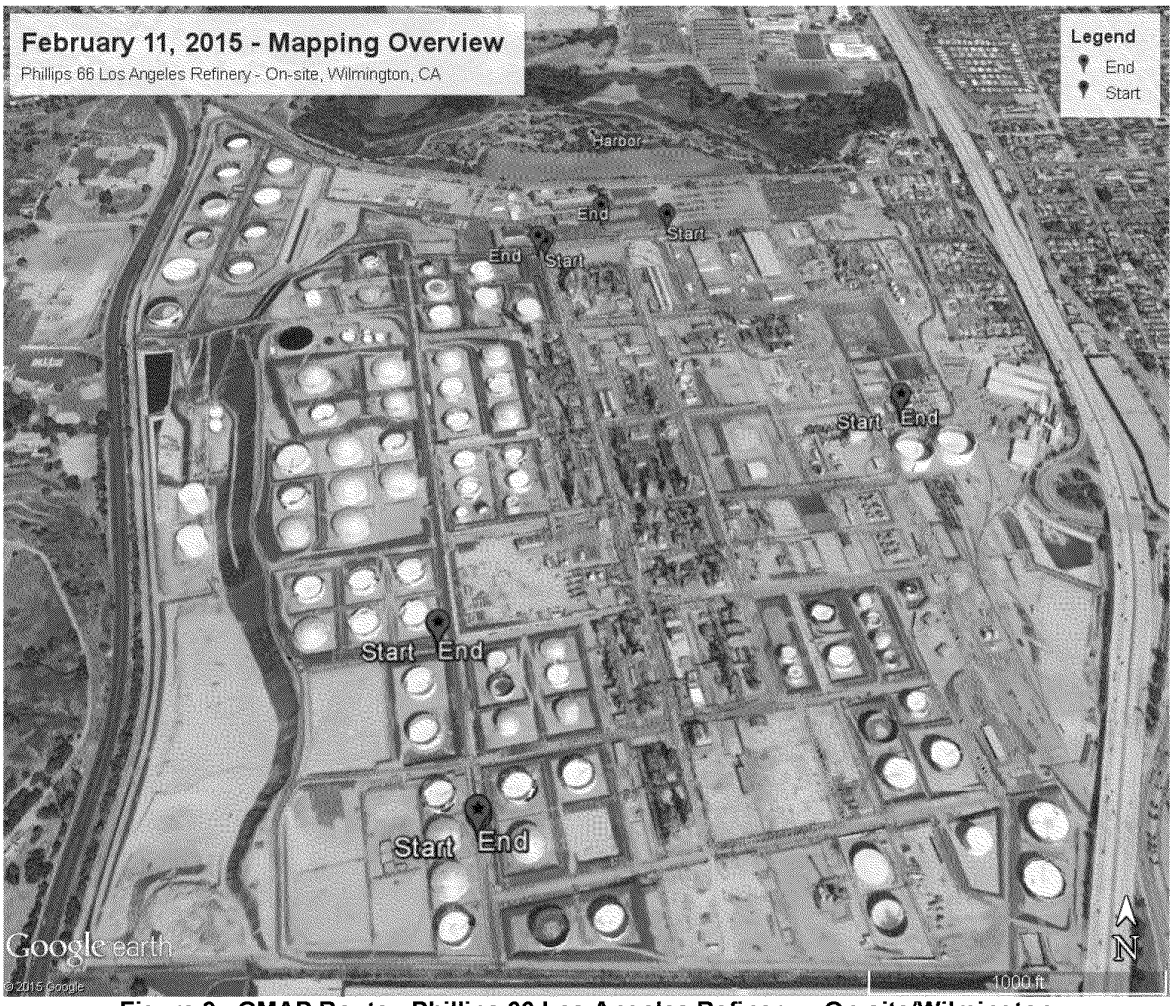

Figure 9. GMAP Route: Phillips 66 Los Angeles Refinery – On-site/Wilmington
Region 9 Next Generation Monitoring 2015
Los Angeles Metropolitan Area, California

Figure 10. GMAP Route: Chevron El Segundo Refinery – On-site/El Segundo
Region 9 Next Generation Monitoring 2015
Los Angeles Metropolitan Area, California

ELEVATED READINGS

The following mapping runs (**Table 2**) indicate potential elevated readings for the indicated chemical. The reported concentrations summarized in Table 2 and depicted on GMAP survey maps in **Appendices B and D** represent the average measured concentration per 2.5 meter distance traveled by the GMAP vehicle. The concentrations summarized below are not intended to be quantitative values but rather to be used to identify potential emission sources.

The current DUVAS (version 3.0) unit currently has some noise variation. With this type of noise variation, a zero baseline signal will appear to vary between a negative and positive value. Therefore, the ranges contain both negative and positive values. Images of the close-up mapping runs with potential elevated readings are provided in **Appendix D**.

Table 2. POTENTIAL ELEVATED READINGS*
Region 9 Next Generation Monitoring 2015
Los Angeles, California

File (.jpg)	Description/Approximate Location	Chemical	Elevated Reading [parts per million by volume (ppmv)]**	Concentration Range [parts per million by volume (ppmv)]**
020215_02CH4Closeup	Near Intersection of I-710 and Pacific Coast Highway	Methane	20.9	2.2 to 20.9
020215_03CH4Closeup	Near Intersection of Alameda Street and Pacific Coast Highway	Methane	6.2	2.0 to 6.2
020215_04TolCloseup	Wilmington, California, along Fries Ave, Anaheim St, and Pier A Way	Toluene	13.8 ppbv	-26.0 to 13.8 ppbv
020215_05CH4Closeup	Wilmington, California, along San Clemente Ave and Anaheim St	Methane	5.8	2.0 to 5.8
020215_07CH4Closeup	Carson, California, along Wilmington Ave	Methane	10.4	2.1 to 10.4
020215_09CH4Closeup	Long Beach, California, along Wilmington Ave and Carson St	Methane	60.1	2.1 to 60.1
020315_01CH4Closeup	Long Beach, California, along Carson St	Methane	19.2	2.5 to 19.2
020615_01TolCloseup	Long Beach, California, near Vopak	Toluene	20.9 ppbv	-10.3 to 20.9 ppbv
020915_01CH4Closeup	El Segundo, California, near Hyperion Treatment Plant	Methane	5.7	1.9 to 5.7
020915_01TolCloseup	El Segundo, California, near intersection of 45th St. and Vista Del Mar Blvd.	Toluene	20.2 ppbv	-14.9 to 20.2 ppbv
020915_02BenCloseup	El Segundo, California, near intersection of N. Crest Dr. and El Porto St.	Benzene	9.1 ppbv	-1.0 to 9.1 ppbv
020915_02TolCloseup	El Segundo, California, near intersection of Rosecrans Ave and Bell Ave	Toluene	14.7 ppbv	-16.2 to 14.7 ppbv

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Table 2. POTENTIAL ELEVATED READINGS*
Region 9 Next Generation Monitoring 2015
Los Angeles, California

File (.jpg)	Description/Approximate Location	Chemical	Elevated Reading [parts per million by volume (ppmv)]**	Concentration Range [parts per million by volume (ppmv)]**
020915_03CH4Closeup	Inglewood, California, near intersection of Portal Ave and Aviation Blvd	Methane	12.8	1.9 to 12.8
020915_03TolCloseup	Inglewood, California, near intersection of Portal Ave and Aviation Blvd	Toluene	19.6 ppbv	-10.8 to 19.6 ppbv
020915_07BenCloseup	Carson, California, near intersection of Drumm Ave and E Lomita Blvd	Benzene	8.1 ppbv	-0.9 to 8.1 ppbv
020915_07TolCloseup	Carson, California, near intersection of Drumm Ave and E Lomita Blvd	Toluene	41.0 ppbv	-19.8 to 41.0 ppbv
020915_08CH4Closeup	Long Beach, California, near intersection of E Carson St and Arnold Center Rd	Methane	4.9	1.8 to 4.9
021015_01BenCloseup	Long Beach, California, near intersection of W Edison Way and Pier B St	Benzene	8.2 ppbv	-0.7 to 8.2 ppbv
021015_02BenCloseup	Long Beach, California, near intersection of Yacht St and Nissan Way	Benzene	7.6 ppbv	0.3 to 7.6 ppbv
021115_01BenCloseup	Phillips 66 Refinery - Wilmington, California,	Benzene	36.5 ppbv	-1.5 to 36.5 ppbv
021115_01CH4Closeup	Phillips 66 Refinery - Wilmington, CA	Methane	4.3	1.9 to 4.3
021115_02BenCloseup	Phillips 66 Refinery - Wilmington, CA	Benzene	69.6 ppbv	-0.3 to 69.6 ppbv
021115_03CH4Closeup	Phillips 66 Refinery - Wilmington, CA	Methane	41.6	1.9 to 41.6
021115_04BenCloseup	Phillips 66 Refinery - Wilmington, CA	Benzene	78.3 ppbv	-0.8 to 78.3 ppbv
021115_04CH4Closeup	Phillips 66 Refinery - Wilmington, CA	Methane	26.3	1.9 to 26.3
021115_05BenCloseup	Phillips 66 Refinery - Wilmington, CA	Benzene	20.2 ppbv	-0.9 to 20.2 ppbv
021115_05CH4Closeup	Phillips 66 Refinery - Wilmington, CA	Methane	7.9	1.9 to 7.9
021215_01CH4Closeup	Chevron Refinery – El Segundo, CA	Methane	9.0	1.9 to 9.0
021215_03CH4Closeup	Chevron Refinery – El Segundo, CA	Methane	4.0	2.0 to 4.0
021215_04BenCloseup	Chevron Refinery – El Segundo, CA	Benzene	11.5 ppbv	-3.0 to 11.5 ppbv

*All readings were rounded to the nearest tenth
**Unless Otherwise Noted [parts per million by volume (ppmv)]

FLIR GASFINDIR INFRARED CAMERA VIDEO

During GMAP monitoring at the Phillips 66 Los Angeles Refinery in Wilmington, California, elevated readings of benzene were found in the tank farm area near Tank 91. According to Phillip 66 personnel, the tank contained naphtha. In addition to the GMAP surveys being conducted at Phillips 66, NEIC personnel took an IR video (**Appendix E** – MOV0001) of emissions coming from the tank. The emissions appeared to be from between the tank rim and geodesic dome.

AIR CANISTERS

NEIC field personnel Armando Bustamante, Ken Garing, and/or Martha Hamre collected air canister samples at six stationary collection sample stations. **Table 3** summarizes the air canisters sampling locations.

Table 3. AIR CANISTER SUMMARY
Region 9 Next Generation Monitoring 2015
Los Angeles Metropolitan Area, California

Station Number	Sample Date	Station Description
01	02/04/15	Near intersection of Slauson and Alba in Los Angeles, California
02	02/05/15	Long Beach Marriott Parking Lot in Long Beach, California
03	02/09/15	Near intersection of Reeves and Del Amo in Carson, California
04	02/10/15	Near Vopak on Yacht Street
05	02/12/15	Long Beach Marriott Parking Lot in Long Beach, California
06	02/12/15	Carson Avenue near Clean Energy in Long Beach, California

A total of nine 1.4-liter air canisters were collected. Duplicate samples were collected at stations 03, 04, and 06. The air canister samples were collected for comparison to values obtained from the GMAP instrumentation. Direct comparison of the GMAP concentration values to the corresponding grab air canisters concentrations may provide erroneous conclusions due to the difference in sample collection and subsequent analysis. The GMAP concentrations are obtained from instrumentation that provide an updated reading approximately every half second. The grab air canisters take approximately 45 seconds to collect, thus providing a single concentration. With this caution, a comparison of the average concentrations provided by the GMAP instrumentation to the corresponding NEIC measured grab canister concentration is summarized in **Table 4**. The Los Gatos instrument provides methane measurements and the DUVAS instrument provides measurements for benzene and toluene. It should be noted that the methane concentrations are in the ppm range and both benzene and toluene concentrations are in the ppb range.

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Table 4. GMAP AND AIR CANISTER RESULTS COMPARISON
Region 9 Next Generation Monitoring 2015
Los Angeles Metropolitan Area, California

Station Number	Date	Methane Analysis (ppm)		Benzene Analysis (ppb)		Toluene Analysis (ppb)	
		NEIC lab	GMAP	NEIC lab	GMAP	NEIC lab	GMAP**
01	02/04/15	2.4	2.34	< 2.14	2.12	< 1.94	6.15
02	02/05/15	2.65	2.61	< 2.14	3.60	< 1.94	6.41
03*	02/09/15	2.28	1.91	< 2.51	3.47	< 2.27	0.29
03*	02/09/15	1.79		< 4.68		< 4.23	
04*	02/10/15	2.39	2.12	< 2.88	3.78	< 2.61	**
04*	02/10/15	2.88		< 2.95		< 2.67	
05	02/12/15	2.93	2.59	< 2.45	3.84	5.21	**
06*	02/12/15	6.94	7.05	< 2.41	3.64	< 2.18	**
06*	02/12/15	6.66		< 2.38		< 2.15	

*Duplicate grab samples were collected
**Negative values were calculated

The analytical results for the air canisters collected and analyzed at the NEIC laboratory are contained in **Appendix F**.

ED_001593_00021271

To: Schofield, John[Schofield.John@epa.gov]; Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]
Cc: Kihara, Keith@DTSC[Keith.Kihara@dtsc.ca.gov]; Lynch, Philip@DTSC[Philip.Lynch@dtsc.ca.gov]
From: Kou, Roberto@DTSC
Sent: Wed 2/8/2017 11:11:33 PM
Subject: RE: Chevron - El Segundo Inspection

Video equipment is available all 3 Mondays, 4/10, 4/17, and 4/24. Let me know if we want to use the video equipment and which date so that I can reserve it asap. robert

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Wednesday, February 08, 2017 6:02 AM
To: Kou, Roberto@DTSC; Soria, Maria@DTSC
Cc: Kihara, Keith@DTSC; Lynch, Philip@DTSC
Subject: RE: Chevron - El Segundo Inspection

Our plan would be to train on Monday and inspect the remainder of the week. This is what NEIC did in Region 2 recently for New Jersey and it worked well.

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
(415) 947-3530 (fax)
schofield.john@epa.gov
****

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From: Kou, Roberto@DTSC [mailto:Roberto.Kou@dtsc.ca.gov]
Sent: Tuesday, February 07, 2017 9:46 AM
To: Soria, Maria@DTSC <Maria.Soria@dtsc.ca.gov>; Schofield, John <Schofield.John@epa.gov>

Cc: Kihara, Keith@DTSC <Keith.Kihara@dtsc.ca.gov>; Lynch, Philip@DTSC <Philip.Lynch@dtsc.ca.gov>
Subject: RE: Chevron - El Segundo Inspection

I checked the video equipment…and the only day in the first 2 weeks of April that the video is available at all offices all day is 4/4/2017 (excluding Mondays and Fridays as it would not be the best days for training.)

robert

From: Soria, Maria@DTSC
Sent: Thursday, February 02, 2017 12:42 PM
To: Schofield, John
Cc: Kihara, Keith@DTSC; Kou, Roberto@DTSC; Lynch, Philip@DTSC
Subject: RE: Chevron - El Segundo Inspection

Would the trainers be open to having this training via video conference so that staff from other DTSC offices can attend?

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Wednesday, February 01, 2017 10:54 AM
To: Soria, Maria@DTSC; Kihara, Keith@DTSC; Kou, Roberto@DTSC; Lynch, Philip@DTSC
Subject: RE: Chevron - El Segundo Inspection

For the classroom training, there is no limit. For the field, I would say 6 inspectors.

****
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From: Soria, Maria@DTSC [mailto:Maria.Soria@dtsc.ca.gov]
Sent: Wednesday, February 01, 2017 10:50 AM
To: Schofield, John <Schofield.John@epa.gov>; Kihara, Keith@DTSC <Keith.Kihara@dtsc.ca.gov>; Kou, Roberto@DTSC <Roberto.Kou@dtsc.ca.gov>; Lynch, Philip@DTSC <Philip.Lynch@dtsc.ca.gov>
Subject: RE: Chevron - El Segundo Inspection

John, how many staff can we send to the inspection?

For the training portion, we would like to send additional DTSC staff. Will this be ok with the trainer(s)?

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Wednesday, February 01, 2017 10:44 AM
To: Soria, Maria@DTSC; Kihara, Keith@DTSC; Kou, Roberto@DTSC; Lynch, Philip@DTSC
Subject: Chevron - El Segundo Inspection

Dan/Keith/Maria/Robert,

NEIC is assisting us with the inspections of the referenced facility. NEIC is wanting to perform the week long inspections sooner rather than later. Either April 10, April 17, or April 24 are the weeks available for NEIC to inspect Chevron. The inspection will include one day classroom refinery inspection training for DTSC staff. First which week April works for your staff that will be participating in the training and the inspection? Second what DTSC office should the classroom training be held: Chatsworth or Cypress?

NEIC needs to firm up the dates for Chevron ASAP. For this reason, please let me know this week which week in April works best for DTSC.

FYI, Pacific Resources Recovery is also an NEIC inspection. I suspect later today or this week that NEIC will be want to firm up the inspection dates. I suspect that also they will want to inspect in April too.

Let me know if you have any questions concerning the above.

regards,

John

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To: Kou, Roberto@DTSC[Roberto.Kou@dtsc.ca.gov]; Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]
Cc: Schofield, John[Schofield.John@epa.gov]; Kihara, Keith@DTSC[Keith.Kihara@dtsc.ca.gov]
From: Lynch, Philip@DTSC
Sent: Tue 2/7/2017 8:31:59 PM
Subject: RE: Chevron - El Segundo Inspection

Just a reminder that the CHMIA conference is April 4-7 and the two Clovis staff that I proposed attend the Chevron El Segundo Refinery training are already scheduled to attend CHMIA.

From: Kou, Roberto@DTSC
Sent: Tuesday, February 07, 2017 12:18 PM
To: Soria, Maria@DTSC
Cc: Schofield, John; Kihara, Keith@DTSC; Lynch, Philip@DTSC
Subject: Re: Chevron - El Segundo Inspection

Let me look for additional days for consideration.

Sent from my iPhone

On Feb 7, 2017, at 11:12 AM, Soria, Maria@DTSC <Maria.Soria@dtsc.ca.gov> wrote:

> We should still consider Mondays and Fridays. With advance notice, staff may be able to make accommodations to be in the office on these days.
>
> **From:** Kou, Roberto@DTSC
> **Sent:** Tuesday, February 07, 2017 9:46 AM
> **To:** Soria, Maria@DTSC; Schofield, John
> **Cc:** Kihara, Keith@DTSC; Lynch, Philip@DTSC
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Sent: Wednesday, February 01, 2017 10:50 AM
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Subject: Chevron - El Segundo Inspection

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To: Schofield, John[Schofield.John@epa.gov]
From: Soria, Maria@DTSC
Sent: Mon 3/20/2017 10:15:10 PM
Subject: FW: Possible EPA case referral to DTSC

From: Jones, Joel E. [mailto:Jones.Joel@epa.gov]
Sent: Friday, March 17, 2017 3:59 PM
To: Kihara, Keith@DTSC <Keith.Kihara@dtsc.ca.gov>; Soria, Maria@DTSC <Maria.Soria@dtsc.ca.gov>
Subject: Possible EPA case referral to DTSC

Hi Keith and Maria,

Our staff recently conducted a joint inspection of the PBF - Torrance Refinery (with Brian Wu). There were several notable RCRA violations as well as potential CA hazardous waste violations. Due to workload and other priorities we're hoping DTSC could pursue a case against PBF and resolve the violations.

You're probably aware that SCAQMD is scheduled to host a public meeting on 4/1/17 re recent flaring and other air quality issues at the refinery. There's considerable media attention as well as community concerns about the facility.

My staff is completing the inspection report next week and I'll share it with you. Please let me know if you have any questions or would like to set up a call to discuss.

Thanks.

-Joel

Joel Jones, Assistant Director

Enforcement Division

USEPA Region 9

(415)972-3449

To: Schofield, John[Schofield.John@epa.gov]
From: Soria, Maria@DTSC
Sent: Wed 11/16/2016 12:34:06 AM
Subject: FW: Exxon Torrance Complaint
Exxon_Complaint2016_SOVLtr_092616.pdf
Exxon_Complaint2016_RprtSum_081016.pdf
Exxon_Complaint2016_RprtAttchA-G_081016.pdf
Exxon_Complaint2016_Rprt_081016.pdf

FYI.

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Barbara A. Lee, Director
1515 Tollhouse Road
Clovis, California 93611

Edmund G. Brown Jr.
Governor

COMPLAINT INSPECTION REPORT

LOG NUMBER: CAL EPA Complaint ID #: 50633 Case #: 16-0816-0307

SUBJECT OF INSPECTION: Exxon Mobil Oil Corporation - Torrance Refinery

DOING BUSINESS AS: Torrance Refining Company LLC. As of July 1, 2016

ADDRESS: 3700 W 190th Street, Torrance, CA 90504

TELEPHONE NUMBER: (310) 212 - 2800

LOCATION OF ACTIVITY: 3700 W 190th Street, Torrance, CA 90504

ID NUMBER: CAD008354052

DATE INSPECTION STARTED: August 10, 2016

DATE OF REPORT: September 26, 2016

NARRATIVE OF FINDINGS

A. STATEMENT OF THE ALLEGATIONS

On March 22, 2016, Exxon Mobil Oil Corporation - Torrance Refinery (ExxonMobil) shipped 9.35 tons of soil on a non-hazardous waste manifest # ZZ 00525133 to Liquid Waste Management - McKittrick Waste Treatment Site (LWMM), a Class II landfill. Prior to shipping the soil to LWMM, ExxonMobil had consolidated 1.09 tons or approximately 1.33 cubic yards of soil from four drums with 8.26 tons of non-hazardous soil that was stored in a roll-off bin, (total 9.35 tons). On March 30, 2016, ExxonMobil received Soluble Threshold Limit Concentration (STLC) analysis results for the 1.09 tons that reported a 9.32 mg/L result for lead which exceeds the regulatory threshold limit of 5.0 mg/L indicating the soil was non-RCRA hazardous waste. ExxonMobil also ran Toxicity Characteristic Leaching Procedure (TCLP) analysis on the soil from the four drums and the results reported on April 1, 2016 were 0 mg/L indicating that the soil from the four drums was not a RCRA hazardous waste.

LY:smk
LY11a.0916

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B. CHRONOLOGICAL NARRATIVE OF THE FINDINGS

March 22, 2016, ExxonMobil shipped out the lead contaminated soil as non-hazardous to LWMM. LWMM landfilled the load into Module A-1 grid point 184 on the same day. See manifest # ZZ 00525133, **(Attachment A).**

March 30, 2016, ExxonMobil received STLC sample results for the 1.09 tons of soil from the drums and determined that the load had been mislabeled. See the STLC sample analysis results, (**Attachment B**).

ExxonMobil notified LWMM about the soil being non-RCRA hazardous for lead the same day. ExxonMobil also notified Mr. Jojo Commandante, Supervising Hazardous Materials Specialist, of Los Angeles County Fire Department's Certified Unified Program Agency, via voicemail of the error. A phone conversation followed on March 31, 2016.

April 26, 2016, Mr. Dan Lynch, Senior Environmental Scientist (Supervisor) of the Department of Toxic Substances Control (DTSC), was notified via phone call by Mr. Daniel Carlson, Senior Engineering Geologist of the Central Valley Regional Water Quality Control Board (CVRWQCB), about the waste acceptance and disposal issue at LWMM.

April 27, 2016, Mr. Daniel Carlson, issued a Notice of Violation to Mr. Fred Paap of LWMM. The violations noted were for discharge of a hazardous waste and for failure to notify DTSC of the discharge of a hazardous waste, **(Attachment C).**

April 29, 2016, LWMM sent the 1st quarter 2016 Rejected Loads Exceeding RCRA Limits report to DTSC, CVRWQCB, Kern County Environmental Health Services Department, and San Joaquin Valley Unified Air Pollution Control District. This letter provided information regarding the subject landfilled non-RCRA hazardous soil, **(Attachment D)**.

May 4, 2016, ExxonMobil sent Mr. Daniel Carlson a letter describing the incident, subsequent investigation Exxon Mobil conducted and corrective actions they took, **(Attachment E)**.

June 16, 2016, I, LeeAnn Young attended a meeting at the CVRWQCB office in Fresno, California. In attendance was Mr. Fred Paap, District Manager of LWMM, and Mr. Daniel Carlson, Senior Engineering Geologist, Lonnie Wass, Supervising Engineer, and Kristen Gomes, all of the CVRWQCB. The purpose of the meeting was to discuss the details of the waste acceptance issue at LWMM and discuss alternatives for appropriate corrective actions.

LY:smk
LY11a.0916

July 12, 2016, DTSC sent LWMM a letter stating that no further action needed to be taken on the subject non-RCRA hazardous soil that had been landfilled, **(Attachment F)**.

The following are my review summaries of the following correspondence and documents:

April 27, 2016, Notice of Violation issued to Mr. Fred Paap of LWMM by Mr. Daniel Carlson of the CVRWQCB, **(Attachment C)**.

This Notice of Violation (NOV) states that LWMM is in violation of the Waste Discharge Requirements issued by the CVRWQCB. The two violations noted are for:

1. The discharge of hazardous waste
2. Failure to notify DTSC of the discharge of hazardous waste

Attachments to this Notice of Violation include:

1. An email dated April 1, 2016, in which LWMM notified the CVRWQCB of the ExxonMobil/LWMM waste disposal occurrence. This email states that LWMM has temporarily suspended filling operations in the area where the ExxonMobil waste was landfilled, awaiting potential recommended corrective actions.

2. A letter dated April 8, 2016, in which LWMM formally reports the initial findings related to the ExxonMobil/LWMM waste disposal occurrence to Mr. Daniel Carlson of the CVRWQCB and Ms. Elizabeth King of the Kern County Environmental Health Services Department. This letter summarizes the investigation into the cause and circumstances of the incident, as well as LWMM's recommended management method pertaining to the waste. LWMM proposed to manage the waste in place for the following reasons:
   A. The thickness of the underlying waste mass is 75 feet.
   B. The low volume of leachate generated in Module A.
   C. The non-acidic pH of the leachate.
   D. The robust nature of the liner.
   E. The minimal amount of lead contaminated soil disposed of in Module A.
   F. The relatively low level of lead in the contaminated soil (9.32 mg/L).
   G. LWMM believes it's extremely unlikely the lead will solubilize and migrate to the liner let alone the groundwater.
   H. The difficulty in finding the contaminated soil (the soil was buried on top of 75 feet of waste and now has ten feet of non-hazardous soil covering the contaminated soil).
   I. The inherent risks and environmental impacts of doing extensive excavation if they are ordered to dig up the contaminated soil.

   a. Attached to this April 8, 2016 letter is a summary purported to be from the generator, ExxonMobil, describing the investigation into the incident. This summary is not dated, not on ExxonMobil letterhead, and not signed. In

the NOV, the CVRWQCB stated that LWMM should require that the summary from the generator be dated, on ExxonMobil letterhead and signed by an authorized representative of ExxonMobil. This summary states the cause of the erroneous shipment to be human error, in that 1.09 tons, or approximately 1.33 cubic yards, of soil was consolidated with 8.26 tons of non-hazardous soil, prior to receiving STLC results.

b. Also attached, is the analytical results conducted on the 1.09 tons or approximately 1.33 cubic yards of soil from four drums generated at ExxonMobil.

May 2, 2016, Letter to Mr. Dan Lynch from Mr. Fred Paap, **(Attachment G)**.

This letter notifies DTSC of the ExxonMobil/LWMM waste disposal occurrence. LWMM proposed to manage the received soil in place. Attachments to this letter include the letter dated April 8, 2016 from LWMM to Mr. Carlson and Ms. King, described above. Also attached to this letter is the analytical results conducted on the 1.09 tons of soil, also described above.

May 4, 2016, Letter to Mr. Daniel Carlson from Mr. David Ingram, Safety, Security, Health and Environmental Manager of ExxonMobil's Torrance Refinery, **(Attachment E)**.

The letter states that ExxonMobil's protocol dictates that all waste containers shall be issued a dedicated waste ID prior to use and this waste ID will carry over to a unique sampling ID. Waste is sampled in order to make a determination on whether it is RCRA, non-RCRA, or non-hazardous. In the case of the soil in the four drums, once the initial TTLC results came back, STLC analysis was requested because the Total Threshold Limit Concentration sample analysis result was 80.8 mg/kg and ExxonMobil protocol requires STLC analysis be performed. However, prior to receiving the STLC results, the four drums were assigned a non-hazardous determination. Based on this non-hazardous determination, the four drums were consolidated with similarly profiled soil that was stored in a roll-off bin which was then shipped to LWMM as non-hazardous. Internal investigation determined the contributing causes of the incident to be the database used by the refinery not preventing a non-hazardous determination from being issued to the waste when STLC analysis was still pending, and the quality check performed failing to recognize that the lead level in the waste exceeded the 5.0 mg/L non-RCRA lead threshold. Corrective actions have been identified and will be implemented at the refinery to prevent a reoccurrence of a similar event. These corrective actions are:

1. to develop a data management procedure to ensure waste with pending analytical results are separated from wastes which have a determination;
2. to implement a database feature to prevent determinations from being issued prior to receiving all pending analytical results; and
3. to develop an analytical results quality check procedure.

LY:smk
LY11a.0916

C. CLASS I VIOLATION

1. ExxonMobil violated Health and Safety Code, section 25201(a) in that on or about March 22, 2016, ExxonMobil treated soil by means of dilution without obtaining a hazardous waste facility permit from DTSC to do so.

   Specifically, ExxonMobil consolidated 1.09 tons or approximately 1.33 cubic yards of non-RCRA lead contaminated soil with 8.26 tons of non-hazardous soil, therefore diluting the 1.09 tons of non-RCRA lead contaminated soil.

   Corrective Action: ExxonMobil shall implement the three corrective actions described in their May 4, 2016 letter from Mr. David Ingram, Safety, Security, Health and Environmental Manager of ExxonMobil to Mr. Daniel Carlson of the Central Valley Regional Water Quality Control Board. By **October 14, 2016**, ExxonMobil shall submit written information to DTSC demonstrating proof that these three corrective actions have been implemented.

D. ATTACHMENTS

Attachment A – Non-hazardous waste manifest ZZ00525133 transporting non-hazardous material (soil) from ExxonMobil to LWMM, (1 page).

Attachment B – Analytical results from testing the four drums of soil, TTLC, STLC, TCLP, (9 pages).

Attachment C - April 27, 2016, Notice of Violation issued to Mr. Fred Paap, District Manager of LWMM by Mr. Daniel Carlson, Senior Engineering Geologist of the CVRWQCB, (20 pages).

Attachment D - April 29, 2016, LWMM 1st quarter 2016 Rejected Loads Exceeding RCRA Limits report to DTSC, CVRWQCB, Kern County Environmental Health Services Department, and San Joaquin Valley Unified Air Pollution Control District, (1 page).

Attachment E - May 4, 2016, Letter to Mr. Daniel Carlson, Senior Engineering Geologist of the CVRWQCB by Mr. David Ingram, Safety, Security, Health and Environmental Manager of Exxon Mobil's Torrance Refinery, (3 pages).

Attachment F - July 12, 2016, DTSC letter sent LWMM stating that no further action needed to be taken on the subject landfilled non-RCRA hazardous soil that had been landfilled, (4 pages).

Attachment G - May 2, 2016, Letter to Mr. Dan Lynch, Senior Environmental Scientist (Supervisor) of DTSC by Mr. Fred Papp, District Manager of LWMM, (16 pages).

E. RECOMMENDATIONS

LY:smk
LY11a.0916

Based upon DTSC's determination that ExxonMobil treated hazardous waste without having a permit from DTSC, it is recommended that DTSC pursue enforcement action for ExxonMobil violating Health and Safety Code, section 25201(a).

F. WITNESSES:

Mr. Dan Lynch, Senior Environmental Scientist (Supervisor), DTSC.

Name and Title of Lead DTSC Investigating Scientist

LeeAnn Young, Environmental Scientist

Signature Original signed by Lee Ann Young Date 9-26-16

Reviewed By:

Mr. Dan Lynch, Senior Environmental Scientist (Supervisor)

Signature Original signed by Dan Lynch Date 9/26/16

LY:smk
LY11a.0916

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Attachment

Excerpt from the Health and Safety Code

25173. The department shall establish procedures to ensure that trade secrets used by a person regarding methods of hazardous waste handling and disposal are utilized by the director, the department, or any authorized representative of the department only in connection with the responsibilities of the department pursuant to this chapter and that such trade secrets are not otherwise disseminated by the director, the department, or any authorized representative of the department without the consent of the person. However, any information shall be made available to governmental agencies for use in making studies and for use in judicial review or enforcement proceedings involving the person furnishing the information. "Trade secrets," as used in this section, may include, but are not limited to, any formula, plan, pattern, process, tool, mechanism, compound, procedure, production data, or compilation of information which is not patented, which is known only to certain individuals within a commercial concern who are using it to fabricate, produce, or compound an article of trade or a service having commercial value, and which gives its user an opportunity to obtain a business advantage over competitors who do not know or use it.

ATTACHMENT A

VEOLIA ENVIRONMENTAL SERVICES

108122

SHIPPING DOCUMENT	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Shipping Document Tracking Number
	CAD008354053	1	(877) 818-0087	ZZ 00525133

5. Generator's Name and Mailing Address
EXXONMOBIL OIL CORPORATION
ATTN: ROBERT PARKER
3700 W. 190TH ST.
TORRANCE, CA 90509
Generator's Phone: 310 212-3879

Generator's Site Address (if different than mailing address)
EXXONMOBIL OIL CORPORATION
3700 W. 190TH ST.
ATTN: ACCOUNTS PAYABLE
TORRANCE, CA 90509

6. Transporter 1 Company Name: ECOLOGY CONTROL INDUSTRIES — U.S. EPA ID Number: CAD982030173

7. Transporter 2 Company Name — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
WM/MCKITTRICK WASTE TREATMENT
56533 HWY. 58 WEST
MCKITTRICK, CA 93251
Facility's Phone: 661 762-7366
U.S. EPA ID Number: CAD980636831

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Codes
	1. NON HAZARDOUS MATERIAL, (SOIL)	1	CM	19100	P	NONE
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information W:126747 A:MCK112105CADRT ER Service Contracted by VESTS

XOM ID# 16111B (BIN# ECI-674)
SOIL FROM WATER LEAK EAST OF UNIT 25
EXXONMOBIL 24HR EMERGENCY# 310505-3158 (ESS)

15. GENERATOR S/OFFEROR S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: ROBERT PARKER — Signature: Robert Parker — Month Day Year: 03 22 16

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Shipment
Transporter 1 Printed/Typed Name: GILBERT HAPKINS — Signature: [signature] — Month Day Year: 3 22 16
Transporter 2 Printed/Typed Name — Signature — Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Shipping Document Tracking Number:
18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Report Management Method Codes (i.e., codes for treatment, disposal, and recycling systems)
1. 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of shipment except as noted in Item 18a
Printed/Typed Name: Debbie Carnical — Signature: [signature] — Month Day Year: 03 22 16

DESIGNATED FACILITY TO GENERATOR

GENERATOR — TRANSPORTER INTL — DESIGNATED FACILITY

ATTACHMENT B

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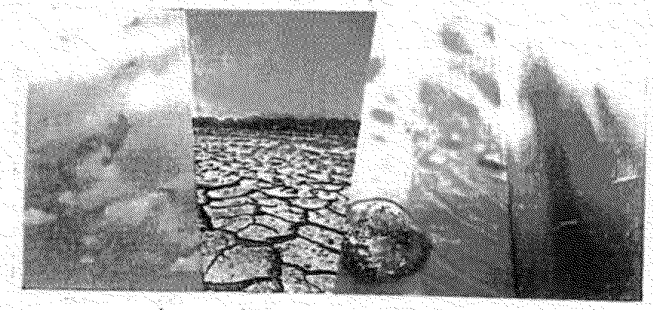
WORK ORDER NUMBER: 16-03-0573

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: ExxonMobil Oil Corporation

Client Project Name: 160119A / Soil From Drain Box at 3RD & ACE

Attention: Robert Parker
3700 West 190th Street
Torrance, CA 90509-5790

Approved for release on 03/15/2016 by:
Cecile deGuia
Project Manager

ResultLink ›

Email your PM ›

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Client Project Name: 160119A / Soil From Drain Box at 3RD & ACE
Work Order Number: 16-03-0573

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6 Glossary of Terms and Qualifiers. 17

7 Chain-of-Custody/Sample Receipt Form. 18

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Analytical Report

ExxonMobil Oil Corporation		Date Received:	03/08/16
3700 West 190th Street		Work Order:	16-03-0573
Torrance, CA 90509-5790		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg

Project: 160119A / Soil From Drain Box at 3RD & ACE

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
160119A	**16-03-0573-1-A**	**03/07/16 12:15**	**Solid**	**ICP 7300**	**03/09/16**	**03/10/16 15:31**	**160309L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.721	0.962	
Arsenic	3.25	0.721	0.962	
Barium	75.6	0.481	0.962	
Beryllium	ND	0.240	0.962	
Cadmium	ND	0.481	0.962	
Chromium	22.0	0.240	0.962	
Cobalt	8.65	0.240	0.962	
Copper	46.5	0.481	0.962	
Lead	80.8	0.481	0.962	
Molybdenum	10.2	0.240	0.962	
Nickel	33.4	0.240	0.962	
Selenium	ND	0.721	0.962	
Silver	ND	0.240	0.962	
Thallium	ND	0.721	0.962	
Vanadium	18.9	0.240	0.962	
Zinc	220	0.962	0.962	

4 DRUMS

TTLC

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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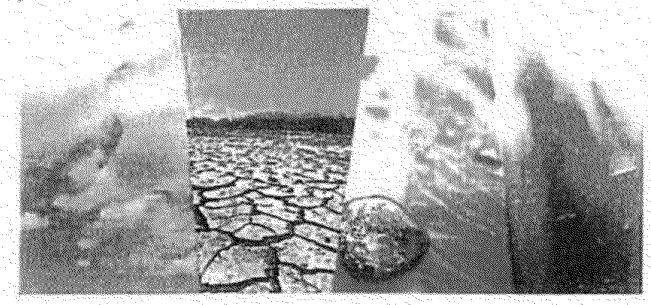
Supplemental Report 1

Additional requested analyses are reported as a stand-alone report.

WORK ORDER NUMBER: 16-03-0573

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: ExxonMobil Oil Corporation

Client Project Name: 160119A / Soil From Drain Box at 3RD & ACE

Attention: Robert Parker
3700 West 190th Street
Torrance, CA 90509-5790

Approved for release on 03/23/2016 by:
Cecile deGuia
Project Manager

ResultLink ›

Email your PM ›

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Client Project Name: 160119A / Soil From Drain Box at 3RD & ACE
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Analytical Report

ExxonMobil Oil Corporation
3700 West 190th Street
Torrance, CA 90509-5790

Date Received:	03/08/16
Work Order:	16-03-0573
Preparation:	T22.11.5. All
Method:	EPA 6010B
Units:	mg/L

Project: 160119A / Soil From Drain Box at 3RD & ACE

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
160119A	**16-03-0573-1-A**	**03/07/16 12:15**	**Solid**	**ICP 7300**	**03/16/16**	**03/18/16 18:49**	**160318LA2**

Parameter	Result	RL	DF	Qualifiers
Lead	9.32	0.100	1.00	

Method Blank	**097-05-006-8326**	**N/A**	**Aqueous**	**ICP 7300**	**03/16/16**	**03/18/16 18:26**	**160318LA2**

Parameter	Result	RL	DF	Qualifiers
Lead	ND	0.100	1.00	

4 DRUMS

STLC

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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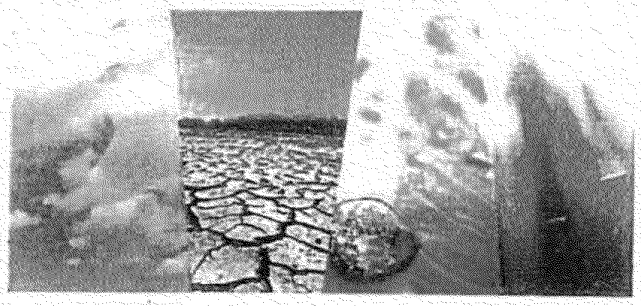
Supplemental Report 2

Additional requested analyses are reported as a stand-alone report.

WORK ORDER NUMBER: 16-03-0573

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: ExxonMobil Oil Corporation

Client Project Name: 160119A / Soil From Drain Box at 3RD & ACE

Attention: Robert Parker
3700 West 190th Street
Torrance, CA 90509-5790

Approved for release on 04/01/2016 by:
Cecile deGuia
Project Manager

ResultLink ›

Email your PM ›

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Work Order Number: 16-03-0573

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4.1 MS/MSD. 6
4.2 LCS/LCSD. 7

5 Sample Analysis Summary. 8

6 Glossary of Terms and Qualifiers. 9

7 Chain-of-Custody/Sample Receipt Form. 10

ED_001593_00021361

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Analytical Report

ExxonMobil Oil Corporation
3700 West 190th Street
Torrance, CA 90509-5790

Date Received:	03/08/16
Work Order:	16-03-0573
Preparation:	EPA 1311
Method:	EPA 6010B
Units:	mg/L

Project: 160119A / Soil From Drain Box at 3RD & ACE

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
160119A	**16-03-0573-1-A**	**03/07/16 12:15**	**Solid**	**ICP 7300**	**03/30/16**	**04/01/16 10:11**	**160331LA1**

Parameter	Result	RL	DF	Qualifiers
Lead	ND	0.100	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-021-1925**	**N/A**	**Aqueous**	**ICP 7300**	**03/30/16**	**04/01/16 09:34**	**160331LA1**

Parameter	Result	RL	DF	Qualifiers
Lead	ND	0.100	1.00	

4 DRUMS
TCLP

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

ATTACHMENT C

California Water Boards

Edmund G. Brown Jr. Governor

Matthew Rodriquez Secretary for Environmental Protection

Central Valley Regional Water Quality Control Board

27 April 2016

NOTICE OF VIOLATION

Fred Papp
District Manager
McKittrick Waste Treatment Site
56533 Highway 58 West
McKittrick, CA 93251

CERTIFIED MAIL
7015 1730 0000 9937 3902

NON-CONFORMING WASTE DISPOSAL OCCURRENCE, MCKITTRICK WASTE TREATMENT SITE, KERN COUNTY

Liquid Waste Management, Inc. owns and operates the McKittrick Waste Treatment Site (including a Class II landfill) (Facility), which is currently regulated by Waste Discharge Requirements Order R5-2015-0080 (WDRs). By email dated 31 March 2016 and correction email dated 1 April 2016 (Email, enclosed), you notified Central Valley Regional Water Quality Control Board staff (Staff) by providing the Special Occurrence Notification of Unacceptable Waste Disposal. The Email notification was followed by an 8 April 2016 letter notification (Letter, enclosed) containing additional information regarding the occurrence. Both the Email and Letter notifications of the non-compliance were submitted to comply with General Provision K.1., Standard Provisions and Reporting Requirements, dated January 2012, of the WDRs.

The notifications described above document the disposal of 1.09 tons of soil containing soluble lead at a concentration of 9.32 mg/L via the Waste Extraction Test (WET) method, which exceeds the Soluble Threshold Limit Concentration (STLC) of 5.0 mg/L and thereby establishing the soil is classified as non-RCRA hazardous waste in accordance with section 66261.24, title 22, California Code of Regulations. The Letter explains the circumstances under which the error in acceptance for disposal occurred, including a summary purported to be from the generator (ExxonMobil refinery in Torrance, CA). The Letter also presents information as to why the waste cannot be removed and data and rationale, including the containment system of waste management unit Module A where the soil was discharged, liner construction, measured pH of Module A leachate, the small quantity and difficulty in identifying the non-containerized comingled subject soil, other disposal conditions, etc., supporting the proposed resolution of managing the waste in place. There is no indication in either the Email or the Letter that the California Department of Toxic Substances Control (DTSC) was notified of this discharge of hazardous waste.

Liquid Waste Management, Inc. is in **violation** of the WDRs for:

1. The discharge of hazardous waste, Prohibition A.1., and
2. Failure to notify DTSC of the discharge of hazardous waste, as required by Discharge Specification B.7.

Further, the summary of this occurance supplied by the generator, enclosed with the Letter, is not dated, not on ExxonMobil letterhead,and not signed. The Discharger should require that the summary from the generator be dated, on ExxonMobil letterhead, and signed by an authorized representative of ExxonMobil.

Central Valley Water Board staff is consulting with DTSC staff regarding resolution of this unauthorized discharge of hazardous waste.

If you have any questions regarding this notice, please contact me at (559) 444-2484 or by email at Daniel.Carlson@waterboards.ca.gov.

DANIEL L. CARLSON
Senior Engineering Geologist
PG No. 5379, CEG No. 1695, CHG No. 488

enclosures

cc: Leslie Graves, State Water Quality Control Board, Sacramento
Margaret Commoto, CalRecycle, Sacramento
Dan Lynch, Department of Toxic Substances Control, Clovis
Elizabeth King, Kern County Environmental Health Department, Bakersfield

Carlson, Daniel@Waterboards

From:	Paap, Fred <Fpaap@wm.com>
Sent:	Friday, April 01, 2016 11:35 AM
To:	Carlson, Daniel@Waterboards; Elizabeth King [kingel@co.kern.ca.us] (kingel@co.kern.ca.us)
Cc:	Willman, Paul
Subject:	McKittrick Waste Treatment Site - Special Occurrence Notification of Unacceptable Waste Disposal/ CORRECTION

Dear Ms. King and Mr. Carlson,
Below, please note a correction to our Special Occurrence e-mail dated 3/31/16.
Please contact me if you have questions, or need additional information.
Thank you.

Dear Ms. King and Mr. Carlson,

On March 30, 2016, we received information from ExxonMobil that they shipped non-RCRA hazardous waste to the McKittrick Waste Treatment Site. Please consider this our notification of our preliminary investigative findings regarding the inadvertent disposal of contaminated soil, containing levels of lead not acceptable at the McKittrick facility. The material was initially characterized by the generator as a bulk 'non-hazardous' soil shipment which totaled 9.35-tons, but included soil from four drums (approx. 1.09-cubic yards or approx. 1.09 tons), which the generator has now determined to be non-RCRA hazardous for lead. Approximately 8.26 tons of the bulk shipment was correctly characterized as non-hazardous soil. The waste shipped as non-hazardous from the ExxonMobil Oil Corporation Torrance Refinery (EPA ID# CAD008354052) on 3/22/16, and landfilled at the McKittrick facility.

We understand the process and circumstances at the generator to be as follows; however, the generator will need to confirm the accuracy of this summary. Per the refinery's protocol, all waste containers (prior to use) are issued a dedicated waste ID. The waste ID carries over to a unique sampling ID when the waste is sampled to make a RCRA, non-RCRA, or non-hazardous determination. In this case, the initial TTLC results for lead in the four drums was 80.8 mg/kg (below the 1,000 ~~100~~ mg/kg non-RCRA lead threshold), and further testing for STLC was requested. However, prior to receiving the results of the STLC analysis, a determination was made (mistakenly) that the drummed soil was non-hazardous, and a non-hazardous disposition report was prematurely issued. Based on the non-hazardous determination, the onsite waste management team then proceeded to consolidate the contents of the four drums into a similarly profiled non-hazardous soil roll-off bin and shipped it to McKittrick with a non-hazardous declaration (manifest). The manifest and site specific McKittrick profile for the waste both indicated non-hazardous characterization so it was accepted for disposal per McKittrick waste acceptance protocol. Following disposal of the waste, ExxonMobil received the results for the lead STLC, which came back as 9.32 mg/L, or 4.32 mg/L over the 5.0 mg/L non-RCRA lead threshold.

We are not aware of any immediate threat to human health and the environment. The material is buried and comingled/covered with other waste within the lined footprint of Landfill Module 'A', and away from our current workface. We have temporarily suspended filling operations in this area, while we are continuing our investigation into the cause and circumstances of this incident, as well as potential recommended corrective actions. ExxonMobil is having further testing performed for TCLP, and results are expected early next week. Hence, we expect to have additional information, including recommended corrective actions, for the Board and LEA by early next week.

Our comments are based on preliminary information received from ExxonMobil, and may require revision in the coming days, as more or different information is obtained.

Please contact me, if you have questions, or need additional information at this time.

Thank you,

Fred Paap
District Manager
McKittrick Waste Treatment Site

Recycling is a good thing. Please recycle any printed emails.

ED_001593_00021361

RECEIVED
APR 11 2016
BY: WASTE MANAGEMENT
FRESNO, CALIF.

McKittrick Waste Treatment Site
56533 Highway 58 West
McKittrick, CA 93251
(661) 762-7366
(661) 762-7696 FAX

April 8, 2016

Elizabeth King (7013 1090 0001 6072 8281)
Kern County Environmental Health Services Dept.
2700 "M" Street, Suite 300
Bakersfield, CA 93301

Dan Carlson (7013 1090 0001 6072 8274)
Regional Water Quality Control Board
1685 "E" Street
Fresno, CA 93706-2025

RE: McKittrick Waste Treatment Site – Non-Conforming Waste Disposal Occurrence

Dear Ms. King and Mr. Carlson:

This letter serves as follow-up communication to the e-mail notification transmitted to you last week regarding our initial findings related to the subject non-conforming waste disposal occurrence at the McKittrick Waste Treatment Site (MWTS). As reported in our initial e-mail, on March 30, 2016, we received information from ExxonMobil's Torrance Refinery (generator) that they shipped non-RCRA hazardous waste into the MWTS on 3/22/16. The shipment, totaling 9.35-tons, was initially characterized by the generator as bulk 'non-hazardous'. The generator has since notified MWTS that it included approximately 1.09-tons of soil from four drums determined by the generator (on 3/30/16) to be non-RCRA hazardous for lead. The remaining 8.26-tons of the bulk shipment was correctly characterized as non-hazardous soil. The following is a summary of the investigation into the cause and circumstances of this incident, as well as our recommended management method.

According to the generator (see attached summary), the cause for the erroneous shipment was human error. It is the refinery's protocol that all waste containers (prior to use) are issued a dedicated waste ID. The waste ID carries over to a unique sampling ID when the waste is sampled to make a RCRA, non-RCRA, or non-hazardous determination. In this case, the initial TTLC results for lead in the four drums was 80.8 mg/kg (below the 1,000 mg/kg non-RCRA lead threshold), and further testing for STLC was requested. However, prior to receiving the results of the STLC analysis, a determination was made that the drummed soil was non-hazardous, and a non-hazardous disposition report was prematurely issued.

Based on the non-hazardous determination, the generator's onsite waste management team proceeded to consolidate the contents of the four drums into a similarly profiled non-hazardous soil roll-off bin, and shipped it to MWTS with a non-hazardous manifest. The manifest and site specific MWTS profile for the waste both indicated non-hazardous characterization, so it was accepted for disposal per MWTS's waste acceptance protocol. Following disposal of the waste, ExxonMobil received from its lab the results for the lead STLC, which came back as 9.32 mg/L, or 4.32 mg/L over the 5.0 mg/L non-RCRA lead threshold. Subsequent to our initial e-mail to you on this matter, on 4/1/16, the generator received the TCLP results for the soil from the drums, and the result was 0 mg/L indicating that it is not a regulated RCRA hazardous waste (see attached analytical).

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WASTE MANAGEMENT

The non-conforming waste was disposed of in Module A at the MWTS. The containment system in Module A consists of a composite liner and leachate collection and removal system (LCRS) that exceeds the requirements of 27 CCR for a Class II Landfill (liner consists of two feet of clay with $1X10^{-6}$ cm/s permeability overlain by a 60-mil HDPE liner). Furthermore, the waste was deposited on top of approximately 75-feet of existing waste, in a cell that generates minimal amounts of leachate, averaging about 300-gallons/month.

Module A's leachate pH-levels have averaged about 6.62 over the last 3-years. This is much closer to neutral than the solution used in the STLC test (5.0), and therefore less likely to leach-out lead that may be present in the non-conforming waste. Due to the thickness of the underlying waste mass, the low volume of leachate generation, the non-acidic pH of the leachate, and the robust nature of the liner/LCRS design, it is extremely unlikely that the lead in the non-conforming waste will solubilize and migrate to the liner system, let alone affect the groundwater.

Due to the minimal amount of waste, the relatively low-levels of lead, the inherent difficulty of finding or distinguishing a specific non-containerized waste soil which is commingled with and covered by approximately 10-feet of other waste soil, and the inherent health & safety risks and environmental impacts associated with extensive excavation in a Class II landfill, MWTS proposes to manage this material in place. Hence, at this time, we seek your agreement with the proposed management and that no further action will be required.

Sincerely,

Fred Paap
District Manager
McKittrick Waste Treatment Site

Enclosures: ExxonMobil Investigation Summary
ExxonMobil's TCLP Analytical Laboratory Report (Eurofins)

cc: Paul Willman - Waste Management
Andrew Kenefick - Waste Management

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ExxonMobil Investigation Summary

Issue:

On 3/22/2016, four drums of soil (approximately 1.33 cubic yards of soil), that were later determined to be non-RCRA hazardous for lead (9.32 mg/L), were shipped out as non-hazardous from the ExxonMobil Oil Corporation Torrance Refinery (Torrance Refinery) (EPA ID# CAD008354052) to a non-hazardous landfill, Waste Management McKittrick Landfill (WM) in Kern County, California (EPA ID# CAD980636831).

Preliminary Investigation:

Based on an initial investigation into the potential causes for this error, it appears that the mistake was due to human error. Per ExxonMobil Oil Torrance Refinery protocol, all waste containers, prior to use, are issued a dedicated waste ID. This waste ID carries over to a unique sampling ID and the waste is then sampled in order to make a determination on whether a waste is RCRA, non-RCRA or non-hazardous. In this case, the initial TTLC results for lead was 8.65 mg/kg, and further testing for STLC was requested. However, inadvertently, *prior* to receiving the results of the STLC analysis, the determination was made that the soil was non-hazardous and the non-hazardous disposition report was prematurely issued to the onsite waste management team. Based on this non-hazardous determination, the Torrance Refinery on-site waste management team, consolidated the four drums of 'non-hazardous' soil into a similarly profiled non-hazardous soil roll-off bin and shipped it out to the WM McKittrick Landfill with a non-hazardous declaration on 3/22/2016. After the waste had been shipped, the results for the lead STLC came back as 9.32 mg/L, over the 5.0 mg/L non-RCRA lead threshold. On 3/30/2016, the error was discovered by the Refinery and WM was notified. The Torrance Refinery continues to work with the McKittrick Landfill to make sure the waste is handled appropriately. Further testing for TCLP is being performed and results are expected on Monday, 4/4. Further investigation into the cause is ongoing and corrective actions to prevent reoccurrence will be instituted.

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Supplemental Report 2

Additional requested analyses are reported as a stand-alone report.

WORK ORDER NUMBER: 16-03-0573

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: ExxonMobil Oil Corporation

Client Project Name: 160119A / Soil From Drain Box at 3RD & ACE

Attention: Robert Parker
3700 West 190th Street
Torrance, CA 90509-5790

Approved for release on 04/01/2016 by:
Cecile deGuia
Project Manager

Result Link >

Email your PM >

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Work Order Number: 16-03-0573

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Work Order Narrative

Work Order: 16-03-0573

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 03/08/16. They were assigned to Work Order 16-03-0573.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Sample Summary

Client:	ExxonMobil Oil Corporation 3700 West 190th Street Torrance, CA 90509-5790	Work Order:	16-03-0573
		Project Name:	160119A / Soil From Drain Box at 3RD & ACE
		PO Number:	4410266075
		Date/Time Received:	03/08/16 15:40
		Number of Containers:	1
Attn:	Robert Parker		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
160119A	16-03-0573-1	03/07/16 12:15	1	Solid

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Analytical Report

ExxonMobil Oil Corporation
3700 West 190th Street
Torrance, CA 90509-5790

Project: 160119A / Soil From Drain Box at 3RD & ACE

Date Received:	03/08/16
Work Order:	16-03-0573
Preparation:	EPA 1311
Method:	EPA 6010B
Units:	mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
160119A	16-03-0573-1-A	03/07/16 12:15	Solid	ICP-7300	03/30/16	04/01/16 10:41	160331LA1

Parameter	Result	RL	DF	Qualifiers
Lead	ND	0.100	1.00	

Method Blank	099-14-021-1925	N/A	Aqueous	ICP-7300	03/30/16	04/01/16 09:34	160331LA1

Parameter	Result	RL	DF	Qualifiers
Lead	ND	0.100	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Spike/Spike Duplicate

ExxonMobil Oil Corporation
3700 West 190th Street
Torrance, CA 90509-5790

Project: 160119A / Soil From Drain Box at 3RD & ACE

Date Received:	03/08/16
Work Order:	16-03-0573
Preparation:	EPA 1311
Method:	EPA 6010B

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
16-03-2123-1	Sample	Solid	ICP 7300	03/30/16	04/01/16 09:57	160331SA1
16-03-2123-1	Matrix Spike	Solid	ICP 7300	03/30/16	04/01/16 09:59	160331SA1
16-03-2123-1	Matrix Spike Duplicate	Solid	ICP 7300	03/30/16	04/01/16 10:00	160331SA1

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Lead	ND	5.000	4.956	99	4.828	97	84-120	3	0-7	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

ExxonMobil Oil Corporation		Date Received:	03/08/16
3700 West 190th Street		Work Order:	16-03-0573
Torrance, CA 90509-5790		Preparation:	EPA 1311
		Method:	EPA 6010B
Project: 160119A / Soil From Drain Box at 3RD & ACE			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-021-1925	LCS	Aqueous	ICP 7300	05/30/16	04/01/16 09:35	160331L01

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Lead	5.000	5.036	101	80-120	

RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 16-03-0573

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 6010B	EPA 1311	935	ICP 7300	1

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Glossary of Terms and Qualifiers

Work Order: 16-03-0573

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Cecile L de Guia

From: Mena, Pablo [pablo.mena@veolia.com]
Sent: Wednesday, March 30, 2016 1:09 PM
To: Cecile L de Guia
Subject: Re: 160119A / Soil From Drain Box at 3RD & ACE / ECI 16-03-0573

Cecile,

Can you still run a TCLP on this?

Regards,

Pablo Mena
Sr. Project Manager
Industrial Business
VEOLIA NORTH AMERICA

cell

+1 626 255 8845

107 S. Motor Avenue / Azusa, CA 91702
Pablo.Mena@veolia.com
www.veolianorthamerica.com

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On 23 March 2016 at 09:36, Cecile L de Guia <CecileLdeGuia@eurofinsus.com> wrote:

Good Morning,

Report for the additional request for STLC Lead is attached. Please let me know if we need to run for TCLP Lead since the result was over 5ppm.

Thank you.

Best regards,

Cecile de Guia
Project Manager
Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841-1427

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Jonathan Diaz

From: Cunningham, Debra E <debra.e.cunningham@exxonmobil.com>
Sent: Wednesday, March 16, 2016 8:48 AM
To: Jonathan Diaz
Subject: RE: 160119A / Soil From Drain Box at 3RD & ACE / ECI 16-03-0573

Jonathan –
Please perform additional analysis for STLC Lead.

Thanks

Debra Cunningham
Environmental Analyst
ExxonMobil Refining & Supply
3700 W. 190th Street
Torrance, CA 90504
310 212 1733 Tel
310 212 4681 Fax

From: Jonathan Diaz [mailto:JonathanDiaz@eurofinsUS.com]
Sent: Tuesday, March 15, 2016 6:27 PM
To: Brice, Alexandria /C; Alexandria Wadsworth Brice (Refinery) (Alexandria.Wadsworth-Brice@aecom.com); Kim, Amy M; Cunningham, Debra E; Erin Mckell (erinn.mckell@aecom.com); McKell, Erinn E /C; Pablo Mena (pablo.mena@veoliaes.com); Parker, Robert
Subject: 160119A / Soil From Drain Box at 3RD & ACE / ECI 16-03-0573

Analytical report & EDD for the above project is attached.

Thanks,
Jonathan

(714) 895-5494

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Notify us here to report this email as spam.

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7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

CHAIN OF CUSTODY RECORD

TRUE LAB USE ONLY: 16-03-0573

DATE: 3·7·16

PAGE: 1 OF 1

LABORATORY CLIENT: ExxonMobil

ADDRESS: 3700 W 190th Street

CITY: Torrance STATE: CA ZIP: 90509

TEL: 310-212-3879 E-MAIL:

CLIENT PROJECT NAME / NUMBER: 160119A SOIL FROM DRAIN BOX AT 3RD & ACE

P.O. NO.: 20379964

PROJECT CONTACT: ROBERT PARKER

SAMPLER(S): (PRINT) FERNANDO ARROYO

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAYS ☐ STANDARD

☐ COELT EDF GLOBAL ID: LOG CODE:

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (G)	TPH (D)	BTEX/MTBE (8021B)	VOCs (8260B)	SVOCs (8270C)	T22 METALS (6010B/747x)	BIOASSAY	IGNITABILITY (FP)
	160119A	3.7.16	1215	S	1						✓			✓		

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
[signature]	R Parker	3-7-16	1432
Elsa Camacho	[signature] ECI	03/08/16	13-40
[signature]	[signature] ECI	030816	1540

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08/02/14 Revision

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WORK ORDER NUMBER: 16-03- 0573

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: EXXONMOBIL

DATE: 03 / 08 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC4B (CF: +0.3°C); Temperature (w/o CF): 3.5 °C (w/ CF): 3.8 °C; ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: 804

CUSTODY SEAL:

Cooler	☐ Present and Intact	☐ Present but Not Intact	☑ Not Present	☐ N/A	Checked by: 804
Sample(s)	☐ Present and Intact	☐ Present but Not Intact	☑ Not Present	☐ N/A	Checked by: 681

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☐	☐	☑
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOAh ☐ VOAna$_2$ ☐ 100PJ ☐ 100PJna$_2$ ☐ 125AGB ☐ 125AGBh ☐ 125AGBp ☐ 125PB ☐ 125PBznna ☐ 250AGB ☐ 250CGB ☐ 250CGBs ☐ 250PB ☐ 250PBn ☐ 500AGB ☐ 500AGJ ☐ 500AGJs ☐ 500PB ☐ 1AGB ☐ 1AGBna$_2$ ☐ 1AGBs ☐ 1PB ☐ 1PBna ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☑ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (____) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (_____): ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO_3, na = NaOH, na$_2$ = $Na_2S_2O_3$, p = H_3PO_4, s = H_2SO_4, u = ultra-pure, znna = $Zn(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: 681

Reviewed by: 836

2015-04-10 Revision

Return to Contents

ATTACHMENT D

WASTE MANAGEMENT

McKittrick Waste Treatment Site
56533 Highway 58 West
McKittrick, CA 93251
(661) 762-7366
(661) 762-7696 FAX

April 29, 2016

Dan Carlson (Electronic Submittal)
Regional Water Quality Control Board
1685 "E" Street
Fresno, CA 93706-2025

Elizabeth King (7013 1090 0001 6072 8373)
Kern County Environmental Health Services Department
2700 "M" Street, Suite 300
Bakersfield, CA 93301-2370

Steve Miller (7013 1090 0001 6072 8380)
San Joaquin Valley Unified Air Pollution Control District
34946 Flyover Court
Bakersfield, CA 93308

Department of Toxic Substances Control (7013 1090 0001 6072 8366)
Statewide Compliance Division
1515 Tollhouse Road
Clovis, CA 93706-2025

RECEIVED
DEPT. OF TOXIC
SUBSTANCES CONTROL
2016 APR 32 PM 12:05
CLOVIS REGIONAL OFFICE

RE: LIQUID WASTE MANAGEMENT, INC. – McKITTRICK FACILITY
REJECTED LOADS EXCEEDING RCRA LIMITS – 1st QUARTER 2016

Liquid Waste Management, Inc. is permitted for the disposal of non-hazardous Class II waste. All incoming waste is profiled accordingly, and trucks arrive at the facility on a non-hazardous waste manifest. During the First Quarter of 2016, no trucks were rejected for exceeding RCRA limits.

The facility did receive/landfill 1.09-tons of California-Hazardous soil, with a soluble lead concentration of 9.32 mg/L (Waste Extraction Test (WET) method), from ExxonMobil on 3/22/16. The Central Valley Water Board (Dan Carlson) is currently consulting with the Department of Toxic Substances Control (Dan Lynch) to determine proper management of this waste.

If you have any questions regarding this matter, please contact me at (661) 912-0082.

Sincerely,

Fred Paap
District Manager
McKittrick Waste Treatment Site

ATTACHMENT E

ExxonMobil
Refining & Supply Company
3700 West 190th Street
Torrance, California 90504-2929

ExxonMobil
Refining & Supply

May 4, 2016

VIA E-MAIL

Mr. Dan Carlson
Central Valley Regional Water Quality Control Board
1685 "E" Street
Fresno, California 93706-2025

RE: McKittrick Landfill - Non-Conforming Waste Disposal Occurrence

Mr. Carlson,

Below please find the information you requested related to the ~1.33 cubic yards of soil from the ExxonMobil Oil Corporation Torrance Refinery ("Torrance Refinery") that was mistakenly labeled as non-hazardous and disposed of at Waste Management's McKittrick Facility. This information was emailed to Mr. Jim McCarron from the Los Angeles County Fire Department (LACoFD) on 4/29/16, in response to his request on 4/27/16.

Issue:
On 3/22/16, four drums of soil (approximately 1.33 cubic yards of soil) were shipped out as non-hazardous from the Torrance Refinery (EPA ID# CAD008354052) to Waste Management McKittrick Landfill (WM), a non-hazardous landfill in Kern County, California (EPA ID# CAD980636831). On 3/30/16 we received additional sampling results and determined that the ~1.33 cubic yards of soil had been mislabeled.

Investigation:
Based on an initial investigation into the potential causes for this error, it appears that the 1.33 cubic yards of soil in question was mistakenly shipped out before the STLC sampling results were received.

Per Torrance Refinery protocol, all waste containers are issued a dedicated waste ID prior to use,. This waste ID carries over to a unique sampling ID, and the waste is then sampled in order to make a determination on whether it is

RCRA, non-RCRA, or non-hazardous. In this case, the initial TTLC screening result for lead was 80.8 mg/kg and, per Refinery procedure, further analysis for STLC was requested. However, prior to receiving the STLC sampling results, the ~1.33 cubic yards of soil was inadvertently assigned a non-hazardous determination. Based on this non-hazardous determination, the on-site waste management team consolidated the four drums (~1.33 cubic yards) into a similarly profiled soil roll-off bin and on 3/22/16 shipped the bin to WM with a non-hazardous declaration. On 3/30/16, the STLC sampling results were received indicating 9.32 mg/L for lead, which is over the 5.0 mg/L non-RCRA lead threshold.

Further testing for TCLP was performed and on 4/1/16 the sampling results were received indicating 0 mg/L for lead. Therefore, the ~1.33 cubic yards of soil waste stream was not RCRA hazardous. The analytical reports for the original TTLC results, the STLC lead result and the TCLP result are attached for your reference.

Discovery and Notification:
When the STLC sampling results were received and processed through the Torrance Refinery's waste database on 3/30/16, it was discovered that the waste had already been shipped out. On this same day, the Torrance Refinery contacted WM to notify them of the error and to cordon off the area where the material was placed in the landfill so that no further waste was added. In addition, Torrance Refinery provided the information necessary for WM to notify their governing agencies in order to make a determination on the appropriate next steps required, if any.

In addition, Torrance Refinery's CUPA, LACoFD, was notified of the error. On 3/30/16, a voicemail was left for Mr. Jojo Commandante at LACFD, followed by a phone call with Mr. Commandante on 3/31/16.

Contributing Causes:
It was determined that the following were contributing causes:

1. The Refinery uses a waste database to assist with understanding when the waste requires further analysis. The waste database properly identified that further STLC analysis was required for lead for the ~1.33 cubic yards of soil, but the disposition as non-hazardous was issued prior to receiving the sampling results of the STLC analysis. The database did not prevent this from occurring.
2. The quality check performed for the STLC sampling results for the ~1.33 cubic yards of soil failed to recognize that the lead level in the soil exceeded the 5.0 mg/L non-RCRA lead threshold.

Corrective Actions:
The following corrective actions have been identified and will be implemented by the Torrance Refinery to enhance the existing quality checks the Refinery has in place, and to prevent a reoccurrence of a similar incident:

1. Develop a data management procedure to ensure waste streams for which analytical results are pending are separated from waste streams which are ready for disposition.
2. Implement a database feature to prevent disposition reports from being issued prior to receiving all pending analytical results.
3. Develop analytical results quality check procedure/protocol.

As WM noted in their communication to their governing agency, the non-conforming waste (1.33 cubic yards of soil) was disposed of in a module whose containment system consists of a composite liner and leachate collection and removal system, and deposited on top of approximately 75 feet of existing waste in a cell that generates minimal amounts of leachate. Furthermore, the pH of the leachate from that particular module has historically been neutral, and therefore, less likely to leach out lead. As a result of the thickness of the underlying waste mass, the low volume of leachate generation, the non-acidic pH of the leachate and the robust nature of the liner design, it is extremely unlikely that the lead in the non-conforming waste would affect the groundwater.

Pending Actions:
We are waiting to hear back from WM regarding any instructions and/or additional corrective actions required. We will continue to work with WM to make sure the waste is handled appropriately per their agencies instructions.

Please let me know if I can answer any further questions.

Sincerely,

David Ingram
Safety, Security, Health and
Environmental Manager -
Torrance Refinery

ATTACHMENT F

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Barbara A. Lee, Director
1515 Tollhouse Road
Clovis, California 93611

Edmund G. Brown Jr.
Governor

July 12, 2016

Mr. Fred Papp
District Manager
Liquid Waste Management, Inc.
McKittrick Waste Treatment Site
56533 Highway 58 West
McKittrick, CA 93251

Certified: 70140150000098754393

Dear Mr. Papp:

On May 5, 2016, the Department of Toxic Substances Control (DTSC) received a letter from you dated May 2, 2016 notifying DTSC of a discharge of hazardous waste at Liquid Waste Management, Inc.'s McKittrick Waste Treatment Site (LWMMS) located at 56533 Highway 58 West, McKittrick, California 93251. Specifically, you reported that LWMMS received a non-conforming waste from ExxonMobil's Torrance Refinery (EMTR) and LWMMS disposed of the non-conforming waste in the Module A landfill at LWMMS. In this letter you propose to manage the non-conforming waste in place.

DTSC's review of a letter dated April 8, 2016 you sent to Kern County Environmental Health Services Department and the Central Valley Regional Water Quality Control Board describe that on March 22, 2016, EMTR shipped 9.35 tons of soil to LWMMS manifested as non-hazardous and LWMMS disposed of the 9.35 tons of soil in their Module A Class II landfill. On March 30, 2016, EMTR notified LWMMS that 1.09 tons of the 9.35 ton load was soil they had mixed in with the load and that subsequent Soluble Threshold Limit Concentration (STLC) sample analysis results of the 1.09 tons detected 9.32 mg/L for lead. The STLC hazardous waste threshold limit for lead is 5.0 mg/L. EMTR reported the cause of the incident as human error. You further describe that Module A consists of a composite liner and leachate collection and removal system (LCRS) design that exceeds Title 27, California Code of Regulations for Class II landfills, produces an average of 300 gallons of leachate per month, and the Module A's pH readings have averaged 6.62 over the past three years.

You propose that the material be managed in place because of the thickness of the underlying waste mass of 75 feet, the low volume of leachate generated in Module A, the non-acidic pH of the leachate, the robust nature of the liner (LCRS design), the minimal amount of lead contaminated soil disposed of in Module A, the relatively low level of lead in the contaminated soil (9.32 mg/L), that LWMMS believes it's extremely unlikely the lead will solubilize and migrate to the liner let alone the groundwater, the

DL:smk
DL03.0716

difficulty in finding the contaminated soil (the soil was buried on top of 75 feet of waste and now has ten feet of non-hazardous soil covering the contaminated soil), and because of the inherent risks and environmental impacts of doing extensive excavation if LWMMS is ordered to dig up the contaminated soil.

DTSC's Environmental Chemistry Laboratory (ECL) staff was consulted regarding the 9.35 tons of soil disposed at LWMMS. ECL was informed that analytical results submitted on June 16, 2016 to DTSC stated that 1.09 tons of the soil had Waste Extraction Test (WET) (STLC) results of 9.32 mg/L for lead and 8.26 tons of the soil had Total Threshold Limit Concentration (TTLC) test results of 32.9 mg/kg. In conferring with ECL the conclusion is that since the total concentration (TTLC) for lead taken from the 8.26 tons was 32.9 mg/kg then the theoretical maximum soluble concentration (STLC) of lead for the 8.26 tons would be 3.29mg/L. Of the total tons of soil that was disposed, 1.09 tons was hazardous and 8.26 tons were non-hazardous. In other words, 88% of the waste was non-hazardous (with a theoretical maximum calculation of 3.29 mg/L soluble lead as measured by the Waste Extraction Test) and 12% was hazardous, with a measured 9.32 mg/L soluble lead concentration. The table below depicts that 12% of 9.32 mg/L = 1.12 mg/L and 88% of 3.29 mg/L = 2.90 mg/L of WET soluble lead, respectively.

	lead WET value		
12% of soil (4 drums)	9.32 mg/L (measured)	= 1.12 mg/L	
88% of soil	3.29 mg/L (theoretical maximum WET value)	= 2.90 mg/L	
		4.02 mg/L (theoretical calculation of WET lead value for contents of roll off bins	

Assuming that the contamination of lead in the soil was uniform, the theoretical mathematical calculation of the WET value would be 4.02 mg/L, which is under the regulatory STLC value of 5 mg/L. Based on the above information, it is likely that the combined contents of the roll-off bin, that which was disposed at LWMMS, was non-hazardous. DTSC contacted Kern County Environmental Health Services Department and the Central Valley Regional Water Quality Control Board regarding DTSC's findings and both parties had no issues of concern with the findings.

DTSC, therefore, requires no further action be taken with respect to the disposed soil in the Module A landfill.

DL:smk
DL03.0716

If you have any questions or concerns regarding this letter, please contact me at (559) 297-3955.

Sincerely,

Dan Lynch

Dan Lynch
Senior Environmental Scientist (Supervisor)
Hazardous Waste Management Program – Enforcement Division
Department of Toxic Substances Control

cc: Mr. Dan Carlson
Senior Engineering Geologist
Regional Water Quality Control Board
1685 "E" Street
Fresno, California 93706-2025

Mr. Chad San Juan
R.E.H.S. Environmental Health Specialist
Kern County Environmental Health Services Department
2700 "M" Street, Suite 300
Bakersfield, California 93301

Mr. Robert G. Henry
Senior District Manager
Chemical Waste Management, Inc.
Kettleman Hills Facility
Post Office Box 471
35251 Old Skyline Road
Kettleman City, California 93239

Ms. Maria Soria
Branch Chief
Hazardous Waste Management Program
Enforcement Division
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, California 94710-2721

Ms. Diana Peebler
Senior Environmental Scientist (Supervisor)
Hazardous Waste Management Program
Enforcement Division
Department of Toxic Substances Control
700 Heinz Avenue

DL:smk
DL03.0716

Berkeley, California 94710-2721

Ms. LeeAnn Young
Environmental Scientist
Hazardous Waste Management Program – Enforcement Division
Department of Toxic Substances Control
1515 Tollhouse Road
Clovis, California 93611

DL:smk
DL03.0716

ATTACHMENT G

WASTE MANAGEMENT

McKittrick Waste Treatment Site
56533 Highway 58 West
McKittrick, CA 93251
(661) 762-7366
(661) 762-7696 FAX

May 2, 2016

Dan Lynch
Department of Toxic Substances Control (DTSC)
1515 Tollhouse Road
Clovis, CA 93611-0522

RE: McKittrick Waste Treatment Site (MWTS) – Non-Conforming Waste Disposal

Dear Mr. Lynch:

Per the facility's Waste Discharge Requirements Order R5-2015-0080 (WDRs), we are providing notification of the discharge of hazardous waste, as required by Discharge Specification B.7.

We received information from ExxonMobil's Torrance Refinery on 30 March 2016 that they shipped non-conforming waste to our facility on 22 March 2016, using a non-hazardous waste manifest. The shipment included 1.09-tons of soil with a soluble lead concentration of 9.32 mg/L (Waste Extraction Test (WET) method). Subsequent Toxicity Characteristic Leaching Procedure (TCLP) analysis showed 0 mg/L, indicating it is not a regulated RCRA hazardous waste.

Due to various reasons outlined in our letter to the RWQCB and LEA (attached), MWTS proposes to manage this material in place. In addition to the RWQCB and LEA, we are seeking agreement from the DTSC with the proposed management and that no further action will be required.

Please contact me, if you have any questions, or need additional information.

Sincerely,

Fred Paap
District Manager
McKittrick Waste Treatment Site

RECEIVED
DEPT. OF TOXIC
SUBSTANCES CONTROL
2016 MAY -5 AM 11:22
CDTS REGIONAL OFFICE

Enclosures: MWTS e-mail (1 April 2016)
MWTS letter (8 April 2016)
ExxonMobil Investigation Summary
ExxonMobil's TCLP Analytical Laboratory Report (Eurofins)

cc: Daniel Carlson, Central valley Regional Water Quality Control Board, Fresno
Elizabeth King, Kern County Environmental Health Department, Bakersfield

WASTE MANAGEMENT

McKittrick Waste Treatment Site
56533 Highway 58 West
McKittrick, CA 93251
(661) 762-7366
(661) 762-7696 FAX

April 8, 2016

Elizabeth King (7013 1090 0001 6072 8281)
Kern County Environmental Health Services Dept.
2700 "M" Street, Suite 300
Bakersfield, CA 93301

Dan Carlson (7013 1090 0001 6072 8274)
Regional Water Quality Control Board
1685 "E" Street
Fresno, CA 93706-2025

RE: McKittrick Waste Treatment Site – Non-Conforming Waste Disposal Occurrence

Dear Ms. King and Mr. Carlson:

This letter serves as follow-up communication to the e-mail notification transmitted to you last week regarding our initial findings related to the subject non-conforming waste disposal occurrence at the McKittrick Waste Treatment Site (MWTS). As reported in our initial e-mail, on March 30, 2016, we received information from ExxonMobil's Torrance Refinery (generator) that they shipped non-RCRA hazardous waste into the MWTS on 3/22/16. The shipment, totaling 9.35-tons, was initially characterized by the generator as bulk 'non-hazardous'. The generator has since notified MWTS that it included approximately 1.09-tons of soil from four drums determined by the generator (on 3/30/16) to be non-RCRA hazardous for lead. The remaining 8.26-tons of the bulk shipment was correctly characterized as non-hazardous soil. The following is a summary of the investigation into the cause and circumstances of this incident, as well as our recommended management method.

According to the generator (see attached summary), the cause for the erroneous shipment was human error. It is the refinery's protocol that all waste containers (prior to use) are issued a dedicated waste ID. The waste ID carries over to a unique sampling ID when the waste is sampled to make a RCRA, non-RCRA, or non-hazardous determination. In this case, the initial TTLC results for lead in the four drums was 80.8 mg/kg (below the 1,000 mg/kg non-RCRA lead threshold), and further testing for STLC was requested. However, prior to receiving the results of the STLC analysis, a determination was made that the drummed soil was non-hazardous, and a non-hazardous disposition report was prematurely issued.

Based on the non-hazardous determination, the generator's onsite waste management team proceeded to consolidate the contents of the four drums into a similarly profiled non-hazardous soil roll-off bin, and shipped it to MWTS with a non-hazardous manifest. The manifest and site specific MWTS profile for the waste both indicated non-hazardous characterization, so it was accepted for disposal per MWTS's waste acceptance protocol. Following disposal of the waste, ExxonMobil received from its lab the results for the lead STLC, which came back as 9.32 mg/L, or 4.32 mg/L over the 5.0 mg/L non-RCRA lead threshold. Subsequent to our initial e-mail to you on this matter, on 4/1/16, the generator received the TCLP results for the soil from the drums, and the result was 0 mg/L indicating that it is not a regulated RCRA hazardous waste (see attached analytical).

ED_001593_00021361

WASTE MANAGEMENT

The non-conforming waste was disposed of in Module A at the MWTS. The containment system in Module A consists of a composite liner and leachate collection and removal system (LCRS) that exceeds the requirements of 27 CCR for a Class II Landfill (liner consists of two feet of clay with $1X10^{-6}$ cm/s permeability overlain by a 60-mil HDPE liner). Furthermore, the waste was deposited on top of approximately 75-feet of existing waste, in a cell that generates minimal amounts of leachate, averaging about 300-gallons/month.

Module A's leachate pH-levels have averaged about 6.62 over the last 3-years. This is much closer to neutral than the solution used in the STLC test (5.0), and therefore less likely to leach-out lead that may be present in the non-conforming waste. Due to the thickness of the underlying waste mass, the low volume of leachate generation, the non-acidic pH of the leachate, and the robust nature of the liner/LCRS design, it is extremely unlikely that the lead in the non-conforming waste will solubilize and migrate to the liner system, let alone affect the groundwater.

Due to the minimal amount of waste, the relatively low-levels of lead, the inherent difficulty of finding or distinguishing a specific non-containerized waste soil which is commingled with and covered by approximately 10-feet of other waste soil, and the inherent health & safety risks and environmental impacts associated with extensive excavation in a Class II landfill, MWTS proposes to manage this material in place. Hence, at this time, we seek your agreement with the proposed management and that no further action will be required.

Sincerely,

Fred Paap
District Manager
McKittrick Waste Treatment Site

Enclosures: ExxonMobil Investigation Summary
ExxonMobil's TCLP Analytical Laboratory Report (Eurofins)

cc: Paul Willman - Waste Management
Andrew Kenefick - Waste Management

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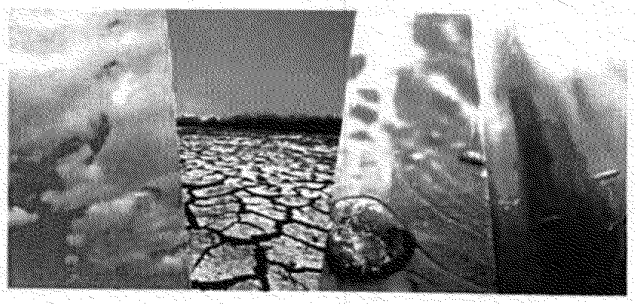
Supplemental Report 2

Additional requested analyses are reported as a stand-alone report.

WORK ORDER NUMBER: 16-03-0573

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: ExxonMobil Oil Corporation

Client Project Name: 160119A / Soil From Drain Box at 3RD & ACE

Attention: Robert Parker
3700 West 190th Street
Torrance, CA 90509-5790

Approved for release on 04/01/2016 by:
Cecile deGuia
Project Manager

ResultLink ▸

Email your PM ▸

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Work Order Number: 16-03-0573

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Work Order Narrative

Work Order: 16-03-0573

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 03/08/16. They were assigned to Work Order 16-03-0573.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Sample Summary

Client:	ExxonMobil Oil Corporation 3700 West 190th Street Torrance, CA 90509-5790	Work Order:	16-03-0573
		Project Name:	160119A / Soil From Drain Box at 3RD & ACE
		PO Number:	4410266075
		Date/Time Received:	03/08/16 15:40
		Number of Containers:	1
Attn:	Robert Parker		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
160119A	16-03-0573-1	03/07/16 12:15	1	Solid

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Analytical Report

ExxonMobil Oil Corporation		Date Received:	03/08/16
3700 West 190th Street		Work Order:	16-03-0573
Torrance, CA 90509-5790		Preparation:	EPA 1311
		Method:	EPA 6010B
		Units:	mg/L
Project: 160119A / Soil From Drain Box at 3RD & ACE			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
160119A	**16-03-0573-1-A**	**03/07/16 12:15**	**Solid**	**ICP 7300**	**03/30/16**	**04/01/16 10:11**	**160331LA1**

Parameter	Result	RL	DF	Qualifiers
Lead	ND	0.100	1.00	

Method Blank	**099-14-021-1925**	**N/A**	**Aqueous**	**ICP 7300**	**03/30/16**	**04/01/16 09:34**	**160331LA1**

Parameter	Result	RL	DF	Qualifiers
Lead	ND	0.100	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

ED_001593_00021361

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Quality Control - Spike/Spike Duplicate

ExxonMobil Oil Corporation		Date Received:	03/08/16
3700 West 190th Street		Work Order:	16-03-0573
Torrance, CA 90509-5790		Preparation:	EPA 1311
		Method:	EPA 6010B
Project: 160119A / Soil From Drain Box at 3RD & ACE			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
16-03-2123-1	**Sample**	**Solid**	**ICP 7300**	**03/30/16**	**04/01/16 09:57**	**160331SA1**
16-03-2123-1	**Matrix Spike**	**Solid**	**ICP 7300**	**03/30/16**	**04/01/16 09:59**	**160331SA1**
16-03-2123-1	**Matrix Spike Duplicate**	**Solid**	**ICP 7300**	**03/30/16**	**04/01/16 10:00**	**160331SA1**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Lead	ND	5.000	4.956	99	4.828	97	84-120	3	0-7	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

ExxonMobil Oil Corporation		Date Received:	03/08/16
3700 West 190th Street		Work Order:	16-03-0573
Torrance, CA 90509-5790		Preparation:	EPA 1311
		Method:	EPA 6010B
Project: 160119A / Soil From Drain Box at 3RD & ACE			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-021-1925	**LCS**	**Aqueous**	**ICP 7300**	**03/30/16**	**04/01/16 09:35**	**160331LA1**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Lead	5.000	5.036	101	80-120	

RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 16-03-0573

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 6010B	EPA 1311	935	ICP 7300	1

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Glossary of Terms and Qualifiers

Work Order: 16-03-0573

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Cecile L de Guia

From: Mena, Pablo [pablo.mena@veolia.com]
Sent: Wednesday, March 30, 2016 1:09 PM
To: Cecile L de Guia
Subject: Re: 160119A / Soil From Drain Box at 3RD & ACE / ECI 16-03-0573

Cecile,

Can you still run a TCLP on this?

Regards,

Pablo Mena
Sr. Project Manager
Industrial Business
VEOLIA NORTH AMERICA

cell

+1 626 255 8845

107 S. Motor Avenue / Azusa, CA 91702
Pablo.Mena@veolia.com
www.veolianorthamerica.com

Resourcing the world VEOLIA

On 23 March 2016 at 09:36, Cecile L de Guia <CecileLdeGuia@eurofinsus.com> wrote:

Good Morning,

Report for the additional request for STLC Lead is attached. Please let me know if we need to run for TCLP Lead since the result was over 5ppm.

Thank you.

Best regards,

Cecile de Guia
Project Manager
Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841-1427

Return to Contents

Jonathan Diaz

From: Cunningham, Debra E <debra.e.cunningham@exxonmobil.com>
Sent: Wednesday, March 16, 2016 8:48 AM
To: Jonathan Diaz
Subject: RE: 160119A / Soil From Drain Box at 3RD & ACE / ECI 16-03-0573

Jonathan –
Please perform additional analysis for STLC Lead.

Thanks

Debra Cunningham
Environmental Analyst
ExxonMobil Refining & Supply
3700 W. 190th Street
Torrance, CA 90504
310 212 1733 Tel
310 212 4681 Fax

From: Jonathan Diaz [mailto:JonathanDiaz@eurofinsUS.com]
Sent: Tuesday, March 15, 2016 6:27 PM
To: Brice, Alexandria /C; Alexandria Wadsworth Brice (Refinery) (Alexandria.Wadsworth-Brice@aecom.com); Kim, Amy M; Cunningham, Debra E; Erin Mckell (erinn.mckell@aecom.com); McKell, Erinn E /C; Pablo Mena (pablo.mena@veoliaes.com); Parker, Robert
Subject: 160119A / Soil From Drain Box at 3RD & ACE / ECI 16-03-0573

Analytical report & EDD for the above project is attached.

Thanks,
Jonathan

(714) 895-5494

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Notify us here to report this email as spam.

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7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

CHAIN OF CUSTODY RECORD

WO.#/LAB USE ONLY: **16-03-0573**

DATE: 3·7·16

PAGE: 1 OF 1

LABORATORY CLIENT: ExxonMobil

ADDRESS: 3700 W 190th Street

CITY: Torrance STATE: CA ZIP: 90509

TEL: 310-212-3879 E-MAIL:

CLIENT PROJECT NAME / NUMBER: 160119A SOIL FROM DRAIN BOX AT 3PD&ACE

P.O. NO.: 20379964

PROJECT CONTACT: ROBERT PARKER

SAMPLER(S): (PRINT) FERNANDO ARROYO

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAYS ☐ STANDARD

☐ COELT EDF GLOBAL ID: LOG CODE:

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (G)	TPH (D)	BTEX/MTBE (8021B)	VOCs (8260B)	SVOCs (8270C)	T22 METALS (6010B/747x)	BRQASSAY	IGNITABILITY (FP)					
	160119A	3.7.16	1215	S	1						✓			✓							

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
[signature]	[signature]	3-7-16	1432
Elva Camacho	[signature] ECI	03/08/16	13-40
[signature]	[signature] ECI	030816	1540

08/02/14 Revision

ED_001593_00021361

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WORK ORDER NUMBER: 16-03- 0573

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: EXXON MOBIL

DATE: 03 / 08 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC4B (CF: +0.3°C); Temperature (w/o CF): 3.5 °C (w/ CF): 3.8 °C; ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: 804

CUSTODY SEAL:

Cooler	☐ Present and Intact	☐ Present but Not Intact	☑ Not Present	☐ N/A	Checked by: 804
Sample(s)	☐ Present and Intact	☐ Present but Not Intact	☑ Not Present	☐ N/A	Checked by: 681

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☐	☐	☑
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOAh ☐ VOAna_2 ☐ 100PJ ☐ 100PJna_2 ☐ 125AGB ☐ 125AGBh ☐ 125AGBp ☐ 125PB

☐ 125PBznna ☐ 250AGB ☐ 250CGB ☐ 250CGBs ☐ 250PB ☐ 250PBn ☐ 500AGB ☐ 500AGJ ☐ 500AGJs

☐ 500PB ☐ 1AGB ☐ 1AGBna_2 ☐ 1AGBs ☐ 1PB ☐ 1PBna ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☑ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (_____) ☐ EnCores® (_____) ☐ TerraCores® (_____) ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na_2** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **znna** = $Zn(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: 681

Reviewed by: 836

2015-04-10 Revision

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Barbara A. Lee, Director
1515 Tollhouse Road
Clovis, California 93611

Edmund G. Brown Jr.
Governor

COMPLAINT REPORT SUMMARY

CAL EPA Complaint ID #: 50633 Case #: 16-0816-0307

Date Complaint Received: August 10, 2016

Date of Report: September 26, 2016

Subject: ExxonMobil Oil Corporation - Torrance Refinery (ExxonMobil)

Doing Business As: Torrance Refining Company LLC

Note: As of July 1, 2016, the ExxonMobil facility located in Torrance, California was purchased by PBF Energy and is now known as Torrance Refining Company.

Mailing Address: 3700 West 190th Street, Torrance, California 90504

Allegation:

1) On March 22, 2016 ExxonMobil Oil Corporation - Torrance Refinery (ExxonMobil) treated hazardous waste without a permit from the Department of Toxic Substances Control (DTSC). Specifically, ExxonMobil consolidated 1.09 tons or approximately 1.33 cubic yards of soil containing soluble lead at a concentration of 9.32 mg/L with 8.26 tons of non-hazardous soil. The act of consolidating the lead contaminated soil with the non-hazardous soil is considered treatment of a hazardous waste. The lead analysis of the 1.09 tons or approximately 1.33 cubic yards of soil was conducted by using the Waste Extraction Test (WET) method. The 9.32 mg/L exceeds the Soluble Threshold Limit Concentration (STLC) of 5.0 mg/L for lead indicating the 1.09 tons of soil was a non-RCRA hazardous waste.

Summary and Findings/Disposition:

Through review of the documents listed below, DTSC determined ExxonMobil violated Health and Safety Code section 25201(a) for treating hazardous waste without having a DTSC permit.

LY:smk
LY11c.0916

ED_001593_00021362

Documents Reviewed:

Attachment A – Non-hazardous waste manifest # ZZ 00525133 transporting non-hazardous material (soil) from ExxonMobil to Liquid Waste Management - McKittrick Waste Treatment Site (LWMM), (1 page).

Attachment B – Analytical results from testing the four drums of soil, TTLC, STLC, TCLP, (9 pages).

Attachment C - April 27, 2016, Notice of Violation issued to Mr. Fred Paap, District Manager of LWMM by Mr. Daniel Carlson, Senior Engineering Geologist of the Central Valley Regional Water Quality Control Board (CVRWQCB), (20 pages).

Attachment D - April 29, 2016, LWMM 1st quarter 2016 Rejected Loads Exceeding RCRA Limits report to DTSC, CVRWQCB, Kern County Environmental Health Services Department, and San Joaquin Valley Unified Air Pollution Control District, (1 page).

Attachment E - May 4, 2016, Letter to Mr. Daniel Carlson, Senior Engineering Geologist of the CVRWQCB by Mr. David Ingram, Safety, Security, Health and Environmental Manager of ExxonMobil's Torrance Refinery, (3 pages).

Attachment F - July 12, 2016, DTSC letter sent to LWMM stating that no further action needed to be taken on the hazardous waste load that had been landfilled, (4 pages).

Attachment G - May 2, 2016, Letter to Mr. Dan Lynch, Senior Environmental Scientist (Supervisor) of DTSC by Mr. Fred Paap, District Manager of LWMM, (16 pages).

Disposition:

DTSC issued a violation to ExxonMobil for violation of Health and Safety Code section 25201(a) for the treatment of hazardous waste without having a DTSC permit, **(See cover letter to this report)**.

Recommendations:

Based upon DTSC's determination that ExxonMobil treated hazardous waste without having a permit from DTSC, it is recommended that DTSC pursue enforcement action for ExxonMobil violating Health and Safety Code, section 25201(a).

Inspection report sent to:

Mr. David L. Ingram
Manager – Health, Safety, and Environmental
Torrance Refining Company, LLC

LY:smk
LY11c.0916

Mr. Daniel L. Carlson, CEG, CHG
Senior Engineering Geologist
Central Valley Regional Water Quality Control Board

Ms. Maria Soria
Environmental Program Manager I
Hazardous Waste Management Program – Enforcement Division
Department of Toxic Substances Control

Mr. Dan Lynch
Senior Environmental Scientist (Supervisor)
Hazardous Waste Management Program – Enforcement Division
Department of Toxic Substances Control

Investigated By:

LeeAnn Young, Environmental Scientist, Lead

Signature: Original signed by LeeAnn Young Date: 9-26-16

Reviewed By:

Dan Lynch, Senior Environmental Scientist (Supervisor)

Signature: Original signed by Dan Lynch Date: 9/26/16

LY:smk
LY11c.0916

ED_001593_00021362

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Barbara A. Lee, Director
1515 Tollhouse Road
Clovis, California 93611

Edmund G. Brown Jr.
Governor

September 26, 2016

Mr. David Ingram
Manager – Health, Safety, and Environmental
Torrance Refining Company
3700 West 190th Street
Torrance, California 90504

Certified # 70140150000098753396

Dear Mr. Ingram:

On March 22, 2016, Exxon Mobil Oil Corporation - Torrance Refinery (ExxonMobil) shipped 9.35 tons of soil on a non-hazardous waste manifest, (# ZZ 00525133) to Liquid Waste Management - McKittrick Waste Treatment Site (LWMM), a Class II landfill. Prior to shipping the soil to LWMM, ExxonMobil had consolidated 1.09 tons or approximately 1.33 cubic yards of soil from four drums with 8.26 tons of non-hazardous soil that was stored in a roll-off bin, (total 9.35 tons). On March 30, 2016, ExxonMobil received Soluble Threshold Limit Concentration (STLC) analysis results for the 1.09 tons that reported a 9.32 mg/L result for lead which exceeds the regulatory threshold limit of 5.0 mg/L indicating the soil was non-RCRA hazardous waste. ExxonMobil also ran Toxicity Characteristic Leaching Procedure (TCLP) analysis on the soil from the four drums and the results reported on April 1, 2016 were 0 mg/L of lead indicating that the soil from the four drums was not a RCRA hazardous waste.

Based upon this information and review of correspondence and associated documents attached to this letter, DTSC has determined ExxonMobil violated the following hazardous waste control law:

Summary of Violations

Violation #1, (Class I Violation): Exxon Mobil Corp - Torrance Refinery violated Health and Safety Code, section 25201(a) in that on or about March 22, 2016, ExxonMobil treated soil by means of dilution without obtaining a hazardous waste facility permit from DTSC.

Specifically, ExxonMobil consolidated 1.09 tons or approximately 1.33 cubic yards of non-RCRA lead contaminated soil with 8.26 tons of non-hazardous soil, therefore diluting the 1.09 tons of non-RCRA lead contaminated soil.

LY:smk
LY11b.0916

Corrective Action: ExxonMobil shall implement the three corrective actions described in the May 4, 2016 letter from Mr. David Ingram, Safety, Security, Health and Environmental Manager at ExxonMobil Oil Corporation – Torrance Refinery to Mr. Dan Carlson at the Central Valley Regional Water Quality Control Board. By **October 14, 2016**, ExxonMobil shall submit a written description to DTSC demonstrating proof that these three corrective actions have been implemented.

This Summary of Violation letter, the attached complaint inspection report including attachments, and written responses you submit to DTSC will become public documents; you may request that any trade secret or facility security information be withheld from public disclosure. (See Health and Safety Code Section 25173, attached). If you wish to assert the trade secret privilege regarding any information stated in the aforementioned documents, please provide specific answers to each of the following questions, for each item of concern to DTSC by **October 7, 2016**.

1. To what extent is there knowledge of the information conveyed by the written response and/or document outside your business?

2. To what extent is there knowledge of the information conveyed by the written response and/or document by employees and others in your business?

3. To what extent have measures been taken to guard the secrecy of the written response and/or document?

4. Is the information valuable to competitors? If so, why?

5. Has there been substantial monetary expenditure in the development of the information?

6. Could the information be easily and properly acquired or duplicated by others?

DTSC will review your response for each item of concern to determine if the information in question should be treated as a trade secret and notify you accordingly.

If you have any questions regarding this Summary of Violation letter or the complaint inspection report, please contact Ms. LeeAnn Young, DTSC Environmental Scientist at (559) 297-3949.

LY:smk
LY11b.0916

Sincerely,

Original signed by Dan Lynch

Dan Lynch
Senior Environmental Scientist (Supervisor)
Hazardous Waste Management Program – Enforcement Division
Department of Toxic Substances Control

cc:

Ms. Maria Soria
Environmental Program Manager I
Hazardous Waste Management Program – Enforcement Division
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, California 94710

Mr. Daniel L. Carlson, CEG, CHG
Senior Engineering Geologist
Central Valley Regional Water Quality Control Board
1685 E Street
Fresno, California 93706

LY:smk
LY11b.0916

To: Schofield, John[Schofield.John@epa.gov]
From: Soria, Maria@DTSC
Sent: Wed 7/29/2015 4:49:31 PM
Subject: RE: Thursday

I leave for Clovis at lunch time. I want to avoid the commute traffic. I can let you know tomorrow morning my availability for tomorrow and Friday. I'm sure my supervisor in Clovis has scheduled in some break times.

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Wednesday, July 29, 2015 8:23 AM
To: Soria, Maria@DTSC
Subject: RE: Thursday

Maria,

What about this afternoon?

regards,

John

****

John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386

(415) 947-3530 (fax)
schofield.john@epa.gov
****

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From: Soria, Maria@DTSC [mailto:Maria.Soria@dtsc.ca.gov]
Sent: Tuesday, July 28, 2015 5:16 PM
To: Schofield, John
Subject: RE: Thursday

From the lab: We can do flashpoint testing and it is designed for liquid samples only, no solids.

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Tuesday, July 28, 2015 4:34 PM
To: Soria, Maria@DTSC
Subject: RE: Thursday

mmmm. Shell. Our lab is not certain they have the ability to run flashpoint. Does DTSC have the ability to run flashpoint locally? We will collect the sample (just one sample). I will find out later tomorrow if Region 9 lab can run the sample for flashpoint.

For the refinery inspection issue, is there some time tomorrow or Friday would could talk (1/2 hour most)?

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2

75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
(415) 947-3530 (fax)
schofield.john@epa.gov
****

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From: Soria, Maria@DTSC [mailto:Maria.Soria@dtsc.ca.gov]
Sent: Tuesday, July 28, 2015 2:59 PM
To: Schofield, John
Subject: RE: Thursday

I am in Clovis on Thursday and Friday. And I'm supposed to be off next week. The earliest would be August 10. Does this day or afterwards work for you?

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Tuesday, July 28, 2015 2:42 PM
To: Soria, Maria@DTSC
Subject: Thursday

Maria,

If I came by Thursday, are you available? If so, what is a good time?

The items I would like to discuss would be Shell, EBMUD, future refinery inspection, and general stuff.

John

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
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schofield.john@epa.gov
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To: Schofield, John[Schofield.John@epa.gov]
From: Soria, Maria@DTSC
Sent: Tue 7/28/2015 9:58:57 PM
Subject: RE: Thursday

I am in Clovis on Thursday and Friday. And I'm supposed to be off next week. The earliest would be August 10. Does this day or afterwards work for you?

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Tuesday, July 28, 2015 2:42 PM
To: Soria, Maria@DTSC
Subject: Thursday

Maria,

If I came by Thursday, are you available? If so, what is a good time?

The items I would like to discuss would be Shell, EBMUD, future refinery inspection, and general stuff.

John

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386

(415) 947-3530 (fax)
schofield.john@epa.gov
****

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To: Schofield, John[Schofield.John@epa.gov]
From: Wedell, Kelly
Sent: Fri 9/12/2014 7:40:07 PM
Subject: RE: TSDF Inspections For EPA

Gotcha- thanks that helps.

Kelly Wedell

Project Officer

Planning and State Development Office

US EPA Region 9

Phone:415-972-3735

Email: wedell.kelly@epa.gov

Mailing Address:

75 Hawthorne St., LND-1-1

San Francisco, CA 94105

From: Schofield, John
Sent: Friday, September 12, 2014 12:35 PM
To: Wedell, Kelly
Subject: RE: TSDF Inspections For EPA

SFY 15 ; FFY 14 (7 facilities); FFY 15 (remainder of facilities).

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
(415) 947-3530 (fax)
schofield.john@epa.gov
****

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From: Wedell, Kelly
Sent: Friday, September 12, 2014 12:09 PM
To: Schofield, John
Subject: RE: TSDF Inspections For EPA

Hi John-

Thanks! Just to clarify, is this for FY14 or for FY15?

-Kelly

Kelly Wedell

Project Officer

Planning and State Development Office

US EPA Region 9

Phone:415-972-3735

Email: wedell.kelly@epa.gov

Mailing Address:

75 Hawthorne St., LND-1-1

San Francisco, CA 94105

From: Schofield, John
Sent: Friday, September 12, 2014 12:01 PM
To: Wedell, Kelly
Subject: FW: TSDF Inspections For EPA

Kelly,

Here is the list of CA TSDF inspections that we will be performing instead of DTSC. There are a couple of these facilities that DTSC will also inspect (e.g., Rho-Chem) separately. However, under ACS system only one of the inspection will count towards ACS commitments. The number of TSD inspections expected for DTSC to complete for their current fiscal year should be reduced by the number of TSD facilities listed below.

John

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105

(415) 972-3386
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schofield.john@epa.gov
****

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From: Kewin, Paul@DTSC [mailto:Paul.Kewin@dtsc.ca.gov]
Sent: Friday, June 20, 2014 4:46 PM
To: Schofield, John
Cc: Kihara, Keith@DTSC; Soria, Maria@DTSC; Kou, Roberto@DTSC; Lampino, Carmelita@DTSC
Subject: TSDF Inspections For EPA

John –

Here are the facilities we would suggest that EPA inspect. I've included the last date of inspection (CEI), whether violations were found, and a couple of notes. Let me know if you have any questions on these.

Facility	ID Number	DTSC Last Inspected	Violations last inspection?	Notes
KW Plastics of California	CAD982435020	10/16/2012	No	Part of a current multi-media investigation
Veolia - Richmond	CAT080014076	2/20/2013	No	New RCRA permit issued 4/10/2014
Clean Harbors Buttonwillow	CAD980675276	6/15/2013	Class I	Recent DTSC settlement
Rho Chem	CAD008364432	5/21/2013	Class I	
Safety Kleen Fresno	CAD066113465	6/19/2013	No	
Clean Harbors Westmorland	CAD044429835	8/22/2013	No	

Safety Kleen LA	CAT000613935	3/26/2014	No
Crosby and Overton	CAD028409019	3/27/2014	No
Safety Kleen El Monte	CAT000613893	4/2/2014	No
Chevron El Segundo Refinery	CAD008336901	12/11/2012	No

To: Lynch, Philip@DTSC[Philip.Lynch@dtsc.ca.gov]; Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]; Schofield, John[Schofield.John@epa.gov]; Rios, Alfredo@DTSC[Alfredo.Rios@dtsc.ca.gov]; Kou, Roberto@DTSC[Roberto.Kou@dtsc.ca.gov]
Cc: Kihara, Keith@DTSC[Keith.Kihara@dtsc.ca.gov]
From: Tsuji, Denise@DTSC
Sent: Fri 3/3/2017 7:08:43 PM
Subject: RE: Update-Chevron - El Segundo Facility Inspection

Looks like a great team.

From: Lynch, Philip@DTSC
Sent: Friday, March 03, 2017 10:37 AM
To: Soria, Maria@DTSC <Maria.Soria@dtsc.ca.gov>; Schofield, John <Schofield.John@epa.gov>; Rios, Alfredo@DTSC <Alfredo.Rios@dtsc.ca.gov>; Kou, Roberto@DTSC <Roberto.Kou@dtsc.ca.gov>
Cc: Kihara, Keith@DTSC <Keith.Kihara@dtsc.ca.gov>; Tsuji, Denise@DTSC <Denise.Tsuji@dtsc.ca.gov>
Subject: RE: Update-Chevron - El Segundo Facility Inspection

No objections from Clovis EERD.

From: Soria, Maria@DTSC
Sent: Friday, March 03, 2017 9:57 AM
To: Schofield, John; Lynch, Philip@DTSC; Rios, Alfredo@DTSC; Kou, Roberto@DTSC
Cc: Kihara, Keith@DTSC; Tsuji, Denise@DTSC
Subject: RE: Update-Chevron - El Segundo Facility Inspection

I suggest the refinery team be the 4 staff to go: Andy, April, Brian and Danny Ho.

Any objections?

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Friday, March 03, 2017 9:38 AM
To: Soria, Maria@DTSC; Lynch, Philip@DTSC; Rios, Alfredo@DTSC; Kou, Roberto@DTSC
Cc: Kihara, Keith@DTSC
Subject: Update-Chevron - El Segundo Facility Inspection

All,

NEIC has request that we limit the number of DTSC personnel participating in the on-site inspection to 4. For classroom training there is no limit. Video conferencing no problem.

regards,

John

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

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To: Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]; Lynch, Philip@DTSC[Philip.Lynch@dtsc.ca.gov]; Peebler, Diana@DTSC[Diana.Peebler@dtsc.ca.gov]
From: Schofield, John
Sent: Mon 9/12/2016 7:08:23 PM
Subject: Inspection Notification, Tesoro, Golden Eagle Refinery, CAR000091488

Dan/Diana/Maria,

I will be conducting an unannounced RCRA compliance evaluation inspection of the referenced facility the week of September 26th (9/26-29/16). Andrew Chew, Region 9, Enforcement (Air) will accompany me on the first day and possibly the 3rd day of the inspection. This will not be joint Air and RCRA inspection. My understanding is Andrew needs to verify some facility information. Andrew is using the RCRA inspection to facilitate gathering this information.

DTSC and the CUPA are invited to participate in this inspection. Please notify, the CUPA of the planned inspection.

DTSC and the CUPA should contact me if planning on participating in the inspection so that we can coordinate meeting location and start times of the inspection.

If you have any questions concerning the inspection, please do not hesitate to contact me.

regards,

John

****

John Schofield
U. S. Environmental Protection Agency
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To: Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]
From: Schofield, John
Sent: Wed 9/7/2016 7:54:34 PM
Subject: RE: Basic Petroleum Refining Training Course - POSTPONED

Thanks for the update.

****
John Schofield
U. S. Environmental Protection Agency
Region 9
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75 Hawthorne Street
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From: Soria, Maria@DTSC [mailto:Maria.Soria@dtsc.ca.gov]
Sent: Wednesday, September 07, 2016 12:45 PM
To: Yang, Teng@DTSC <Teng.Yang@dtsc.ca.gov>; Wu, Brian@DTSC <Brian.Wu@dtsc.ca.gov>; Ho, Danny@DTSC <Danny.Ho@dtsc.ca.gov>
Cc: Lynch, Philip@DTSC <Philip.Lynch@dtsc.ca.gov>; Kou, Roberto@DTSC <Roberto.Kou@dtsc.ca.gov>; Lampino, Carmelita@DTSC <Carmelita.Lampino@dtsc.ca.gov>; Schofield, John <Schofield.John@epa.gov>; Kihara, Keith@DTSC <Keith.Kihara@dtsc.ca.gov>; Tsuji, Denise@DTSC <Denise.Tsuji@dtsc.ca.gov>; Ito, Alan@DTSC <Alan.Ito@dtsc.ca.gov>
Subject: FW: Basic Petroleum Refining Training Course - POSTPONED

FYI. Unfortunately, the refinery training in September has been postponed. As soon as I hear of the new dates I will let you know.

From: Matt.Kaufmann@hsd.cccounty.us [mailto:Matt.Kaufmann@hsd.cccounty.us]
Sent: Wednesday, September 07, 2016 10:41 AM
To: Adam.Springer@hsd.cccounty.us; Amanda.Ackerman@hsd.cccounty.us;

ChoNai.Cheung@hsd.cccounty.us; Chris.Tougeron@hsd.cccounty.us; Daniel.Vazquez@hsd.cccounty.us; David.Lecount@hsd.cccounty.us; Devra.Lewis@hsd.cccounty.us; Ellen.Dempsey@hsd.cccounty.us; Fahlon.Francis@hsd.cccounty.us; Habib.Amin@hsd.cccounty.us; Hung.Pham@hsd.cccounty.us; Ian.Williams@hsd.cccounty.us; Jessica.Droege@hsd.cccounty.us; Karine.Abramians@hsd.cccounty.us; Kevin.Ong@hsd.cccounty.us; Lacey.Friedman@hsd.cccounty.us; Maria.Duazo@hsd.cccounty.us; Melissa.Hagen@hsd.cccounty.us; Michael.Dossey@hsd.cccounty.us; Miguel.Rizo@hsd.cccounty.us; Nick.Umemoto@hsd.cccounty.us; Nicole.Heath@hsd.cccounty.us; Paris.Greenlee@hsd.cccounty.us; Sara.Dwight@hsd.cccounty.us; Seth.Heller@hsd.cccounty.us; Susan.Psara@hsd.cccounty.us; Tod.Hickman@hsd.cccounty.us; Trisha.Asuncion@hsd.cccounty.us; Xavier.Bryant@hsd.cccounty.us; ajsemenza@comcast.net; ccccaer@pacbell.net; Erika.Jenssen@hsd.cccounty.us; Jesse.Allured@hsd.cccounty.us; Joe.Doser@hsd.cccounty.us; Lawrence.Kathryn@epa.gov; Matta, Lisa@DIR; Randy.Sawyer@hsd.cccounty.us; rkova@so.cccounty.us; rmars@cccfpd.org; Steve.Morioka@hsd.cccounty.us; Balladares, Victoria (Contra Costa County); Soria, Maria@DTSC; Thomas.Warne@hsd.cccounty.us; Steiner.Cyntia@epa.gov; Nixon.Donald@epa.gov
Subject: Fw: Basic Petroleum Refining Training Course - POSTPONED

Good morning,

Due to unforeseen circumstances, the Basic Petroleum Refining Training scheduled for September 27-28, 2016 has been **postponed**. Contra Costa Health Services Hazardous Materials Programs will contact you once another date is scheduled. We apologize for any inconvenience.

Kind Regards,

Matt Kaufmann
Assistant Director of Hazardous Materials
4585 Pacheco Boulevard, Suite 100
Martinez, CA 94553-2233
Office: (925) 335-3235
Fax: (925) 646-2073

----- Forwarded by Matt Kaufmann/HazMat/HSD/US on 09/07/2016 10:23 AM -----

From: Matt.Kaufmann@hsd.cccounty.us
To: Adam.Springer@hsd.cccounty.us, Amanda.Ackerman@hsd.cccounty.us, ChoNai.Cheung@hsd.cccounty.us, Chris.Tougeron@hsd.cccounty.us, Daniel.Vazquez@hsd.cccounty.us, David.Lecount@hsd.cccounty.us, Devra.Lewis@hsd.cccounty.us, Ellen.Dempsey@hsd.cccounty.us, Fahlon.Francis@hsd.cccounty.us, Habib.Amin@hsd.cccounty.us, Hung.Pham@hsd.cccounty.us, Ian.Williams@hsd.cccounty.us, Jessica.Droege@hsd.cccounty.us, Karine.Abramians@hsd.cccounty.us, Kevin.Ong@hsd.cccounty.us, Lacey.Friedman@hsd.cccounty.us, Maria.Duazo@hsd.cccounty.us, Melissa.Hagen@hsd.cccounty.us, Michael.Dossey@hsd.cccounty.us, Miguel.Rizo@hsd.cccounty.us, Nick.Umemoto@hsd.cccounty.us, Nicole.Heath@hsd.cccounty.us, Paris.Greenlee@hsd.cccounty.us, Sara.Dwight@hsd.cccounty.us, Seth.Heller@hsd.cccounty.us, Susan.Psara@hsd.cccounty.us, Tod.Hickman@hsd.cccounty.us, Trisha.Asuncion@hsd.cccounty.us, Xavier.Bryant@hsd.cccounty.us, ajsemenza@comcast.net, ccccaer@pacbell.net, Erika.Jenssen@hsd.cccounty.us, Jesse.Allured@hsd.cccounty.us, Joe.Doser@hsd.cccounty.us, Lawrence.Kathryn@epa.gov, lmatta@dir.ca.gov, Randy.Sawyer@hsd.cccounty.us, rkova@so.cccounty.us, rmars@cccfpd.org, Steve.Morioka@hsd.cccounty.us, Victoria.Balladares@hsd.cccounty.us,
Date: 06/20/2016 09:44 AM
Subject: Basic Petroleum Refining Training Course - Save the Date

---

Good morning,

The Contra Costa Health Services Hazardous Materials Division and Contra Costa County Community

Awareness and Emergency Response (CAER) organization have worked closely together to schedule a two-day Basic Petroleum Refining Training Course (schedule for September 27-28, 2016). The training course is schedule for 8:30 AM to 5:00 PM both days. Food will be provided by Contra Costa County CAER. The following refineries will present information regarding the basic operations/units at petroleum refineries: Chevron, Phillips 66, Shell, and Tesoro. More information will be sent out as we get closer to the training event.

For now, please see below for the allocated number of training spots for each agency/organization:

Number of Training Spots Per Agency/Organization:

Contra Costa Health Services HazMat: 28
Contra Costa Health Services Public Health: 5
Contra Costa Health Services Emergency Medical Services: 4
Contra Costa Health Services Environmental Health: 2
Contra Costa Health Services Community Education and Information: 2
Contra Costa County Fire Protection District: 14
Contra Costa Sheriff's Office - Office of Emergency Services: 3
CalOSHA: 15
Federal Environmental Protection Agency: 3

Total Number of Participants: 76

Should you have any questions, please contact Cho Nai Cheung (925-335-3212) or me (925-335-3235). Thank you!

Kind Regards,

Matt Kaufmann
Assistant Director of Hazardous Materials
4585 Pacheco Boulevard, Suite 100
Martinez, CA 94553-2233
Office: (925) 335-3235
Fax: (925) 646-2073

To: roberto.kou@dtsc.ca.gov[roberto.kou@dtsc.ca.gov]; Alfredo.Rios@dtsc.ca.gov[Alfredo.Rios@dtsc.ca.gov]
From: Schofield, John
Sent: Thur 2/16/2017 6:00:00 PM
Subject: Chevron-El Segundo Refinery Inspection and Training

Alfredo/Robert,

First, Alfredo congratulations on your new position.

I am sure Maria will be contacting you separately. It appears the week of April 17th is the best week for the training. Monday would be classroom refinery training and field training the rest of the week. My understanding is that Danny Ho and Brian Wu are part of the refinery team. It is hoped that this week fits in with their schedule.

Maria wants to video conference the classroom training to all DTSC offices interested in the training. EPA has assumed either Chatsworth or Cypress Office would be where the training would be held.

If you could confirm by EOB today that the schedule works for you and your staff, that would be greatly appreciated.

regards,

John

****

John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2

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San Francisco, CA 94105
(415) 972-3386
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To: michael.monson@shell.com[michael.monson@shell.com]; Larry.Ramirez@dtsc.ca.gov[Larry.Ramirez@dtsc.ca.gov]; Melissa.Hagen@hsd.cccounty.us[Melissa.Hagen@hsd.cccounty.us]; Lin, Sharon[Lin.Sharon@epa.gov]
From: Schofield, John
Sent: Thur 4/2/2015 11:15:17 PM
Subject: RE: Remaining Information Requested

Thanks for the update. Appreciate it very much.

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
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San Francisco, CA 94105
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From: michael.monson@shell.com [mailto:michael.monson@shell.com]
Sent: Thursday, April 02, 2015 4:11 PM
To: Schofield, John; Larry.Ramirez@dtsc.ca.gov; Melissa.Hagen@hsd.cccounty.us; Lin, Sharon
Cc: michael.monson@shell.com
Subject: Remaining Information Requested

John,

Just wanted to send you a quick update. I'm still gathering the remaining information that had been requested, and should have it to you by the end of next week.

Michael Monson

Staff Engineer - Environmental

Martinez Refinery, 3485 Pacheco Blvd, Martinez CA 94553

Phone: 925-313-5516

Email: michael.monson@shell.com

Internet: http://www.shelloilproductsus.com/

To: DeMarco, Daniel@DTSC[Daniel.DeMarco@dtsc.ca.gov]; Lin, Sharon[Lin.Sharon@epa.gov]
From: Schofield, John
Sent: Tue 10/10/2017 4:03:43 PM
Subject: RE: Response to Tesoro/Andeavor

Danny/Sharon,

Call this number at 9:15 Conference Bridge Call In Number: 415-947-8200, Conference Number 415-972-9200, Participant Code 460070.

regards,

John

****
John Schofield
U. S. Environmental Protection Agency
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Enforcement Division

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From: DeMarco, Daniel@DTSC [mailto:Daniel.DeMarco@dtsc.ca.gov]
Sent: Tuesday, October 10, 2017 8:55 AM
To: Lin, Sharon <Lin.Sharon@epa.gov>; Schofield, John <Schofield.John@epa.gov>
Subject: RE: Response to Tesoro/Andeavor

I'm ready for a phone call whenever it is convenient for you both.

From: Lin, Sharon [mailto:Lin.Sharon@epa.gov]
Sent: Tuesday, October 10, 2017 8:42 AM
To: DeMarco, Daniel@DTSC <Daniel.DeMarco@dtsc.ca.gov>; Schofield, John <Schofield.John@epa.gov>
Subject: RE: Response to Tesoro/Andeavor

Hi, Daniel,

Thanks for the information. I thought they may be claiming oil bearing exclusion for petroleum refining wastes under 25143.2(d)(2)(B)? Perhaps three of us could have a quick call this morning?

Sharon

From: DeMarco, Daniel@DTSC [mailto:Daniel.DeMarco@dtsc.ca.gov]
Sent: Tuesday, October 10, 2017 8:08 AM
To: Schofield, John <Schofield.John@epa.gov>; Lin, Sharon <Lin.Sharon@epa.gov>
Subject: Response to Tesoro/Andeavor

Good Morning John and Sharon,

I'm preparing to send this response out to PSC, who is operating under a TTU PBR treatment to run a centrifuge on the foul and sour water tank (tank 650) at Andeavor Refinery. I'm hoping you both wouldn't mind telling me If I'm way off base with this response. I'm hoping to send this out some time this Morning. Thanks for your time!

Danny

Good Morning Brandon,

Thank you for your response. The only reason PSC is able to conduct the permit-by-rule treatment activities that it is conducting at the Tesoro/Andeavor refinery is because the treatment activities are federally exempt or excluded, in part because of the Code of Federal Regulations Title 40, section 261.4(a)(12) exclusion you referenced. As far as I'm aware, the regulation you cited was not adopted by the State of California and the federal exclusion does not exclude the secondary oil-bearing waste from the classification as solid waste in California, which means, according to the sampling results, the waste will likely be considered hazardous waste in California and the treatment activities PSC is conducting at the refinery would need to be permitted.

The State of California did adopt a similar recycling exclusion for secondary oil bearing waste into our California Health and Safety Code under section 25144. In order to be excluded from classification as waste, and excluded from the necessity of a transportable treatment unit permit from DTSC, you would need to meet all of the standards set forth in this section. From my understanding, the waste stream is water and sludge containing high quantities of ammonia and sulfur. The information I have received regarding the waste stream is the same analytical sampling results that you reviewed and submitted in your permit application to DTSC prior to beginning treatment. I saw no significant oil or hydrocarbon constituents to validate the claim that the "secondary oil-bearing waste" is in fact oil bearing or that the recycling that is being conducted is legitimate. Do you have any analytical results or statistics about the quantities of oil generated and recycled that have resulted from your treatment process? Any analytical results from tank 650 which would indicate the presence of recyclable oil?

I am still wanting to review the documents listed in the initial email to PSC from DTSC on September 29, 2017. The documents requested included:

- Written operating instructions and a record of the dates, volumes, residual management, and types of wastes treated in the units.
- Written inspection log.
- Waste analysis plan.
- Closure plan for the unit.
- Training records for the two employees identified during the inspection (Sean St. Pierre, Mike Brook).

- Contingency Plan.

Thank you.

Daniel DeMarco

Environmental Scientist

Department of Toxic Subtances Control

Enforcement and Emergency Response Unit

700 Heinz Avenue, Berkeley, CA

(510) 540-3841

To: Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]
Cc: Lin, Sharon[Lin.Sharon@epa.gov]; BELLAMY, KANDICE[bellamy.kandice@epa.gov]
From: Schofield, John
Sent: Wed 11/16/2016 10:30:47 PM
Subject: Notification RCRA Compliance Evaluation Inspection - PBF Energy, Torrance Refining Company, LLC, CAD08354052

Maria,

This is a follow-up to this afternoon's call. EPA will be conducting a CEI of the reference facility December 5-8, 2016. As stated in our telephone conversation EPA is requesting DTSC to also participate in the inspection. The EPA Inspection Team will be Kandice Bellamy (415-972-3304) and Sharon Lin (415-972-3346). Sharon is the inspection lead.

The general plan is to arrive at the facility the afternoon of December 5th to start the document/information gathering process. The next two full days will be the site inspection which will include evaluation of the facility processes to determine if these processes generated listed and/or characteristic HW (and how the HWs are managed).

In preparing for the inspection, the EPA Inspection Team is developing a list of documents EPA would like to see if DTSC had on hand that could be shared with Region 9 prior to the inspection.

Once a DTSC staff person(s) has been assigned, please have the person(s) contact Sharon to begin sharing information and coordinating the inspection schedule.

EPA looks forward to working with DTSC on this inspection.

regards,

John

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
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To: Lynch, Philip@DTSC[Philip.Lynch@dtsc.ca.gov]
Cc: Larry.Ramirez@dtsc.ca.gov[Larry.Ramirez@dtsc.ca.gov]; Yang, Teng@DTSC[Teng.Yang@dtsc.ca.gov]; Robert.Easley@dtsc.ca.gov[Robert.Easley@dtsc.ca.gov]; ROLLINS, CHRISTOPHER[rollins.christopher@epa.gov]; Lin, Sharon[Lin.Sharon@epa.gov]; Sakow, Rick[sakow.rick@epa.gov]
From: Schofield, John
Sent: Fri 3/20/2015 4:11:57 PM
Subject: Document List
Shell Martinez RefineryDocmentRequest.docx

Dan,

Please find attached the list of documents we either are going to request copies or request to review as part of the inspection. We plan to give this list to Shell as part of the in-briefing. Please review and add any documents/information that DTSC feels we are missing or DTSC would like to add. EPA wants to get this document list finalized by EOB today.

You may notice we have not asked detailed information regarding training. Our approach is to see which folks are actually doing environmental management work and take their names as we perform the inspection. Then during records review will have company pull training records for a randomly selected group of folks. If we see issues we will review more employees HW training records.

regards,

John

****
John Schofield
U. S. Environmental Protection Agency
Region 9
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Shell Martinez Refinery
EPA Records/Documents Request
(March 23-April 1, 2015)

General Procedure

Pursuant to EPA's authority set forth in Section 3007(a) of RCRA, 42 U.S.C. 6927(a), facilities subject to RCRA may be required to furnish information necessary for EPA to administer the Act. During the compliance investigation at Shell Martinez Refinery (SMR), EPA/DTSC inspectors will be reviewing records kept for your facility. In order to expedite this portion of the investigation, the agencies are providing SMR notification of the records that will likely be reviewed on-site. For most documents, the agencies will review the records on-site and request copies, if needed. In certain cases, document copies will be requested for later view at EPA. During the investigation, the agencies will work with SMR to develop a schedule to review these documents. If any of the documents requested can be claimed as Confidential Business Information per 40 CFR Part 2, Subpart B, please mark the documents in accordance with the Attachment 1.

The documentation/information requested below is not a complete list of the information EPA/DTSC may request during and following the inspection.

Part 1 - Records/Document Requested

1. Provide descriptions for all process areas including the following information:
    a. Simplified process flow diagrams (12 copies)
    b. Pollution control equipment
    c. Waste streams produced

2. Management organization chart (including environmental department) (1 copy)

3. Site map of the facility (12 copies)

4. Provide a list of solid/hazardous waste generated on-site by process area, equipment that generates it, and how it is handled (2 copies[1])

5. Provide all variances and/or exemption from the RCRA requirements along with any related correspondence (2 copies)

6. Provide any current delistings for hazardous wastes generated on-site and related correspondence (2 copies)

7. NPDES discharge permit and associated permit application (most recent version), including any separate storm water permit (2 copies).

[1] On copy for EPA and a copy to DTSC

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8. Any wastewater pretreatment permit agreements (2 copies)

9. Plans and/or written descriptions of the sewer system (including by-pass capability), monitoring stations, and outfall locations. Include process, sanitary, and stormwater sewers. (2 copies)

10. Description of all wastewater treatment systems, including schematic diagrams and any process changes (12 copies).

11. Provide a current status of RCRA permitted hazardous waste management units on-site; schedule for closure. (2 copies)

12. Documentation of off-site waste shipments for the past 3 years, including manifests and associated land disposal restriction (LDR) paperwork, bills of lading, recycling certifications (contracts), shipping records, etc. (1 copy each for review on-site)

13. Exception reports for any manifests not received back from the designated facility (last 3 years). (1 copy for review on-site)

14. Latest biennial report (1 copy for review on-site). Include documentation that verifies the submission date.

15. Plot plan showing locations of all less than 90-days accumulation areas and tanks. Also identify locations of all waste generation points and satellite accumulation areas (2 copies).

Part 2 – Documents likely to be requested by EPA inspectors (schedule to be determined)

1. Solid waste and hazardous waste determinations, and any waste analysis data used to support these determinations.

2. Documentation of any reportable spills and/or releases of hazardous substances at the facility for the last 3 years.

3. All records for responses to any reportable spills in the last 5 years, including types and quantities of materials spilled, locations, analytical data, and response measures taken.

4. Records of all hazardous waste shipped from an off-site facility for on-site treatment, recycling, or disposal.

5. Waste analysis plan for treating, storing, or disposing of any hazardous wastes.

6. Training plan, and employee training records for hazardous waste handlers, including job titles and descriptions and name of each employee.

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7. Contingency plan and documentation for any incidents that required implementation of the plan.

8. Inspection schedules, logs/summaries for all container storage areas and <90 day accumulation areas (last 3 years).

9. Groundwater analyses and reports for any surface impoundment(s), landfill, or land treatment facilities on-site.

10. For each of the facility ponds:

    a. Regulatory status, including any claimed exemptions
    b. Description of pond construction
    c. Description of the dimensions
    d. Description of pond maintenance activities including scope and frequency of inspections and repair
    e. Analysis of materials discharged into each pond
    f. Description of pond operations, such as aeration, skimming, cleaning, water cannons, dredging.
    g. Analysis of any sludges or wastewater contained in the pond

11. List of units, and supporting documentation, that are subject to applicable 40 CFR 264/265 Subpart AA. This applies to process vents associated with distillation, fractionation; thin-film evaporation, solvent extraction, or air/steam stripping operations that manage hazardous wastes with organic concentrations of at least 10 parts per million by weight (ppmw).

12. List of units, and supporting documentation, that are subject to applicable 40 CFR 264/265 Subpart BB. This applies to equipment that contains or contacts hazardous wastes with organic concentrations of at least 10% by weight.

13. List of units, and supporting documentation, that are subject to applicable 40 CFR 264/265 Subpart CC. This applies to tanks, containers, and surface impoundment that treat, store, or dispose of hazardous waste that contain a volatile organic concentration of more than 500 ppmw.

14. Documentation of ongoing corrective action activities including monitoring reports and workplans.

15. Any enforcement actions currently in effect or issued in the last 5 years (including Notices of Violation (NOVs), consent decrees, orders, and agreements), and all related correspondence and deliverables including monitoring reports under the agreements.

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Attachment 1
Confidential Information[2]

The information requested herein must be provided even though SMR may contend that it includes confidential information or trade secrets. SMR may assert a confidentiality claim covering part or all of the information requested, pursuant to Section 3007(b) of RCRA, 42 U.S.C. § 6927(b), and 40 C.F. R. § 2.203(b).

If you make a claim of confidentiality for any of the information SMR provides to EPA, you must prove that claim. For each document or response you claim confidential, you must separately address the following points:

i. clearly identify the portions of the information alleged to be entitled to confidential treatment;
ii. ii.. the period of time for which confidential treatment is desired (e.g., until a certain date, until the occurrence of a specific event, or permanently);
iii. measures taken by you to guard against the undesired disclosure of the information to others;
iv. the extent to which the information has been disclosed to others, and the precautions taken in connection therewith;
v. pertinent confidentiality determinations, if any, by EPA or other federal agencies, and a copy of any such determinations or reference to them, if available; and
vi. whether you assert that disclosure of the information would likely result in substantial harmful effects on your business' competitive position, and if so, what those harmful effects would be, why they should be viewed as substantial, and an explanation of the causal relationship between disclosure and such harmful effects.

To make a confidentiality claim, please stamp, or type, confidential on all confidential responses and any related confidential documents. Confidential portions of otherwise nonconfidential documents should be clearly identified. You should indicate the date, if any, after which the information need no longer be treated as confidential.

All confidentiality claims are subject to EPA verification. It is important that you satisfactorily show that you have taken reasonable measures to protect the confidentiality of the information and that you intend to continue to do so, and that it is not and has not been obtainable by legitimate means without your consent. If no such claim accompanies the information when it is received by EPA, then it may be made available to the public by EPA without further notice to you.

If the EPA determines that the information so designated meets the criteria set forth in 40 C.F.R. § 2.208, the information will be disclosed only to the extent, and by means of the procedures specified in 40 C.F.R. Part 2, Subpart B..

[2] DTSC has its CBI information claim/management requirements that are separate from EPA's.

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ED_001593_00021564

To: Carroll, Peter J.[Peter.J.Carroll@tsocorp.com]; Schlipf Robert (rschlipf@waterboards.ca.gov)[rschlipf@waterboards.ca.gov]
From: Schofield, John
Sent: Fri 4/22/2016 4:17:34 PM
Subject: RE: Microtox Paper and length of the Avon MOT

Peter,

Thanks. Much appreciated!!

John

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
(415) 947-3530 (fax)
schofield.john@epa.gov
****

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From: Carroll, Peter J. [mailto:Peter.J.Carroll@tsocorp.com]
Sent: Friday, April 22, 2016 8:55 AM
To: Schlipf Robert (rschlipf@waterboards.ca.gov) <rschlipf@waterboards.ca.gov>; Schofield, John <Schofield.John@epa.gov>
Subject: Microtox Paper and length of the Avon MOT

Robert and John:

Attached is the Microtox paper I referred to. It is a bit old (1991) and refers to correlations of the luminescent bacteria toxicity test data with other acute toxicity – with an emphasis on 96-hr acute lethality data of 200 individual chemicals to fathead minnow. As we know, juvenile rainbow trout are a more sensitive indicator of toxicity.

Also a question was asked about the length of the Avon Marine Oil Terminal (MOT) approachway. It is approx. 2,500 feet from Land's End north to the MOT wharf face and approx. 3,000 feet south from Land's End back into Tract 3.

Regards, Peter

Peter Carroll

Tesoro Martinez Refinery

Professional, Water Compliance

925.335.3497

peter.j.carroll@tsocorp.com

To: Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]; Kihara, Keith@DTSC[Keith.Kihara@dtsc.ca.gov]; Kou, Roberto@DTSC[Roberto.Kou@dtsc.ca.gov]; Lynch, Philip@DTSC[Philip.Lynch@dtsc.ca.gov]
From: Schofield, John
Sent: Wed 2/1/2017 8:26:24 PM
Subject: RE: Chevron - El Segundo Inspection

I found out I do not need answers this week. End of next week will work.

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
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From: Soria, Maria@DTSC [mailto:Maria.Soria@dtsc.ca.gov]
Sent: Wednesday, February 01, 2017 10:50 AM
To: Schofield, John <Schofield.John@epa.gov>; Kihara, Keith@DTSC <Keith.Kihara@dtsc.ca.gov>; Kou, Roberto@DTSC <Roberto.Kou@dtsc.ca.gov>; Lynch, Philip@DTSC <Philip.Lynch@dtsc.ca.gov>
Subject: RE: Chevron - El Segundo Inspection

John, how many staff can we send to the inspection?

For the training portion, we would like to send additional DTSC staff. Will this be ok with the trainer(s)?

From: Schofield, John [mailto:Schofield.John@epa.gov]
Sent: Wednesday, February 01, 2017 10:44 AM
To: Soria, Maria@DTSC; Kihara, Keith@DTSC; Kou, Roberto@DTSC; Lynch, Philip@DTSC
Subject: Chevron - El Segundo Inspection

Dan/Keith/Maria/Robert,

NEIC is assisting us with the inspections of the referenced facility. NEIC is wanting to perform the week long inspections sooner rather than later. Either April 10, April 17, or April 24 are the weeks available for NEIC to inspect Chevron. The inspection will include one day classroom refinery inspection training for DTSC staff. First which week April works for your staff that will be participating in the training and the inspection? Second what DTSC office should the classroom training be held: Chatsworth or Cypress?

NEIC needs to firm up the dates for Chevron ASAP. For this reason, please let me know this week which week in April works best for DTSC.

FYI, Pacific Resources Recovery is also an NEIC inspection. I suspect later today or this week that NEIC will be want to firm up the inspection dates. I suspect that also they will want to inspect in April too.

Let me know if you have any questions concerning the above.

regards,

John

****
John Schofield
U. S. Environmental Protection Agency
Region 9

Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
(415) 947-3530 (fax)
schofield.john@epa.gov
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To: Chetkowski, David M[David.M.Chetkowski@tsocorp.com]
Cc: Wood, Michael S.[Michael.S.Wood@tsocorp.com]; Lim, Sharon[Sharon.Y.Lim@tsocorp.com]; Simmons, Karla D.[Karla.D.Simmons@tsocorp.com]
From: Schofield, John
Sent: Fri 10/14/2016 3:37:52 PM
Subject: RE: Emailing: ITEM H.1 - PGI for Exchanger Pad.pdf

Thank you.

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division
Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
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-----Original Message-----
From: Chetkowski, David M [mailto:David.M.Chetkowski@tsocorp.com]
Sent: Thursday, October 13, 2016 4:56 PM
To: Schofield, John <Schofield.John@epa.gov>
Cc: Wood, Michael S. <Michael.S.Wood@tsocorp.com>; Lim, Sharon <Sharon.Y.Lim@tsocorp.com>; Simmons, Karla D. <Karla.D.Simmons@tsocorp.com>
Subject: Emailing: ITEM H.1 - PGI for Exchanger Pad.pdf

Hi John,

Attached is the PGI for the Tesoro Exchanger Pad. Please feel free to contact us if you have any questions regarding the attached.

Thanks,
David

David M. Chetkowski, P.E.
Senior Environmental Engineer
Tesoro Martinez Refinery | 150 Solano Way | Martinez CA 94553
p: (925) 335-3451| f: (925) 372-3179
email: David.M.Chetkowski@tsocorp.com

To: Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]; Kihara, Keith@DTSC[Keith.Kihara@dtsc.ca.gov]; Kou, Roberto@DTSC[Roberto.Kou@dtsc.ca.gov]; Lynch, Philip@DTSC[Philip.Lynch@dtsc.ca.gov]
From: Schofield, John
Sent: Wed 2/1/2017 6:43:43 PM
Subject: Chevron - El Segundo Inspection

Dan/Keith/Maria/Robert,

NEIC is assisting us with the inspections of the referenced facility. NEIC is wanting to perform the week long inspections sooner rather than later. Either April 10, April 17, or April 24 are the weeks available for NEIC to inspect Chevron. The inspection will include one day classroom refinery inspection training for DTSC staff. First which week April works for your staff that will be participating in the training and the inspection? Second what DTSC office should the classroom training be held: Chatsworth or Cypress?

NEIC needs to firm up the dates for Chevron ASAP. For this reason, please let me know this week which week in April works best for DTSC.

FYI, Pacific Resources Recovery is also an NEIC inspection. I suspect later today or this week that NEIC will be want to firm up the inspection dates. I suspect that also they will want to inspect in April too.

Let me know if you have any questions concerning the above.

regards,

John

****
John Schofield
U. S. Environmental Protection Agency
Region 9

Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
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To: Lynch, Philip@DTSC[Philip.Lynch@dtsc.ca.gov]
Cc: Yang, Teng@DTSC[Teng.Yang@dtsc.ca.gov]; Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]; Green, Kristine@DTSC[Kristine.Green@dtsc.ca.gov]
From: Schofield, John
Sent: Wed 10/5/2016 9:36:23 PM
Subject: Valero - Consent Agreement/Final Order
Valero Refining - Consent Agreement.pdf

Dan,

Uncertain if referenced CA/FO was sent to you. Just in case it wasn't I have attached a pdf of the filed CA/FO for your files.

regards,

John

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
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UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION IX

** FILED **
30SEP2016 - 12:59PM
U.S.EPA - Region 09

In the matter of Valero Refining Company - California RCRA EPA ID No. CAD063001770 TRI ID No. 94510XXNCS3400E Respondent.	)))))))))	U.S. EPA Docket No. RCRA-09-2016- 0008 EPCRA-09-2016- 0003 CONSENT AGREEMENT AND FINAL ORDER PURSUANT TO 40 C.F.R. SECTIONS 22.13 AND 22.18

CONSENT AGREEMENT

A. PRELIMINARY STATEMENT

1. This is a civil administrative enforcement action instituted pursuant to Section 3008(a)(1) of the Resource Conservation and Recovery Act ("RCRA"), as amended, 42 U.S.C. § 6928(a)(1); Section 325(c) of the Emergency Planning and Community Right-To-Know Act ("EPCRA"), 42 U.S.C. § 11045(c); and the Consolidated Rules of Practice Governing the Administrative Assessment of Civil Penalties and the Revocation/Termination or Suspension of Permits, 40 Code of Federal Regulations ("C.F.R.") Part 22.

2. Complainant is the United States Environmental Protection Agency, Region 9 ("EPA"). Respondent is Valero Refining Company - California ("Respondent" or "Valero").

3. Respondent owns and operates a facility located at 3400 East 2nd Street, in Benicia, California, 94510 (the "Facility"). The Facility's RCRA EPA Identification Number is CAD063001770. Its EPCRA TRI Identification Number is 94510XXNCS3400E. Respondent operates the Valero Benicia Refinery, where it produces petroleum hydrocarbon products, by-products, and intermediates.

4. On May 19 through 23, 2014, inspectors from the EPA conducted a multimedia compliance investigation at the Facility. The purpose of the inspection was to determine the Facility's compliance with applicable regulations adopted by the California authorized program under RCRA in the California Code of Regulations ("C.C.R."), Title 22, Division 4.5 and the California Health and Safety Code, Division 20; and EPCRA Section 313 and the regulations at 40 C.F.R. Part 372. Based upon the findings EPA

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made during the inspection, and additional information obtained subsequent to the inspection, EPA determined that Respondent had violated EPCRA Section 313, 42 U.S.C. § 11023 and the California Health & Safety Code § 25100 *et seq.* and the regulations adopted pursuant thereto, as authorized by the United States.

5. This Consent Agreement and Final Order pursuant to 40 C.F.R. §§ 22.13 and 22.18 ("CA/FO"), simultaneously commences and concludes this proceeding, wherein EPA alleges that Respondent failed to: (1) obtain a permit for disposal of hazardous waste, a violation of 22 C.C.R. § 66270.1 [*see also* 40 C.F.R. § 270.1]; (2) determine if solid waste generated was hazardous, a violation of 22 C.C.R. § 66262.11 [*see also* 40 C.F.R. § 262.11]; (3) maintain and operate the facility to minimize the possibility of any unplanned release, a violation of 22 C.C.R. § 66262.34(a)(4) and 22 C.C.R. § 66265.31 [*see also* 40 C.F.R. § 262.34(a)(4) and 40 C.F.R. § 265.31]; (4) maintain records at the facility for calendar years 2010 and 2011, a violation of 40 C.F.R. §372.10(c); and (5) submit accurate Toxic Chemical Release Inventory Reporting Forms, a violation of Section 313(g)(1)(B) of EPCRA, 42 U.S.C. § 11023(g)(1)(B), and 40 C.F.R. § 372.30(a). Respondent thereby violated Section 3001 et seq. of RCRA, 42 U.S.C. § 6921 et seq., and state regulations authorized pursuant thereto,[1] and Section 313 of EPCRA, 42 U.S.C. § 11023, and the implementing regulations set forth at 40 C.F.R. Part 372.

B. JURISDICTION

6. For the RCRA violations, the State of California received authorization to administer the hazardous waste management program in lieu of the federal program pursuant to § 3006 of RCRA, 42 U.S.C. § 6926, and 40 C.F.R. Part 271 on August 1, 1992. The authorized hazardous waste program is established pursuant to the Hazardous Waste Control Law, Chapter 6.5 of Division 20 of the California Health and Safety Code, and the regulations promulgated thereunder at Title 22, Division 4.5 of the California Code of Regulations, 22 C.C.R. §§ 66001 *et seq.* The State of California has been authorized for all the hazardous waste management regulations referenced in this CA/FO.

7. Respondent is a "person" as defined in Section 329(7) of EPCRA, 42 U.S.C. § 11049(7) and 22 C.C.R. § 66260.10 [*see also* 40 C.F.R. § 260.10].

8. Respondent is the "operator" of a facility as defined in 22 C.C.R. § 66260.10 [*see also* 40 C.F.R. § 260.10].

9. Respondent is a "generator" of hazardous waste as defined in 22 C.C.R. § 66260.10 [40 C.F.R. § 260.10].

---

[1] All citations to the "C.C.R." refer to Division 4.5 of Title 22 of the current California Code of Regulations. EPA is enforcing California hazardous waste management program requirements as approved and authorized by the United States. Corresponding Federal citations are provided in brackets.

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10. Respondent is or has been engaged in "storage" of hazardous waste as defined in 22 C.C.R. § 66260.10 [*see also* 40 C.F.R. § 260.10].

11. Respondent generates and accumulates, or has generated and accumulated, materials that are "wastes" as defined in 22 C.C.R. §§ 66260.10 and 66261.2 [*see also* 40 C.F.R. § 261.2].

12. At the Facility, Respondent generates and accumulates, or has generated and accumulated, "hazardous waste" as defined in California Health & Safety Code § 25117, and 22 C.C.R. §§ 66260.10 and 66261.3 [*see also* RCRA § 1004(5), and 40 C.F.R. §§ 260.10 and 261.3]. These hazardous wastes include but are not limited to corrosive waste (D002), petroleum refinery primary oil/water/solids separation sludge (F037), petroleum refinery secondary oil/water/solids separation sludge (F038), and spent hydrotreating catalyst from petroleum refining operations (K171).

13. The Facility is a "facility" as defined in Section 329(4) of EPCRA, 42 U.S.C. § 11049(4) and 40 C.F.R. § 372.3.

14. The Facility has 10 or more "full-time employees," as that term is defined at 40 C.F.R. § 372.3.

15. The Facility is in a North American Industry Classification System Code 324, Petroleum and Coal Products Manufacturing, listed in 40 C.F.R. § 372.23.

16. At the Facility, Respondent manufactured, processed, or otherwise used a toxic chemical listed under 40 C.F.R. § 372.65 in excess of the applicable threshold quantity of that chemical set forth in 40 C.F.R. § 372.25, including but not limited to greater than 25,000 pounds of benzene, toluene, ethylbenzene and xylene.

17. Section 3006 of RCRA, 42 U.S.C. § 6926 provides, *inter alia*, that authorized state hazardous waste programs are carried out under Subtitle C of RCRA. Therefore, a violation of any requirement of law under an authorized state hazardous waste program is a violation of a requirement of Subtitle C of RCRA.

18. A violation of California's authorized hazardous waste program, found at H&SC § 25100 *et seq.*, constitutes a violation of Subtitle C of RCRA and, therefore, a person who violates California's authorized hazardous waste program is subject to the powers vested in the EPA Administrator by Section 3008 of RCRA, 42 U.S.C. § 6928.

19. Section 3008 of RCRA, 42 U.S.C. § 6928, authorizes the EPA Administrator to issue orders assessing a civil penalty and/or requiring compliance immediately or within a specified time for violation of any requirement of Subtitle C of RCRA, Section 3001 of RCRA *et seq.*, 42 U.S.C. § 6921 *et seq.*

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20. Section 325(c) of EPCRA, 42 U.S.C. § 11045(c), authorizes the EPA Administrator to assess a penalty for violations of Section 313 of EPCRA, 42 U.S.C. § 11023.

21. The Administrator has delegated the authority under Section 3008 of RCRA and Section 325 of EPCRA to the EPA Regional Administrator for Region 9, who has redelegated this authority to the EPA signatory below.

C. ALLEGED VIOLATIONS

COUNT I
Failure to obtain a permit for disposal of hazardous waste

22. Paragraphs 1 through 21 above are incorporated herein by this reference as if they were set forth here in their entirety.

23. 22 C.C.R. § 66270.1(c) requires that each person owning or operating a facility where hazardous waste is transferred, treated, stored, or disposed must have a permit. At the time of the inspection, Respondent did not have a permit or grant of interim status to dispose of hazardous waste under 22 C.C.R. § 66270.1(c) [*see also* 40 C.F.R. § 270.1(c)].

24. As a result of the inspection, EPA determined that Respondent discharged benzene-contaminated wastewater, RCRA D018 characteristic hazardous waste, into an unlined stormwater surface impoundment during self-diversion of wet weather flows on 14 occasions between 2011 and 2013. These discharges were not eligible for exemption under 22 C.C.R. § 66265.1(e)(11) [see also 40 C.F.R. § 265.1(c)(11)].

25. Therefore EPA alleges that Respondent disposed of hazardous waste without a permit, a violation of 22 C.C.R. § 66270.1 [*see also* 40 C.F.R. § 270.1].

COUNT II
Failure to maintain and operate the facility to minimize the possibility of an unplanned release

26. Paragraphs 1 through 25 above are incorporated herein by this reference as if they were set forth here in their entirety.

27. 22 C.C.R. § 66262.34(a)(4) and 22 C.C.R. § 66265.31 provide that facilities must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment [*see also* 40 C.F.R. § 262.34(a) and 40 C.F.R. § 265.31].

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28. During the CEI the EPA Inspectors observed several areas where there was staining on the ground, evidencing spillage.

29. Respondent acknowledged that there had been accidental releases of oily sludge, RCRA F037 hazardous waste, that was cleaned up promptly, but some staining was left in place around a Baker Tank, due to access issues.

30. Therefore EPA alleges that Respondent failed to operate its facility to minimize the possibility of a release of hazardous waste, and has violated 22 C.C.R. § 66262.34(a)(4) and 22 C.C.R. § 66265.31 [*see also* 40 C.F.R. § 262.34(a) and 40 C.F.R. § 265.31].

COUNT III

Failure to make a hazardous waste determination

31. Paragraphs 1 through 30 above are incorporated herein by this reference as if they were set forth here in their entirety.

32. 22 C.C.R. § 66262.11 states that a facility which generates waste, as defined by 22 C.C.R. § 66261.2, must determine if the waste is a hazardous waste [*see also* 40 C.F.R. § 262.11].

33. EPA determined that Respondent had pumped stormwater from the surface impoundment where Respondent had discharged RCRA D018 into a stormwater retention pond, used when extra stormwater capacity is needed.

34. Respondent failed to sample the wastewater pumped from the impoundment into the stormwater retention pond, thereby failing to determine if solid waste generated was hazardous.

35. Therefore, EPA alleges that Respondent has violated 22 C.C.R. § 66262.11 [*see also* 40 C.F.R. § 262.11].

COUNT IV

Failure to maintain records at the facility

36. Paragraphs 1 through 35 above are incorporated herein by this reference as if they were set forth here in their entirety.

37. Sections 313(a) and (b) of EPCRA, 42 U.S.C. §§ 11023(a) and (b), and 40 C.F.R. §§ 372.22 and 372.30, provide that the owner or operator of a facility must submit annually to EPA and the State in which the facility is located a chemical release form published under Section 313(g) of EPCRA for each toxic chemical or toxic chemical category listed under Section 313(c) of EPCRA and 40 C.F.R. § 372.65 that it manufactured, processed or otherwise used if: (i) the facility has ten or more full-time

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employees; (ii) the facility is in North American Industry Classification System Code 324110; and (iii) the facility manufactured, processed or otherwise used during the preceding calendar year the listed toxic chemical or toxic chemical category in excess of the threshold quantity established under Section 313(f) of EPCRA and 40 C.F.R. § 372.25.

38. Pursuant to Section 313(g) of EPCRA, 42 U.S.C. § 11023(g), EPA published a uniform Toxic Chemical Release Inventory Form (hereinafter referred to as a "Form R") for facilities that are subject to the reporting requirements of Section 313. Sections 313(a) and (b) of EPCRA, 42 U.S.C. §§ 11023(a) and (b), and 40 C.F.R. § 372.30(d), provide that each Form R for activities involving a toxic chemical or toxic chemical category that occurred during a calendar year must be submitted on or before July 1 of the next year.

39. Pursuant to 40 C.F.R. § 372.10(a) and (b), each person subject to the reporting or notification requirements of 40 C.F.R. Part 372 must retain complete records (as specified in the regulations) for a period of three years from the date of the submission of a report under 40 C.F.R. § 372.30 or of a notification under 40 C.F.R. § 372.45, respectively.

40. These records include data supporting the determination of whether a threshold under 40 C.F.R. § 372.25 applies for each toxic chemical and the calculations of the quantity of each toxic chemical released to the environment or transferred to an off-site location.

41. Pursuant to 40 C.F.R. § 372.10(c), records retained under 40 C.F.R. Part 372 must be maintained at the facility to which the report applies or from which a notification was provided. Such records must be readily available for purposes of inspection by EPA.

42. For reporting years 2010 and 2011, Respondent did not have records relating to threshold determinations for benzene, toluene, ethylbenzene or xylene readily available at the Facility for purposes of inspection by EPA.

43. For reporting year 2010, Respondent did not have records supporting its calculations for fugitive emissions from wastewater readily available at the Facility for purposes of inspection by EPA.

44. By failing to maintain the requisite records at the Facility for reporting years 2010 and 2011, Respondent violated Section 313 of EPCRA, 42 U.S.C. § 11023, and 40 C.F.R. § 372.10(c).

COUNT V
Failure to submit an accurate Form R

45. Paragraphs 1 through 44 above are incorporated herein by this reference as if they were set forth here in their entirety.

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46. 40 C.F.R § 372.30(a) requires that for each toxic chemical known by the owner or operator to be manufactured (including imported), processed, or otherwise used in excess of an applicable threshold quantity in § 372.25, § 372.27, or § 372.28 at its covered facility described in § 372.22 for a calendar year, the owner or operator must submit to EPA and to the State in which the facility is located a completed EPA Form R (EPA Form 9350-1).

47. Section 313(g)(1)(B) of EPCRA, 42 U.S.C. § 11023(g)(1)(B), provides that Form Rs must include a certification regarding the accuracy and completeness of the information provided therein.

48. Based on the inspection, EPA found Respondent failed to accurately report fugitive emissions data for two chemicals, cumene and ethylene, for reporting year 2010.

49. These inaccuracies constitute significant data quality errors and Respondent's failure to submit accurate Form Rs for these two toxic chemicals violated Section 313 of EPCRA, 42 U.S.C. § 11023, and 40 C.F.R. § 372.30(a).

D. CIVIL PENALTY

50. Section 3008(g) of RCRA, 42 U.S.C. § 6928(g), and Section 325(c) of EPCRA, 42 U.S.C. § 11045(c), as adjusted by the Debt Collection Improvement Act of 1996 and the Civil Monetary Penalty Inflation Adjustment Rule, 40 C.F.R. Part 19, authorize a civil penalty of up to thirty-seven thousand, five hundred dollars ($37,500) per day for violations of Subtitle C of RCRA, 42 U.S.C. § 6921 *et seq.*, or Section 313(c) of EPCRA, 42 U.S.C. § 11023(c) occurring after January 12, 2009 and before August 1, 2016. Based upon the facts alleged herein and upon those factors which EPA must consider pursuant to Section 3008(a)(3) of RCRA, 42 U.S.C. § 6928(a)(3), the 2003 RCRA Civil Penalty Policy, and the 1992 Enforcement Response Policy for Section 313 of EPCRA, as amended April 12, 2001, EPA proposes that Respondent be assessed ONE HUNDRED FIFTY-SEVEN THOUSAND EIGHT HUNDRED DOLLARS as the civil penalty for the violations alleged herein.

E. ADMISSIONS AND WAIVERS OF RIGHTS

51. For the purposes of this proceeding, Respondent admits to the jurisdictional allegations set forth in Section B of this CA/FO and agrees not to contest EPA's jurisdiction and authority to enter into and issue this CA/FO and to enforce its terms. Further, Respondent will not contest EPA's jurisdiction and authority to compel compliance with this CA/FO in any enforcement proceedings, either administrative or judicial, or to impose sanctions for violations of this CA/FO.

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52. Respondent neither admits nor denies any allegations of fact or law set forth in Section C of this CA/FO. Respondent hereby waives any rights Respondent may have to contest the allegations set forth in this CA/FO, waives any rights Respondent may have to a hearing on any issue relating to the factual allegations or legal conclusions set forth in this CA/FO, including without limitation a hearing pursuant to Section 3008(b) of RCRA, 42 U.S.C. § 6928(b), and hereby consents to the issuance of this CA/FO without adjudication. In addition, Respondent hereby waives any rights Respondent may have to appeal the Final Order attached to this Consent Agreement and made part of this CA/FO.

F. PARTIES BOUND

53. This CA/FO shall apply to and be binding upon Respondent and its agents, successors and assigns, until such time as the civil penalty required under Sections D and H has been paid in accordance with Section H, and any delays in performance and/or stipulated penalties have been resolved. At such time as those matters are concluded, this CA/FO shall terminate and constitute full settlement of the violations alleged herein.

54. No change in ownership or corporate, partnership or legal status relating to the Facility will in any way alter Respondent's obligations and responsibilities under this CA/FO.

55. The undersigned representative of Respondent hereby certifies that he or she is fully authorized by Respondent to enter into this CA/FO, to execute and to legally bind Respondent to it.

G. COMPLIANCE TASKS

56. By no later than December 30, 2016, Respondent shall submit a work plan for piping modifications at the Facility so that discharges from the Diversion Area lift station can no longer flow (self-divert) to the Wastewater Treatment Plant retention ponds. Respondent has identified this lift station, which receives flows from the Lower Level Tank Farm area, as the most likely source of benzene concentrations that have been detected intermittently in storm-related self-diversions into the retention ponds.

57. By no later than June 30, 2017, Respondent shall complete the project described in Paragraph 56 above. Respondent shall notify EPA in writing within ten (10) working days after completion of the project, and submit documentation showing that the project is complete. Such documentation may include invoices, photos, contracts, or any other relevant materials.

58. From the Effective Date of the CA/FO until one year following completion of the project described in Paragraph 56, during storm events Valero shall sample wastewater discharged at the diversion canal, end of line (EOL) sampling point EOL-10.

59. Respondent shall sample the diversion canal at the beginning of each diversion event. If the diversion is continuous, Respondent shall sample the canal daily for the duration of the diversion.

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60. Respondent shall continue to follow the current National Emissions Standards for Hazardous Air Pollutants ("NESHAP") End of Line ("EOL") monitoring protocol for benzene and utilize the existing Valero Benicia Refinery EOL Sample Check Sheet to record the collection of the samples.

61. Respondent shall continue to follow its existing Quality Assurance/Quality Control requirements, as follows: (1) where applicable, the sample must be collected through a cooler so the temperature is less than 50F degrees; (2) samples must be collected into a Volatile Organic Analysis ("VOA") vial without air bubbles; (3) records must be kept for listing the name, date, time of the person collecting the sample and the temperature of the sample.

62. Respondent's contract laboratory should continue to perform EPA Method 8260 BTEX (Benzene, Toluene, Ethylbenzene, m,p-Xylene, o-Xylene) analysis for these samples.

63. Respondent shall submit the sampling data to EPA within five (5) working days from the receipt from its contractor laboratory. Data shall be transmitted via electronic mail to Sharon Lin at lin.sharon@epa.gov.

H. PAYMENT OF CIVIL PENALTY

64. Respondent consents to the assessment of and agrees to pay a civil penalty of ONE HUNDRED FIFTY-SEVEN THOUSAND AND EIGHT HUNDRED DOLLARS ($157,800.00) in full settlement of the federal civil penalty claims set forth in this CA/FO.

65. Respondent shall submit payment of the ONE HUNDRED FIFTY-SEVEN THOUSAND AND EIGHT HUNDRED DOLLARS ($157,800.00) within thirty (30) calendar days of the Effective Date of this CA/FO in accordance with one of the options set forth below. The Effective Date of this CA/FO is the date the Final Order, signed by the Regional Judicial Officer, is filed with the Regional Hearing Clerk. All payments shall indicate the name of the Facility, EPA identification number of the Facility, the Respondent's name and address, and the EPA docket number of this action.

Regular Mail:
Payment shall be made by certified or cashier's check payable to "Treasurer of the United States" and sent as follows:
US Environmental Protection Agency
Fines and Penalties
Cincinnati Finance Center
PO Box 979077
St. Louis, MO 63197-9000.

Wire Transfers:
Wire transfers must be sent directly to the Federal Reserve Bank in New York

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City with the following information:
Federal Reserve Bank of New York
ABA = 021030004
Account = 68010727
SWIFT address = FRNYUS33
33 Liberty Street
New York, NY 10045
Field Tag 4200 of the Fedwire message should read "D 68010727 Environmental Protection Agency"

Overnight Mail:
U.S. Bank
1005 Convention Plaza
Mail Station SL-MO-C2GL
ATTN Box 979077
St. Louis, MO 63101

ACH (also known as REX or remittance express):
Automated Clearinghouse (ACH) for receiving US currency
PNC Bank
808 17th Street, NW
Washington, DC 20074
ABA = 051036706
Transaction Code 22 – checking
Environmental Protection Agency
Account 31006
CTX Format

On Line Payment:
This payment option can be accessed from the information below:
www.pay.gov
Enter "sfo1.1" in the search field
Open form and complete required fields

If clarification regarding a particular method of payment remittance is needed, contact the EPA Cincinnati Finance Center at 513-487-2091.

66. At the time payment is made, a copy of the payment transmittal shall be sent to:

Regional Hearing Clerk (RC-1)
U.S. Environmental Protection Agency - Region 9
75 Hawthorne Street
San Francisco, CA 94105

and

Sharon Lin (ENF 2-2) and Andrew Chew (ENF 2-2)
Enforcement Division
U.S. Environmental Protection Agency - Region 9
75 Hawthorne Street
San Francisco, CA 94105

67. In accordance with the Debt Collection Act of 1982 and U.S. Treasury directive (TFRM 6-8000), each payment must be received by the due date set forth in this CA/FO to avoid additional charges. If payment is not received by the due date, interest will accrue from the Effective Date of this CA/FO at the current rate published by the United States Treasury as described at 40 C.F.R. § 13.11. Respondent further will be liable for stipulated penalties as set forth below for any payment not received by its due date.

68. The penalties specified in this CA/FO shall represent civil penalties assessed by EPA and shall not be deducted by Respondent or any other person or entity for federal, state or local taxation purposes.

I. DELAY IN PERFORMANCE/STIPULATED PENALTIES

69. In the event Respondent fails to (a) submit a payment to EPA by the time required in this CA/FO, or (b) complete tasks required by Section G above, Respondent shall pay stipulated penalties up to: FIVE HUNDRED DOLLARS ($500) per day for first to fifteenth day of delay; ONE THOUSAND DOLLARS ($1,000) per day for sixteenth to thirtieth day of delay; and ONE THOUSAND FIVE HUNDRED DOLLARS ($1,500) per day for each day of delay thereafter.

70. Prior to the date when Valero completes the project described in Paragraph 56, if Respondent discharges stormwater exceeding 0.5 mg/L benzene to any surface impoundment, Respondent shall pay a penalty of up to $5,000 for each day of such discharge.

71. All penalties owed to EPA under this Section shall be due within thirty (30) days of receipt of a notification of noncompliance. Such notification shall describe the noncompliance and shall indicate the amount of penalties due. Interest at the current rate published by the United States Treasury, as described at 40 C.F.R. §13.11, shall begin to accrue on the unpaid balance at the end of the thirty-day period.

72. All penalties shall be made payable by certified or cashier's check to "Treasurer of the United States" and shall be remitted as described in Paragraph 65.

73. The payment of stipulated penalties shall not alter in any way Respondent's obligation to complete the performance required hereunder.

74. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this CA/FO.

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75. The stipulated penalties set forth in this Section do not preclude EPA from pursuing any other remedies or sanctions which may be available to EPA by reason of Respondent's failure to comply with any of the requirements of this CA/FO.

J. CERTIFICATION OF COMPLIANCE

76. In executing this CA/FO, Respondent certifies under penalty of law to EPA that to its actual knowledge that (1) it has now fully completed and submitted to EPA all of the required Toxic Chemical Release Inventory Forms in compliance with Section 313 of EPCRA, 42 U.S.C. § 11023, and the regulations promulgated thereunder; and (2) it is in compliance with all other EPCRA requirements applicable to the Facility.

77. In executing this CA/FO, subject to the provisions of Section G above, Respondent certifies under penalty of law to EPA that it has fully complied with RCRA Hazardous Waste Management requirements, 42 U.S.C. §§ 6921–6939e, and the federally authorized California hazardous waste management program including 22 C.C.R. §§ 66270.1 [*see also* 40 C.F.R. §§ 270.1], 22 C.C.R. § 66265.31 [*see also* 40 C.F.R. § 265.31], and 22 C.C.R. § 66262.11 [*see also* 40 C.F.R. § 262.11], that formed the basis for the violations alleged in this CA/FO.

78. This certification of compliance is based upon true, accurate, and complete information, which the signatory can verify personally or regarding which the signatory has inquired of the person or persons directly responsible for gathering the information.

K. RESERVATION OF RIGHTS

79. EPA hereby reserves all of its statutory and regulatory powers, authorities, rights and remedies, both legal and equitable, including the right to require that Respondent perform tasks in addition to those required by this CA/FO, except as to those civil penalties for the violations and facts alleged herein. EPA further reserves all of its statutory and regulatory powers, authorities, rights and remedies, both legal and equitable, which may pertain to Respondent's failure to comply with any of the requirements of this CA/FO. This CA/FO shall not be construed as a covenant not to sue, release, waiver or limitation of any rights, remedies, powers or authorities, civil or criminal, which EPA has under RCRA or EPCRA (except as to those civil penalties for the violations and facts alleged herein); the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA"); or any other statutory, regulatory or common law enforcement authority of the United States.

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80. Compliance by Respondent with the terms of this CA/FO shall not relieve Respondent of its obligations to comply with RCRA, EPCRA, or any other applicable local, State or federal laws and regulations.

81. The entry of this CA/FO and Respondent's consent to comply shall not limit or otherwise preclude EPA from taking additional enforcement actions should EPA determine that such actions are warranted except as they relate to Respondent=s liability for federal civil penalties for the specific alleged violations and facts as set forth in Section C of this CA/FO.

82. This CA/FO is not intended to be nor shall it be construed as a permit. This CA/FO does not relieve Respondent of any obligation to obtain and comply with any local, State or federal permits.

L. OTHER CLAIMS

83. Nothing in this CA/FO shall constitute or be construed as a release from nor an admission by Respondents of any other claim, cause of action or demand in law or equity by or against any person, firm, partnership, entity or corporation for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous constituents, hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the Facility.

M. MISCELLANEOUS

84. Each party shall bear its own attorneys' fees, costs, and disbursements incurred in this proceeding.

85. This CA/FO may be amended or modified only by written agreement executed by both EPA and Respondent.

86. The headings in this CA/FO are for convenience of reference only and shall not affect interpretation of this CA/FO.

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87. In accordance with 40 C.F.R. §§ 22.18(b)(3) and 22.31(b), the Effective Date of this CA/FO is the date the Final Order, having been approved by the Regional Judicial Officer, is filed by the Regional Hearing Clerk.

IT IS SO AGREED.

9/27/16
Date

Donald C. Wilson
Name, Title: Donald C. Wilson, VP + General Manager
Valero Refining Co. - California

9/29/16
Date

Joel Jones, Assistant Director
Enforcement Division
U.S. Environmental Protection Agency, Region 9

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FINAL ORDER

IT IS HEREBY ORDERED that this Consent Agreement and Final Order pursuant to 40 C.F.R. Sections 22.13 and 22.18 (U.S. EPA Docket No. RCRA-9 -2016-0008 and EPCRA-09-2016-0003) be entered and that Valero Refining Company - California pay a civil penalty of one hundred fifty seven thousand and eight hundred dollars ($157,800.00) due within thirty (30) days from the Effective Date of this Consent Agreement and Final Order. Payment must be made pursuant to Section H of the Consent Agreement.

This Final Order shall be effective upon filing by the Regional Hearing Clerk.

09/30/16
Date

Steven Jawgiel
Regional Judicial Officer
United States Environmental Protection Agency,
Region 9

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CERTIFICATE OF SERVICE

I hereby certify that the original and a copy of the foregoing Consent Agreement and Final Order in the matter of Valero Refining Company – California with Docket # RCRA-09-2016-0008 /EPCRA-09-2016-0003 has been filed with the Regional Hearing Clerk, Region 9, and a copy was sent:

By Certified Mail, Return Receipt Requested to Respondent:

Mr. Christopher W. Howe
Director, Health, Safety, Environment & Government Affairs
Valero Benicia Refinery
3400 East Second Street
Benicia, California 94510-1005
Certified Mail No. 7009 0820 0001 3646 6332

Hand Delivered to:

Rebecca Sugerman
Office of Regional Counsel
U.S. EPA, Region 9, ORC-3
75 Hawthorne Street
San Francisco, CA 94105

Sept. 30, 2016
Date

Steven Armsey
Steven Armsey
Acting Regional Hearing ~~Clerk~~
Office of Regional Counsel, Region 9

To: Kihara, Keith@DTSC[Keith.Kihara@dtsc.ca.gov]; Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]; Lynch, Philip@DTSC[Philip.Lynch@dtsc.ca.gov]; Yang, Teng@DTSC[Teng.Yang@dtsc.ca.gov]; Green, Kristine@DTSC[Kristine.Green@dtsc.ca.gov]; Tsuji, Denise@DTSC[Denise.Tsuji@dtsc.ca.gov]
From: Schofield, John
Sent: Wed 10/5/2016 9:23:20 PM
Subject: FW: U.S. EPA settles with Valero for hazardous waste violations at Bay Area refinery

FYI. Joel Jones forwarded the press release to Antoinette.

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division

Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3386
(415) 947-3530 (fax)
schofield.john@epa.gov
****

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From: U.S. Environmental Protection Agency [mailto:noreply-subscriptions@epa.gov]
Sent: Wednesday, October 05, 2016 1:53 PM
To: Schofield, John <Schofield.John@epa.gov>
Subject: U.S. EPA settles with Valero for hazardous waste violations at Bay Area refinery

For Immediate Release: October 5, 2016
Media Contact: Michele Huitric, huitric.michele@epa.gov

U.S. EPA settles with Valero for hazardous waste violations at Bay Area refinery

SAN FRANCISCO – Today, the U.S. Environmental Protection Agency announced a settlement with Valero Refining Company - California over improper management of hazardous waste and toxic chemicals at its crude oil refinery in Benicia. Violations included illegally disposing benzene into an unlined stormwater retention pond and not alerting the public about all of its toxic chemical releases.

Valero will pay a $157,800 penalty and modify its piping operations; submitting a work plan by the end of 2016 and completing the project by June 2017. This action will prevent an estimated 5,000 lbs of benzene, a known human carcinogen, from being released into the environment over the next 10 years. The company will also correct and resubmit its toxic chemical release reports.

“Valero’s operations can affect both the communities near the refinery and the wildlife habitat of Suisun Bay,” said Alexis Strauss, EPA's Acting Regional Administrator for the Pacific Southwest. "It is critical for Valero to comply with federal laws that protect public health and our natural resources."

Valero Refining Company - California is a subsidiary of Valero Energy Corporation, a global manufacturer and marketer of transportation fuels, petrochemical products and power, based in San Antonio, Texas. EPA conducted an inspection at Valero’s Benicia refinery in May 2014 to assess compliance with the federal Resource Conservation and Recovery Act and the Emergency Planning and Community Right-to-Know Act.

Additional violations uncovered by the inspection included the company’s failure to determine if solid waste generated at the refinery was hazardous; failure to maintain and operate the facility as needed to minimize the possibility of any unplanned release; and failure to maintain complete and accurate records at the facility.

This investigation was part of EPA’s continuing efforts to ensure communities located near complex industrial facilities are informed of the toxic releases from those facilities. This action also reflects EPA’s focus on the largest hazardous waste generators, including petroleum refineries.

The federal Resource Conservation and Recovery Act program oversees the safe management and disposal of hazardous waste. Under authority delegated by EPA, the California Department of Toxic Substances Control enforces this hazardous waste management program in the state. EPA routinely conducts RCRA inspections in its state oversight role, to ensure the state effectively implements its program.

The Emergency Planning and Community Right-to-Know Act was created to help communities plan for chemical emergencies. It also requires industry to report on the storage, use and releases of hazardous substances in a community. To accomplish this, EPA created the Toxics Release Inventory. This publicly available database contains information on toxic chemical releases and other waste management activities reported annually by certain industries and federal facilities.

For more information on RCRA, please visit: https://www.epa.gov/rcra

For more information about the Emergency Planning and Community Right-to-Know Act, please visit: http://www2.epa.gov/epcra

For more information on the Toxic Releases Inventory Program, please visit: https://www.epa.gov/toxics-release-inventory-tri-program

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If you would rather not receive future communications from Environmental Protection Agency, let us know by clicking here.
Environmental Protection Agency, 75 Hawthorne Street, San Francisco, CA 94105 United States

To: teng.yang@dtsc.ca.gov[teng.yang@dtsc.ca.gov]; Soria, Maria@DTSC[Maria.Soria@dtsc.ca.gov]
Cc: Lin, Sharon[Lin.Sharon@epa.gov]
From: Schofield, John
Sent: Tue 8/29/2017 5:01:46 PM
Subject: Shell Show Cause Letter
Shell Oil Products US Martinez Refinery.pdf

Andy/Maria,

As a follow-up to our conversation yesterday, please find a copy of the referenced letter. If you have any questions concerning the letter, please contact Sharon at 415-972-3446.

regards,

John

****
John Schofield
U. S. Environmental Protection Agency
Region 9
Enforcement Division
Air, Waste and Toxics Branch, ENF-2-2
75 Hawthorne Street
San Francisco, CA 94105
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