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Tesoro Refining & Marketing Company LLC
Los Angeles Refinery – Calciner Operations
2450 Pier B Street
Long Beach, CA 90813
United States of America
Telephone: +1 (562) 499-3200

May 15, 2018

Executive Officer
California Regional Water Quality Control Board Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013
Attn: Ms. Cassandra Owens

RE: Permit Renewal Application
Tesoro Los Angeles Refinery- Calciner Operations
2450 Pier B Street, Long Beach, CA 90813
NPDES Permit No. CA0059153, Order No. R4-2013-0157, CI-6571

Dear Ms. Owens:

Tesoro Los Angeles Refinery (LAR)- Calciner Operations (Calciner) is submitting this permit application package to renew individual NPDES Permit No. CA0059153, Order No. R4-2013-0157, CI-6571, for the facility referenced above. This permit is being submitted to renew coverage for non-contact cooling water, boiler blowdown, and stormwater runoff. The current Order will expire on November 22, 2018, and the due date for submitting the permit renewal application to the Regional Water Quality Control Board is May 22, 2018.

Please note the City has changed the mailing and physical address associated with the Facility. The address now is: 2450 Pier B Street, Long Beach, CA 90813.

In accordance with the requirements of the permit renewal documents, we have included the following figures, forms and documents in support of the permit renewal application:

- Facility Site Plan
- Outfall Location
- Facility Process Diagram
- Signed Certification Supplement
- US EPA Form I
- Topographic Vicinity Map
- US EPA Form 2C for Discharge Point 001
- Laboratory analytical results for stormwater retention pond for 2017 and 2012
- Form 200 (General Information Form for Waste Discharge Requirements for NPDES Permits)

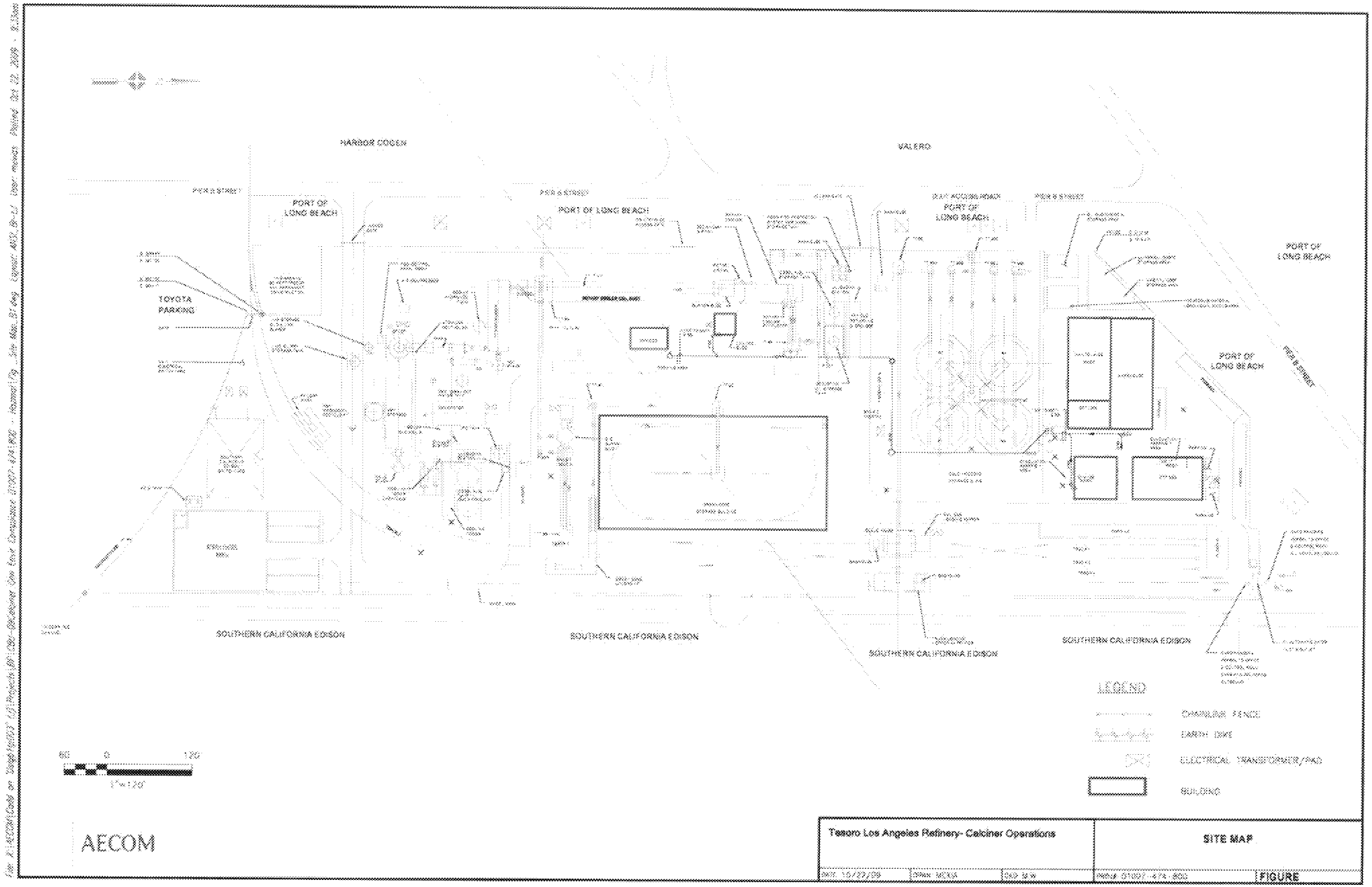
If you have any questions regarding the attached package or if you require additional information in order to complete the permit application, please feel free to contact me at 562.499.3210.

Sincerely,

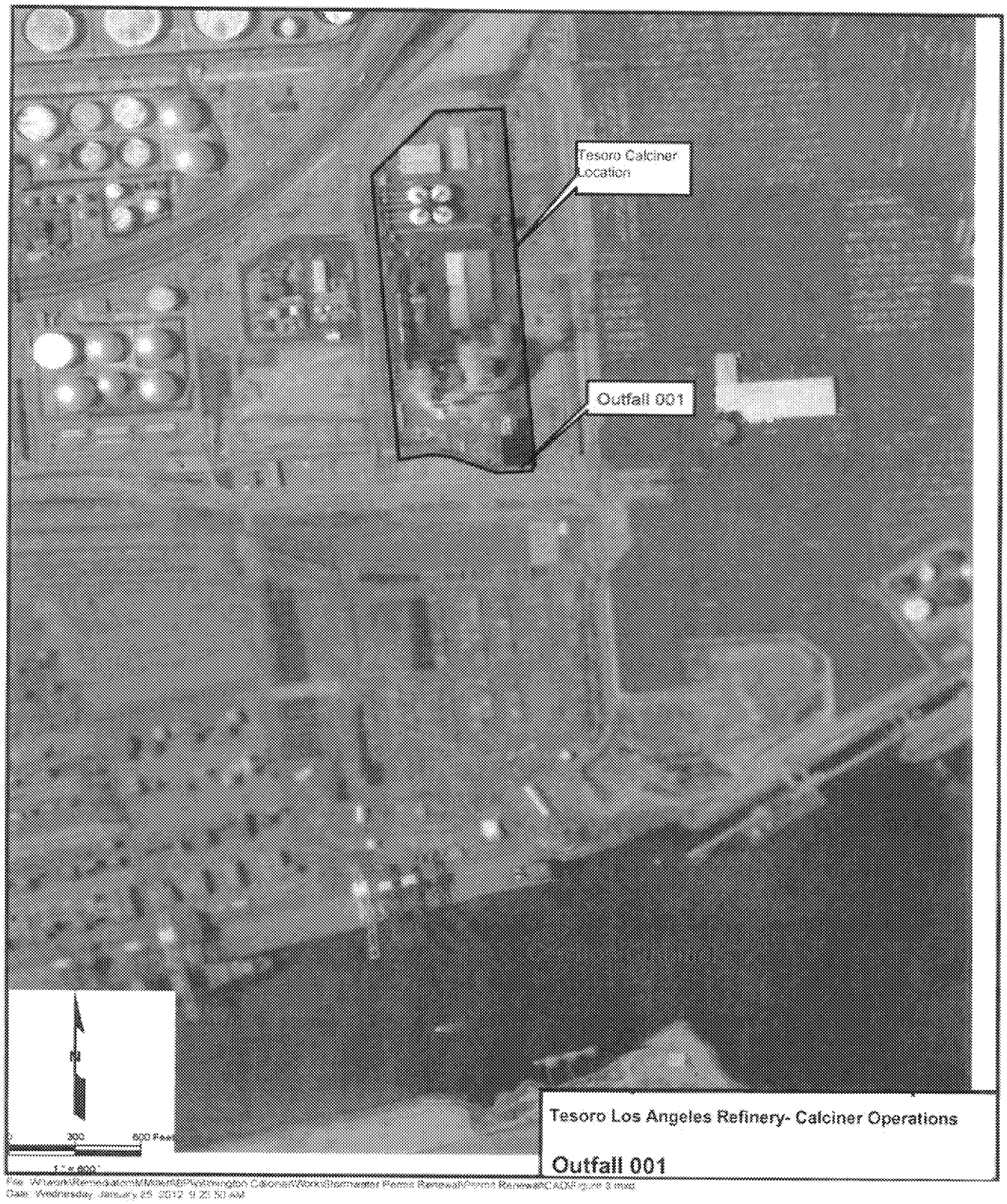
Yung S. Chung
Senior Environmental Engineer
Tesoro LAR- Calciner Operations

Attachments

Facility Site Plan

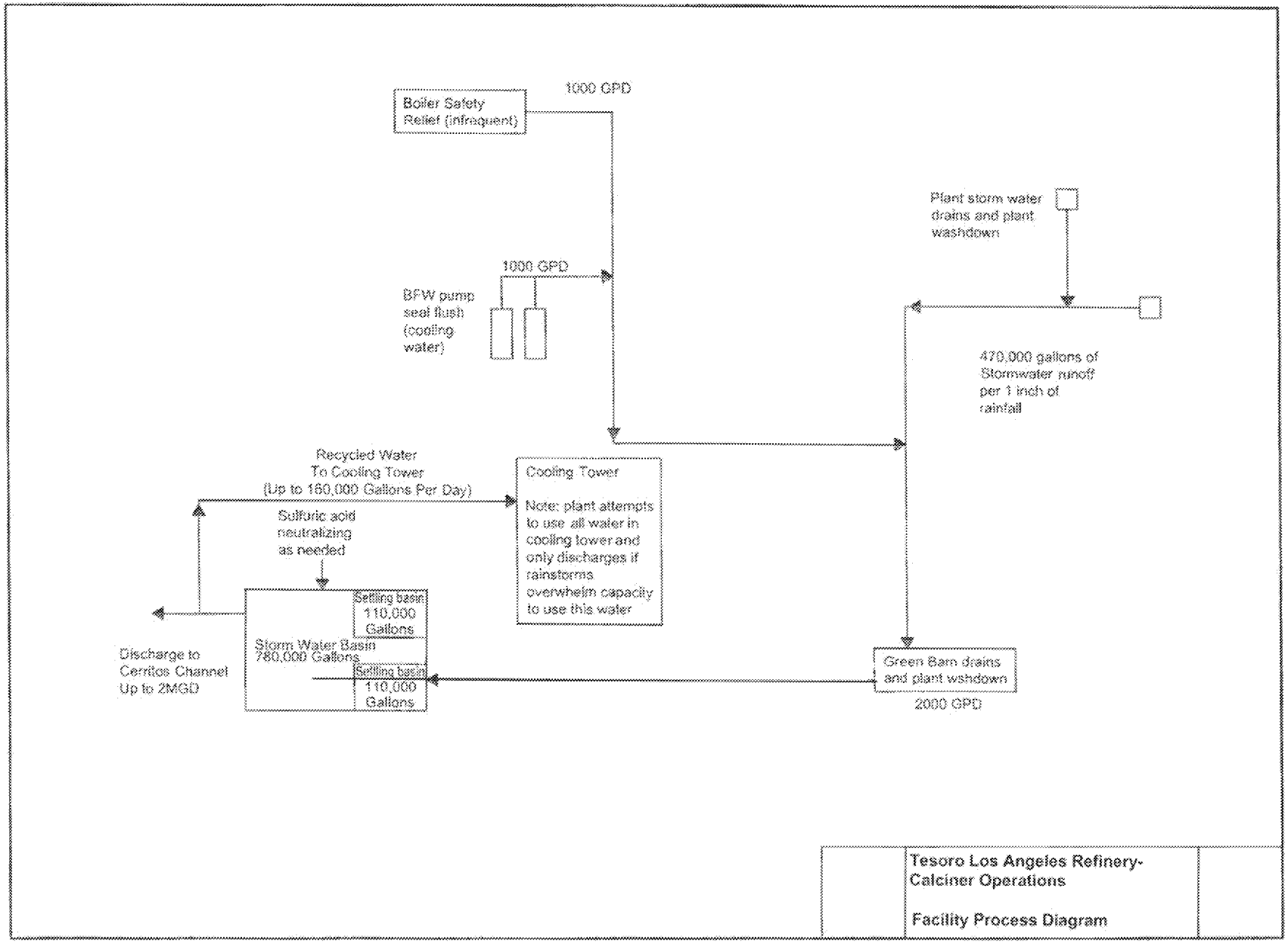

HARBOR COGEN
VALERO
PORT OF LONG BEACH
PORT OF LONG BEACH
PORT OF LONG BEACH
PORT OF LONG BEACH
PORT OF LONG BEACH
PIER A STREET
PIER A STREET
PIER A STREET
PIER A STREET
TOYOTA PARKING
SOUTHERN CALIFORNIA EDISON
SOUTHERN CALIFORNIA EDISON
SOUTHERN CALIFORNIA EDISON
SOUTHERN CALIFORNIA EDISON
LEGEND
CHAINLINK FENCE
EARTH DIKE
ELECTRICAL TRANSFORMER/PAD
BUILDING
60 0 120
1"=120'
AECOM
Tesoro Los Angeles Refinery- Calciner Operations
SITE MAP
FIGURE

Outfall Location



File: W:\work\Remediation\Makefile\Pyrolysis\Calciner\Work\Stormwater Permit Renewal\Permit Renewal\CADD\Figure 3.mxd
Date: Wednesday, January 25, 2012 9:25:50 AM

Facility Process Diagram



Tesoro Los Angeles Refinery-Calciner Operations

Facility Process Diagram

Signed Certification Supplement

CERTIFICATION SUPPLEMENT
FOR
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT APPLICATION

Please Print or Type

Legal Name of Applicant: Tesoro Refining & Marketing Company LLC

2450 Pier B Street, Long Beach, CA 90813

Facility: Tesoro Los Angeles Refinery- Calciner Operations

2450 Pier B Street, Long Beach, CA 90813

"I Certify under penalty of law that his document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Mike Strenk
Printed Name or Person Signing

Interim Area Operations Manager
Official Title

Sign

5/22/2018
Date Application Signed

Date Supplement Signed

US EPA Form 1

Please print or type in the unshaded areas only.

Form Approved. OMB No. 2040-0086.

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: F CAD982482085 D

LABEL ITEMS
I. EPA I.D. NUMBER
III. FACILITY NAME
V. FACILITY MAILING ADDRESS
VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent (*the area to the left of the label space lists the information that should appear*), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI (*except VI-B which must be completed regardless*). Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X		B. Does or will this facility (*either existing or proposed*) include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)	X		X	D. Is this a proposed facility (*other than those described in A or B above*) which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)		X		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP Tesoro Los Angeles Refinery- Calciner Operations

IV. FACILITY CONTACT

A. NAME & TITLE (*last, first, & title*): 2 Yung Chung, Senior Environmental Engineer

B. PHONE (*area code & no.*): (562) 499-3210

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX: 3 2450 Pier B Street

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 Long Beach	CA	90813

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: 5 2450 Pier B Street

B. COUNTY NAME: Los Angeles

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE (*if known*)
6 Long Beach	CA	90813	

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
7 2999 *(specify)* Petroleum Coke Calciner	7 *(specify)*
C. THIRD	**D. FOURTH**
7 *(specify)*	7 *(specify)*

VIII. OPERATOR INFORMATION

A. NAME: Tesoro Los Angeles Refinery- Calciner Operations

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☐ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box; if "Other," specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

Answer: P *(specify)*

D. PHONE *(area code & no.)*: A (562) 499-3210

E. STREET OR P.O. BOX: 2450 Pier B Street

F. CITY OR TOWN: Long Beach

G. STATE: CA

H. ZIP CODE: 90813

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☐ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*	N	CA0059153	
D. PSD *(Air Emissions from Proposed Sources)*	P	N/A	
B. UIC *(Underground Injection of Fluids)*	U	N/A	
E. OTHER *(specify)*		21300	*(specify)* LACSD Industrial Wastewater Discharge Permit
C. RCRA *(Hazardous Waste)*	R	N/A	
E. OTHER *(specify)*		174591	*(specify)* SCAQMD Title V Permit

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

Petroleum Coke Calciner With 34 MW Power Generation

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

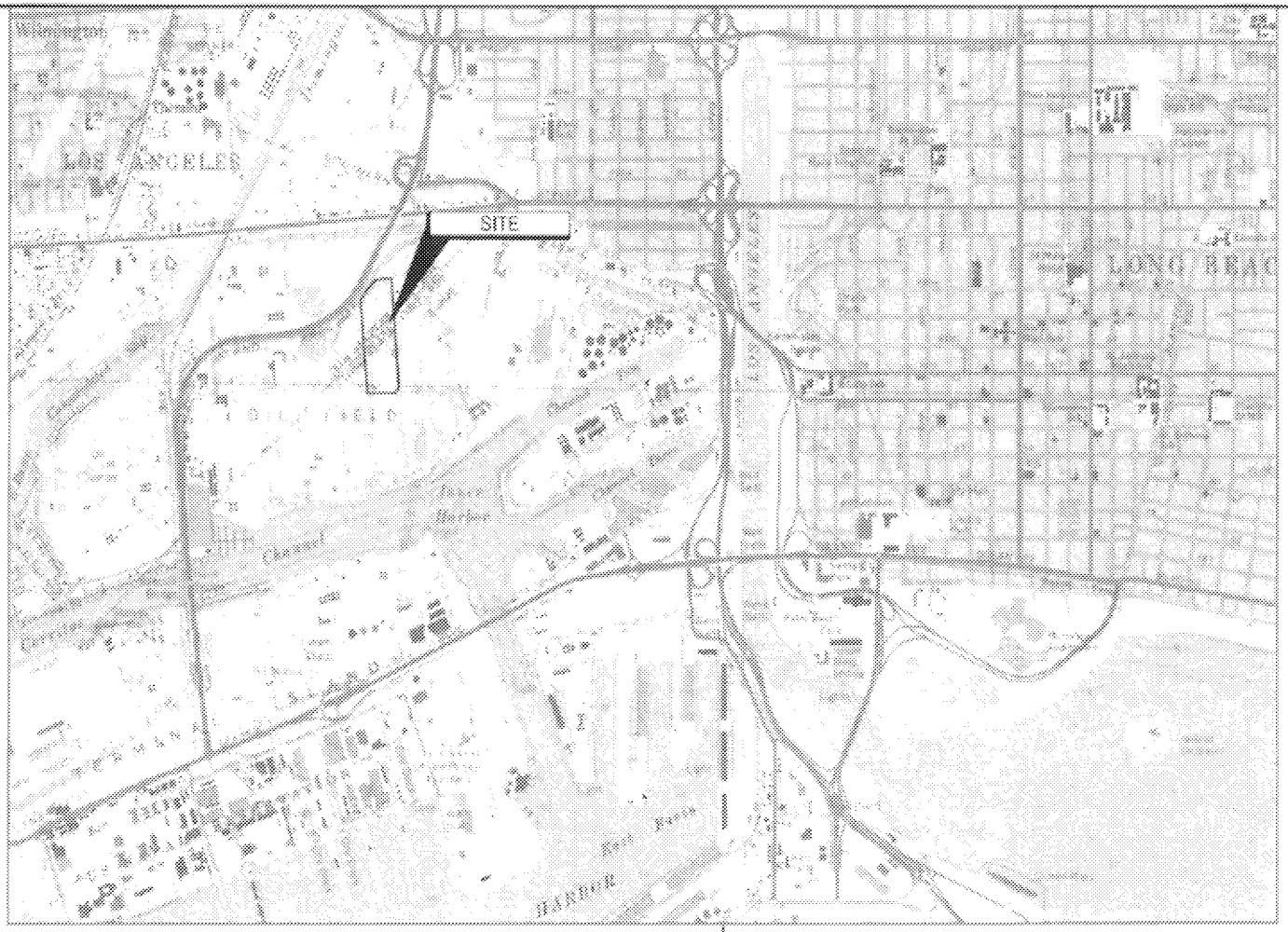
A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
Mike Strenk Interim Area Operations Manager		5/22/2018

COMMENTS FOR OFFICIAL USE ONLY

C

EPA Form 3510-1 (8-90)

Topographic Vicinity Map



Portion of 7.5-minute Series (Topographic) Map
United States Department of the Interior
Geological Survey
Long Beach, California Quadrangle 1978
Photorevised 1981

N

0 1/4 1/2 Mile

SCALE: 1" = 1/2 Mile

Tesoro Los Angeles Refinery- Calciner Operations

Site Location Map

US EPA Form 2C

Please print or type in the unshaded areas only.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)
CAD982483085

Form Approved.
OMB No. 2040-0086.
Approval expires 3-31-98.

FORM **2C** NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURE OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (*list*)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (*name*)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	
001	33.00	46.00	13.00	118.00	13.00	36.00	Cerritos Channel

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (*e.g., for certain mining activities*), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (*list*)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (*list*)	b. AVERAGE FLOW (*include units*)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
001	Stormwater Runoff	Up to 2.9 MGPD	Neutralization, Sedimentation	2-K	1-U
001	Plant Stormwater Runoff	470,000 gallons/inch of rainfa	Neutralization, Sedimentation	2-K	1-U
001	Green Cone Drainage & Plant Washdown	2000 GPD	Neutralization, Sedimentation	2-K	1-U
001	Boiler Water from Safety Device	1000 GPD	Neutralization, Sedimentation	2-K	1-U
001	Feedwater Pump Cooling Water	1000 GPD	Neutralization, Sedimentation	2-K	1-U

OFFICIAL USE ONLY (*effluent guidelines sub-categories*)

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C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

☑ YES (*complete the following table*) ☐ NO (*go to Section III*)

1. OUTFALL NUMBER (*list*)	2. OPERATION(s) CONTRIBUTING FLOW (*list*)	3. FREQUENCY		4. FLOW				
		a. DAYS PER WEEK (*specify average*)	b. MONTHS PER YEAR (*specify average*)	a. FLOW RATE (*in mgd*)		B. TOTAL VOLUME (*specify with units*)		C. DURATION (*in days*)
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	
001	Boiler Water- From Safety Device & Boiler Feeder Pump.	7	12	1000 GPD	1000 GPD			365
001	Green Coke Drainage and Plant Washdown	7	12	2000 GPD	2000 GPD			365

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☐ YES (*complete Item III-B*) ☑ NO (*go to Section IV*)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (*or other measure of operation*)?

☐ YES (*complete Item III-C*) ☑ NO (*go to Section IV*)

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION			2. AFFECTED OUTFALLS (*list outfall numbers*)
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. (*specify*)	

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operations of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ YES (*complete the following table*) ☑ NO (*go to Item IV-B*)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. NO.	b. SOURCE OF DISCHARGE		a. REQUIRED	b. PROJECTED

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (*or other environmental projects which may affect your discharges*) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction.

☐ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

CONTINUE ON PAGE 3

EPA I.D. NUMBER (copy from Item 1 of Form 1)
CAD982482085

CONTINUED FROM PAGE 2

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C. See instructions before proceeding – Complete one set of tables for each outfall – Annotate the outfall number in the space provided.
NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
No discharges occured from the facility during the permit period.			

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☑ YES (*list all such pollutants below*) ☐ NO (*go to Item VI-B*)

Chromium
Lead
Vanadium

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VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ YES (*identify the test(s) and describe their purposes below*) ☑ NO (*go to Section VIII*)

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☐ YES (*list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below*) ☑ NO (*go to Section IX*)

A. NAME	B. ADDRESS	C. TELEPHONE (*area code & no.*)	D. POLLUTANTS ANALYZED (*list*)

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. NAME & OFFICIAL TITLE (*type or print*)	B. PHONE NO. (*area code & no.*)
Mike Strenk, Interim Area Operations Manager	(562) 499-3200
C. SIGNATURE	**D. DATE SIGNED**
	5/22/2018

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PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (*use the same format*) instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): CAD982452085

V. INTAKE AND EFFLUENT CHARACTERISTICS (*continued from page 3 of Form 2-C*) [redacted] OUTFALL NO. 001

PART A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS (*specify if blank*) a. CONCEN-TRATION	b. MASS	4. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (*BOD*)												
b. Chemical Oxygen Demand (*COD*)												
c. Total Organic Carbon (*TOC*)												
d. Total Suspended Solids (*TSS*)												
e. Ammonia (*as N*)												
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature (*winter*)	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature (*summer*)	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X" a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCEN-TRATION	b. MASS	5. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)		X												
b. Chlorine, Total Residual		X												
c. Color		X												
d. Fecal Coliform		X												
e. Fluoride (16984-48-8)		X												
f. Nitrate-Nitrite (*as N*)		X												

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ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)		X												
h. Oil and Grease		X												
i. Phosphorus (as P), Total (7723-14-0)		X												
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (as SO_4) (14808-79-8)		X												
l. Sulfide (as S)		X												
m. Sulfite (as SO_3) (14265-45-3)		X												
n. Surfactants		X												
o. Aluminum, Total (7429-90-5)		X												
p. Barium, Total (7440-39-3)		X												
q. Boron, Total (7440-42-8)		X												
r. Cobalt, Total (7440-48-4)		X												
s. Iron, Total (7439-89-6)		X												
t. Magnesium, Total (7439-95-4)		X												
u. Molybdenum, Total (7439-98-7)		X												
v. Manganese, Total (7439-96-5)		X												
w. Tin, Total (7440-31-5)		X												
x. Titanium, Total (7440-32-6)		X												

CONTINUE ON PAGE V-3

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EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
CAD982482085	001

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part, please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)			X												
2M. Arsenic, Total (7440-38-2)		X													
3M. Beryllium, Total (7440-41-7)			X												
4M. Cadmium, Total (7440-43-9)			X												
5M. Chromium, Total (7440-47-3)		X													
6M. Copper, Total (7440-50-8)			X												
7M. Lead, Total (7439-92-1)		X													
8M. Mercury, Total (7439-97-6)			X												
9M. Nickel, Total (7440-02-0)			X												
10M. Selenium, Total (7782-49-2)			X												
11M. Silver, Total (7440-22-4)			X												
12M. Thallium, Total (7440-28-0)			X												
13M. Zinc, Total (7440-66-6)			X												
14M. Cyanide, Total (57-12-5)			X												
15M. Phenols, Total			X												
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

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CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)			X												
2V. Acrylonitrile (107-13-1)			X												
3V. Benzene (71-43-2)			X												
4V. Bis (Chloromethyl) Ether (542-88-1)			X												
5V. Bromoform (75-25-2)			X												
6V. Carbon Tetrachloride (56-23-5)			X												
7V. Chlorobenzene (108-90-7)			X												
8V. Chlorodibromomethane (124-48-1)			X												
9V. Chloroethane (75-00-3)			X												
10V. 2-Chloroethylvinyl Ether (110-75-8)			X												
11V. Chloroform (67-66-3)			X												
12V. Dichlorobromomethane (75-27-4)			X												
13V. Dichlorodifluoromethane (75-71-8)			X												
14V. 1,1-Dichloroethane (75-34-3)			X												
15V. 1,2-Dichloroethane (107-06-2)			X												
16V. 1,1-Dichloroethylene (75-35-4)			X												
17V. 1,2-Dichloropropane (78-87-5)			X												
18V. 1,3-Dichloropropylene (542-75-6)			X												
19V. Ethylbenzene (100-41-4)			X												
20V. Methyl Bromide (74-83-9)			X												
21V. Methyl Chloride (74-87-3)			X												

CONTINUE ON PAGE V-5

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CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (continued)															
22V. Methylene Chloride (75-09-2)			X												
23V. 1,1,2,2-Tetrachloroethane (79-34-5)			X												
24V. Tetrachloro-ethylene (127-18-4)			X												
25V. Toluene (108-88-3)			X												
26V. 1,2-Trans-Dichloroethylene (156-60-5)			X												
27V. 1,1,1-Trichloro-ethane (71-55-6)			X												
28V. 1,1,2-Trichloro-ethane (79-00-5)			X												
29V Trichloro-ethylene (79-01-6)			X												
30V. Trichloro-fluoromethane (75-69-4)			X												
31V. Vinyl Chloride (75-01-4)			X												
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)			X												
2A. 2,4-Dichloro-phenol (120-83-2)			X												
3A. 2,4-Dimethyl-phenol (105-67-9)			X												
4A. 4,6-Dinitro-O-Cresol (534-52-1)			X												
5A. 2,4-Dinitro-phenol (51-28-5)			X												
6A. 2-Nitrophenol (88-75-5)			X												
7A. 4-Nitrophenol (100-02-7)			X												
8A. P-Chloro-M-Cresol (59-50-7)			X												
9A. Pentachloro-phenol (87-86-5)			X												
10A. Phenol (108-95-2)			X												
11A. 2,4,6-Trichloro-phenol (88-06-2)			X												

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CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)			X												
2B. Acenaphtylene (208-96-8)			X												
3B. Anthracene (120-12-7)			X												
4B. Benzidine (92-87-5)			X												
5B. Benzo (a) Anthracene (56-55-3)			X												
6B. Benzo (a) Pyrene (50-32-8)			X												
7B. 3,4-Benzo-fluoranthene (205-99-2)			X												
8B. Benzo (ghi) Perylene (191-24-2)			X												
9B. Benzo (k) Fluoranthene (207-08-9)			X												
10B. Bis (2-Chloro-ethoxy) Methane (111-91-1)			X												
11B. Bis (2-Chloro-ethyl) Ether (111-44-4)			X												
12B. Bis (2-Chloroisopropyl) Ether (102-80-1)			X												
13B. Bis (2-Ethyl-hexyl) Phthalate (117-81-7)			X												
14B. 4-Bromophenyl Phenyl Ether (101-55-3)			X												
15B. Butyl Benzyl Phthalate (85-68-7)			X												
16B. 2-Chloro-naphthalene (91-58-7)			X												
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)			X												
18B. Chrysene (218-01-9)			X												
19B. Dibenzo (a,h) Anthracene (53-70-3)			X												
20B. 1,2-Dichloro-benzene (95-50-1)			X												
21B. 1,3-Di-chloro-benzene (541-73-1)			X												

CONTINUE ON PAGE V-7

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CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)															
22B. 1,4-Dichloro-benzene (106-46-7)			X												
23B. 3,3-Dichloro-benzidine (91-94-1)			X												
24B. Diethyl Phthalate (84-66-2)			X												
25B. Dimethyl Phthalate (131-11-3)			X												
26B. Di-N-Butyl Phthalate (84-74-2)			X												
27B. 2,4-Dinitro-toluene (121-14-2)			X												
28B. 2,6-Dinitro-toluene (606-20-2)			X												
29B. Di-N-Octyl Phthalate (117-84-0)			X												
30B. 1,2-Diphenyl-hydrazine (as Azo-benzene) (122-66-7)			X												
31B. Fluoranthene (206-44-0)			X												
32B. Fluorene (86-73-7)			X												
33B. Hexachloro-benzene (118-74-1)			X												
34B. Hexachloro-butadiene (87-68-3)			X												
35B. Hexachloro-cyclopentadiene (77-47-4)			X												
36B Hexachloro-ethane (67-72-1)			X												
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)			X												
38B. Isophorone (78-59-1)			X												
39B. Naphthalene (91-20-3)			X												
40B. Nitrobenzene (98-95-3)			X												
41B. N-Nitro-sodimethylamine (62-75-9)			X												
42B. N-Nitrosodi-N-Propylamine (621-64-7)			X												

CONTINUE ON REVERSE

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CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)															
43B. N-Nitro-sodiphenylamine (86-30-6)			X												
44B. Phenanthrene (85-01-8)			X												
45B. Pyrene (129-00-0)			X												
46B. 1,2,4-Tri-chlorobenzene (120-82-1)			X												
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (319-85-7)			X												
4P. γ-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Enosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

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EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
CAD982482085	001

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (continued)															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

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Laboratory Analytical Results

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-198887-1
Client Project/Site: Tesoro Wilmington Calciner Wastewater

For:
AECOM, Inc.
3995 Via Oro Ave
Long Beach, California 90810

Attn: Anu Berry

Authorized for release by:
12/30/2017 5:16:19 PM

Kathleen Robb, Project Manager II
(949)261-1022
kathleen.robb@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters; exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: AECOM, Inc.
Project/Site: Tesoro Wilmington Calciner Wastewater

TestAmerica Job ID: 440-198887-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-198887-1	RW-001-122017	Water	12/20/17 10:21	12/20/17 18:10

Case Narrative

Job ID: 440-198887-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-198887-1

Comments
No additional comments.

Receipt
The sample was received on 12/20/2017 6:10 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.1° C.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: AECOM, Inc.
Project/Site: Tesoro Wilmington Calciner Wastewater

TestAmerica Job ID: 440-198887-1

Client Sample ID: RW-001-122017 — Lab Sample ID: 440-198887-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.55	J	1.0	0.50	ug/L	1		200.8	Total Recoverable
Chromium	0.55	J	2.0	0.50	ug/L	1		200.8	Total Recoverable
Cr (III)	0.55	J	1.0	0.50	ug/L	1		218.6 CR3	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: AECOM, Inc.
Project/Site: Tesoro Wilmington Calciner Wastewater

TestAmerica Job ID: 440-198887-1

Client Sample ID: RW-001-122017

Lab Sample ID: 440-198887-1
Matrix: Water

Date Collected: 12/20/17 10:21
Date Received: 12/20/17 18:10

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		1.0	0.25	ug/L			12/20/17 23:09	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.50	ug/L		12/28/17 08:01	12/28/17 18:14	1
Arsenic	0.65	J	1.0	0.50	ug/L		12/28/17 08:01	12/28/17 18:14	1
Beryllium	ND		0.50	0.25	ug/L		12/28/17 08:01	12/28/17 18:14	1
Cadmium	ND		1.0	0.25	ug/L		12/28/17 08:01	12/28/17 18:14	1
Chromium	0.55	J	2.0	0.50	ug/L		12/28/17 08:01	12/28/17 18:14	1
Selenium	ND		2.0	0.50	ug/L		12/28/17 08:01	12/28/17 18:14	1
Silver	ND		1.0	0.50	ug/L		12/28/17 08:01	12/28/17 18:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (III)	0.55	J	1.0	0.50	ug/L			12/29/17 17:48	1

Method Summary

Client: AECOM, Inc.
Project/Site: Tesoro Wilmington Calciner Wastewater

TestAmerica Job ID: 440-198887-1

Method	Method Description	Protocol	Laboratory
218.6	Chromium, Hexavalent (Ion Chromatography)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
218.6 CR3	Chromium, Trivalent (Calculation)	EPA	TAL IRV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: AECOM, Inc.
Project/Site: Tesoro Wilmington Calciner Wastewater

TestAmerica Job ID: 440-198887-1

Client Sample ID: RW-001-122017

Lab Sample ID: 440-198887-1
Matrix: Water

Date Collected: 12/20/17 10:21
Date Received: 12/20/17 18:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	218.6		1			447736	12/20/17 23:09	MN	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	448959	12/28/17 08:01	JL	TAL IRV
Total Recoverable	Analysis	200.8		1			449183	12/28/17 18:14	MQP	TAL IRV
Total/NA	Analysis	218.6 CR3		1			449390	12/29/17 17:48	TLN	TAL IRV

Laboratory References:
TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

QC Sample Results

Client: AECOM, Inc.
Project/Site: Tesoro Wilmington Calciner Wastewater

TestAmerica Job ID: 440-198887-1

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Lab Sample ID: MB 440-447735/6
Matrix: Water
Analysis Batch: 447735

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		1.0	0.25	ug/L			12/20/17 06:05	1

Lab Sample ID: LCS 440-447735/4
Matrix: Water
Analysis Batch: 447735

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	50.0	49.3		ug/L		99	90 - 110

Lab Sample ID: MRL 440-447735/5
Matrix: Water
Analysis Batch: 447735

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	1.00	0.853	J	ug/L		85	50 - 150

Lab Sample ID: 440-198886-G-8 MS
Matrix: Water
Analysis Batch: 447735

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	9.9		50.0	59.5		ug/L		99	90 - 110

Lab Sample ID: 440-198886-G-8 MSD
Matrix: Water
Analysis Batch: 447735

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	9.9		50.0	59.4		ug/L		99	90 - 110	0	10

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-448959/1-A
Matrix: Water
Analysis Batch: 449183

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 448959

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.50	ug/L		12/28/17 08:01	12/28/17 18:07	1
Arsenic	ND		1.0	0.50	ug/L		12/28/17 08:01	12/28/17 18:07	1
Beryllium	ND		0.50	0.25	ug/L		12/28/17 08:01	12/28/17 18:07	1
Cadmium	ND		1.0	0.25	ug/L		12/28/17 08:01	12/28/17 18:07	1
Chromium	ND		2.0	0.50	ug/L		12/28/17 08:01	12/28/17 18:07	1
Selenium	ND		2.0	0.50	ug/L		12/28/17 08:01	12/28/17 18:07	1
Silver	ND		1.0	0.50	ug/L		12/28/17 08:01	12/28/17 18:07	1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 440-448959/2-A
Matrix: Water
Analysis Batch: 449183

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 448959

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	80.0	85.7		ug/L		107	85 - 115
Arsenic	80.0	78.3		ug/L		98	85 - 115
Beryllium	80.0	79.5		ug/L		99	85 - 115
Cadmium	80.0	76.4		ug/L		95	85 - 115
Chromium	80.0	80.8		ug/L		101	85 - 115
Selenium	80.0	80.5		ug/L		101	85 - 115
Silver	80.0	80.2		ug/L		100	85 - 115

Lab Sample ID: 440-198887-1 MS
Matrix: Water
Analysis Batch: 449183

Client Sample ID: RW-001-122017
Prep Type: Total Recoverable
Prep Batch: 448959

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		80.0	81.6		ug/L		102	70 - 130
Arsenic	0.65	J	80.0	74.7		ug/L		93	70 - 130
Beryllium	ND		80.0	74.4		ug/L		93	70 - 130
Cadmium	ND		80.0	70.7		ug/L		88	70 - 130
Chromium	0.55	J	80.0	76.6		ug/L		95	70 - 130
Selenium	ND		80.0	73.2		ug/L		92	70 - 130
Silver	ND		80.0	74.1		ug/L		93	70 - 130

Lab Sample ID: 440-198887-1 MSD
Matrix: Water
Analysis Batch: 449183

Client Sample ID: RW-001-122017
Prep Type: Total Recoverable
Prep Batch: 448959

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		80.0	86.3		ug/L		108	70 - 130	6	20
Arsenic	0.65	J	80.0	80.7		ug/L		100	70 - 130	8	20
Beryllium	ND		80.0	81.3		ug/L		102	70 - 130	9	20
Cadmium	ND		80.0	76.9		ug/L		96	70 - 130	8	20
Chromium	0.55	J	80.0	83.2		ug/L		103	70 - 130	8	20
Selenium	ND		80.0	78.9		ug/L		99	70 - 130	7	20
Silver	ND		80.0	80.5		ug/L		101	70 - 130	8	20

QC Association Summary

Client: AECOM, Inc.
Project/Site: Tesoro Wilmington Calciner Wastewater

TestAmerica Job ID: 440-198887-1

HPLC/IC

Analysis Batch: 447735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-198887-1	RW-001-122017	Dissolved	Water	218.6	
MB 440-447735/6	Method Blank	Total/NA	Water	218.6	
LCS 440-447735/4	Lab Control Sample	Total/NA	Water	218.6	
MRL 440-447735/5	Lab Control Sample	Total/NA	Water	218.6	
440-198886-G-8 MS	Matrix Spike	Total/NA	Water	218.6	
440-198886-G-8 MSD	Matrix Spike Duplicate	Total/NA	Water	218.6	

Metals

Prep Batch: 448959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-198887-1	RW-001-122017	Total Recoverable	Water	200.2	
MB 440-448959/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-448959/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-198887-1 MS	RW-001-122017	Total Recoverable	Water	200.2	
440-198887-1 MSD	RW-001-122017	Total Recoverable	Water	200.2	

Analysis Batch: 449183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-198887-1	RW-001-122017	Total Recoverable	Water	200.8	448959
MB 440-448959/1-A	Method Blank	Total Recoverable	Water	200.8	448959
LCS 440-448959/2-A	Lab Control Sample	Total Recoverable	Water	200.8	448959
440-198887-1 MS	RW-001-122017	Total Recoverable	Water	200.8	448959
440-198887-1 MSD	RW-001-122017	Total Recoverable	Water	200.8	448959

General Chemistry

Analysis Batch: 449390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-198887-1	RW-001-122017	Total/NA	Water	218.6 CR3	

Definitions/Glossary

Client: AECOM, Inc.
Project/Site: Tesoro Wilmington Calciner Wastewater

TestAmerica Job ID: 440-198887-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: AECOM, Inc.
Project/Site: Tesoro Wilmington Calciner Wastewater

TestAmerica Job ID: 440-198887-1

Laboratory: TestAmerica Irvine

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	CA01531	06-30-18
Arizona	State Program	9	AZ0671	10-14-18
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 17-003R	01-23-18 *
Hawaii	State Program	9	N/A	01-29-18 *
Kansas	NELAP	7	E-10420	07-31-18
Nevada	State Program	9	CA015312018-1	07-31-18
New Mexico	State Program	6	N/A	01-29-18 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18 *
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-18

* Accreditation/Certification renewal pending - accreditation/certification considered valid.