



July 15, 2013

Ms. Lourdes Gonzales
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Attn: NPDES Wastewater Division
Fuel General NPDES No. CAG912002

Subject: Second Quarter 2013 Self-Monitoring Report for the Packaged Groundwater Treatment Plant, Former Naval Fuel Depot Point Molate, Western Drive, Richmond, California (CIWQS 657165) Order No. R2-2012-0012, NPDES No. CAG912002

Dear Ms. Gonzales:

On behalf of the City of Richmond and under the direction of Upstream Point Molate, LLC, Terraphase Engineering Inc. (Terraphase) has prepared this National Pollutant Discharge Elimination System (NPDES) Second Quarter 2013 Self-Monitoring Report for the Packaged Groundwater Treatment Plant (PGWTP) located at the Former Naval Fuel Depot Point Molate in Richmond, California ("the Site"). This letter report was prepared in accordance with the RWQCB Order No. R2-2012-0012, NPDES Permit No. CAG912002 (adopted March 15, 2012), titled "GENERAL WASTE DISCHARGE REQUIREMENTS FOR: Discharge or Reuse of Extracted and Treated Groundwater Resulting from the Cleanup of Groundwater Polluted by Volatile Organic Compounds (VOC), Fuel Leaks and Other Related Wastes (VOC and Fuel General Permit)".

This report presents the data collected during the second quarter of 2013 ("the reporting period") in accordance with reporting requirements specified in Attachment E of the VOC and Fuel General Permit. This report presents flow rates, field water-quality measurements, and laboratory analytical results of the PGWTP influent and effluent for total petroleum hydrocarbons (TPH); benzene, toluene, ethylbenzene, and total xylenes (BTEX) compounds; 1,4-Dioxane; and polycyclic aromatic hydrocarbon (PAH).

PGWTP Description

The PGWTP treats groundwater from four screened extraction wells that are set into an extraction trench that extends below the groundwater table and has been backfilled with gravel to minimize the resistance to groundwater flow into the wells. The groundwater is pumped from the extraction wells using submersible well pumps and conveyed to an oil-water separator (OWS). In the OWS, the small amounts of free petroleum product present in the extracted groundwater flow to an oil reservoir tank. The water is then pumped from the OWS to a flow control tank where it flows by gravity into the bioreactor. After exiting the bioreactor, the water is pumped through a two-pod sand filter (installed in

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January 2013) into a phase separation tank, to remove any biological matter and sediment, followed by three 2,000-pound granular activated carbon (GAC) units. The GAC units are plumbed in series to further reduce the concentrations of the chemicals of concern in the PGWTP's effluent discharge. Treated groundwater is discharged directly to San Francisco Bay under the requirements of the VOC and Fuels General Permit.

PGWTP 2013 Second Quarter Operations

The PGWTP operated continuously from April 1, through June 30, 2013. No bypasses or upsets occurred during the reporting period, and the PGWTP was not shutdown. The PGWTP was operated and maintained in accordance with the Operation and Maintenance (O&M) Manual, prepared by Terraphase, dated July 25, 2011. A copy of this O&M Manual is located at the PGWTP.

During the second quarter of 2013, the PGWTP treated approximately 879,000 gallons of groundwater with an average flow rate of approximately 6.7 gallons per minute (Table 1).

During the second quarter of 2013, approximately 2.0 kilograms of TPH were removed by the PGWTP (Table 2).

Summary of NPDES Sampling Results

Influent and effluent water samples from the PGWTP were collected and analyzed during the reporting period in accordance with the VOC and Fuels General Permit. Tables 3A, 3B, and 3C summarize the analytical data for influent samples collected from the PGWTP. Tables 4A, 4B, and 4C summarize data for the same analytes in effluent samples collected from the PGWTP collected during the reporting period. The following sections of this report summarize the sampling results.

TPH Analytical Results

Influent and effluent sampling for TPH as gasoline (TPHg), TPH as diesel (TPHd), and TPH as bunker fuel C (TPHbc) was performed on April 11, May 17, and June 7, 2013. The analytical results for these compounds are presented in Table 3A for influent samples and in Table 4A for effluent samples.

The concentrations of TPHg and TPHd in effluent samples were below their respective effluent limitations during the reporting period. The concentrations of TPHbc in effluent samples were below the reporting limit of 100 µg/L during the reporting period.

Historically, the influent and effluent samples at the PGWTP have contained concentrations of compounds that interfere with the analytical laboratory's performance of TPH analysis when using United States Environmental Protection Agency (EPA) Method 8015B. Interference of this type is typically caused by a biogenic source, usually carboxylic acids that have elution times similar to the range of TPHd and TPHbc compounds. When present in samples, these organic acids are interpreted by laboratory analytical machines to be TPH. The interference in site samples has led to false elevated analytical results for TPH. Subjecting the sample to a process referred to as a "silica gel cleanup" effectively removes the interfering compounds from a sample and allows the laboratory to separate out

and quantify the true concentration of petroleum-related TPH compounds. Silica gel cleanups were performed on the TPHd and TPHbc samples collected from the PGWTP.

BTEX Analytical Results

Influent and effluent sampling for BTEX compounds was performed on April 11, May 17, and June 7, 2013. BTEX analytical results are presented in Table 3A for influent samples and in Table 4A for effluent samples.

The concentrations of BTEX compounds in the effluent samples were below their respective effluent limitations during the reporting period.

PAH Analytical Results

Influent and effluent sampling for PAH compounds was performed on April 11, May 17, and June 7, 2013. PAH analytical results are presented in Table 3B for influent samples and in Table 4B for effluent samples.

The concentrations of PAH compounds in the effluent samples were not detected above the analytical laboratory's reporting limit of 0.5 µg/L, which is the lowest reporting limit that the analytical laboratory can achieve.

1, 4 Dioxane Results

Influent and effluent sampling for 1, 4-Dioxane was performed on May 17, 2013 per the biannual requirement. 1, 4-Dioxane analytical results are presented in Table 3C for influent samples and in Table 4C for effluent samples.

The concentrations of 1, 4-Dioxane in the effluent sample was not detected above the analytical laboratory's reporting limit of 0.93 µg/L, which is the lowest reporting limit that the analytical laboratory can achieve.

Visual Observations

Visual observations regarding floating materials, discoloration, turbidity, odor, evidence of beneficial use, hydrographic condition, and weather condition for the receiving water; and odor, weather condition, deposits, discoloration, clogging, and valve exercise regarding the PGWTP were recorded during the monthly sampling events. The visual observation forms for the second quarter of 2013 are provided as Attachment A.

Quality Assurance/Quality Control (QA/QC)

Standard QA/QC measures were implemented during the sample collection, transportation, and chemical analysis process. The primary objective of these QA/QC measures is to ensure that resulting analytical data are reproducible, are of adequate quality for their intended use, and are representative of actual conditions.

- April Method Blank Detection:
 - TPHg was detected in the method blank associated with the samples collected on April 11, 2013. The concentration was 12 J $\mu\text{g/L}$.
- May Trip Blank Detection:
 - TPHg was detected in the trip blank that accompanied the samples collected May 17, 2013. The concentration was 12 J $\mu\text{g/L}$.
- May Method Blank Detection:
 - TPHg was detected in the method blank associated with the samples collected on May 17, 2013. The concentration was 11 J $\mu\text{g/L}$.
- June Trip Blank Detection:
 - TPHg was detected in the trip blank that accompanied the samples collected on June 7, 2013. The concentration was 12 J $\mu\text{g/L}$.
- June Method Blank Detection:
 - TPHg was detected in the method blank associated with the samples collected on June 7, 2013. The concentration was 11 J $\mu\text{g/L}$.

Analytes that were present in samples above the laboratory method detection limit (MDL) but below the laboratory reporting limit (RL) are qualified with a "J" flag to indicate that the concentration is an estimated concentration.

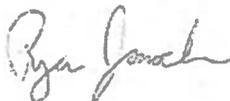
No further qualification has been applied to the analytical results presented in this report because the concentrations of the analytes in the method and trip blank samples are below the analytical laboratory's reporting limit and the concentrations of the analytes in the effluent samples are below the effluent limits in the VOC and Fuels Permit.

Compliance Evaluation Summary

During the reporting period, the PGWTP complied with the applicable sampling requirements.

If you have questions regarding this report, please call Ryan Janoch at (510) 645-1850.

Sincerely,
For Terraphase Engineering Inc.



Ryan Janoch P.E. (C78735)
Senior Professional Engineer

cc: Carlos Privat, City of Richmond

Jim Levine, Upstream Point Molate, LLC
Venkat Puranapanda, ACE Group
David Clark, United States Navy BRAC
Michael Leacox, Nichols Consulting Engineers
George Levya, California RWQCB
Eileen Whittey, PMCAC
Paul Carman, PMCAC
Joan Garrett, PMCAC

Tables:

- 1 PGWTP Summary of Flow Data
- 2 PGWTP Summary of Total Petroleum Hydrocarbon Mass Removal Data
- 3A PGWTP Summary of Influent BTEX and Total Petroleum Hydrocarbons Sample Results
- 3B PGWTP Summary of Influent PAH Sample Results
- 3C PGWTP Summary of influent 1, 4-Dioxane Sample Results
- 4A PGWTP Summary of Effluent BTEX and Total Petroleum Hydrocarbons Sample Results
- 4B PGWTP Summary of Effluent PAH Sample Results
- 4C PGWTP Summary of Effluent 1, 4-Dioxane Sample Results

Attachments:

Attachment A Visual Observation Forms

Table 1
PGWTP Summary of Flow Data
Former Naval Fuel Depot Point Molate, Richmond, California



Month	Period of Operation ⁽¹⁾ (days)	Volume Per Period (gallons)	Volume Per Period (liters)	Average Flow Rate During Operation (gpm)
April	30	324,575	1,228,516	7.5
May	31	247,140	935,425	5.5
June	30	307,240	1,162,903	7.1

Notes:

(1) Number of days system is operating, which may not coincide with the number of days in the month.
gpm = gallons per minute

Second Quarter 2013 Summary (4/1/2013 to 6/30/2013)	
Total days of operation	91
Total volume of groundwater treated (gallons)	878,955
Average flow rate (gpm)	6.7

Table 2
PGWTP Summary of TPH Mass Removal Data
Former Naval Fuel Depot Point Molate, Richmond, California



Month	Period of Operation ⁽¹⁾ (days)	Volume Per Period (gallons)	Volume Per Period (liters)	Total TPH Influent Concentration ⁽²⁾ (µg/l)	Total TPH Effluent Concentration ⁽²⁾ (µg/l)	Total TPH Removal Concentration (µg/l)	TPH Mass Removed Per Period ⁽³⁾ (kg)	TPH Mass Removal (kg/day) Rate
April	30	324,575	1,228,516	304	3	301	0.4	0.0
May	31	247,140	935,425	245	13	232	0.2	0.0
June	30	307,240	1,190,555	1,188	6	1,182	1.4	0.0

Notes:

(1) Number of days system is operating, which may not coincide with the number of days in the month.

(2) For total TPH concentration, non-detects are treated as zero.

(3) Total TPH concentration is based on addition of TPHg, TPHd, and TPHbc results. Because the range of hydrocarbons reported for each analyte overlaps, this mass removal may be biased high.

ND = Not Detected (Analyte was not detected above the RL.)

RL = Reporting Limit

TPH = Total Petroleum Hydrocarbons

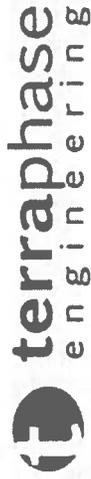
kg = kilograms

µg/l = micrograms per liter

Second Quarter 2013 Summary (4/1/2013 to 6/30/2013)	
TPH mass removed this period (kg)	2.0

Table 3A

PGWTP Summary of Influent BTEX and Total Petroleum Hydrocarbons Analytical Results
Former Naval Fuel Depot Point Molate, Richmond, California



Constituent	Analytical Method	Units	Sample Frequency	Sample Date											
				4/11/13				5/17/13				6/7/13			
				Result	RL	MDL	Date Analyzed	Result	RL	MDL	Date Analyzed	Result	RL	MDL	Date Analyzed
Benzene	EPA 8260B	µg/l	Q	ND	0.5	0.1	11-Apr	ND	0.5	0.1	20-May	ND	0.5	0.1	8-Jun
Toluene	EPA 8260B	µg/l	Q	ND	0.5	0.1	11-Apr	ND	0.5	0.1	20-May	ND	0.5	0.1	8-Jun
Ethylbenzene	EPA 8260B	µg/l	Q	ND	0.5	0.1	11-Apr	ND	0.5	0.1	20-May	ND	0.5	0.1	8-Jun
Total xylenes	EPA 8260B	µg/l	Q	ND	0.5	0.1	11-Apr	ND	0.5	0.1	20-May	ND	0.5	0.1	8-Jun
TPHg	EPA 8015B	µg/l	Q	13 J ⁽²⁾	50	11	12-Apr	15 J ⁽²⁾	50	11	21-May	18 J ⁽²⁾	50	11	13-Jun
TPHd ⁽¹⁾	EPA 8015B	µg/l	Q	51 Y	17	2.6	16-Apr	40 Y	17	2.6	22-May	250	17	2.6	12-Jun
TPHbc ⁽¹⁾	EPA 8015B	µg/l	Q	240 Y	100	--	16-Apr	190 Y	100	--	22-May	920	100	--	12-Jun

Notes:

(1) Silica gel cleanup used for TPHd and TPHbc analysis

(2) Analyte detected in Trip Blank and/or Method Blank

-- = Not measured/Not applicable

BOLD = Analyte detected

EPA = Environmental Protection Agency

J = Estimated concentration. Compound detected at a concentration below its RL and above the MDL.

MDL = Method Detection Limit

ND = Not Detected (Analyte was not detected above the RL.)

Q = Quarterly

RL = Reporting Limit

TPHbc = total petroleum hydrocarbons quantified as bunker C

TPHd = total petroleum hydrocarbons quantified as diesel

TPHg = total petroleum hydrocarbons quantified as gasoline

µg/l = micrograms per liter

Y = Sample exhibits chromatographic pattern, which does not resemble standard.

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Table 3B
 PGWTP Summary of Influent PAHs Analytical Results
 Former Naval Fuel Depot Point Molate, Richmond, California

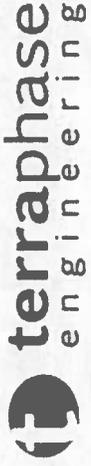
Constituent	Analytical Method	Units	Sample Frequency	Sample Date											
				4/11/13			5/17/13			6/7/13					
				Result	RL	MDL	Date Analyzed	Result	RL	MDL	Date Analyzed	Result	RL	MDL	Date Analyzed
Naphthalene	EPA 8270C-SIM	µg/l	Q	ND	0.09	0.02	15-Apr	0.02 J	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Acenaphthylene	EPA 8270C-SIM	µg/l	Q	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Acenaphthene	EPA 8270C-SIM	µg/l	Q	0.05 J	0.09	0.02	15-Apr	0.06 J	0.09	0.02	21-May	0.09 J	0.09	0.02	13-Jun
Fluorene	EPA 8270C-SIM	µg/l	Q	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Phenanthrene	EPA 8270C-SIM	µg/l	Q	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Anthracene	EPA 8270C-SIM	µg/l	Q	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Fluoranthene	EPA 8270C-SIM	µg/l	Q	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Pyrene	EPA 8270C-SIM	µg/l	Q	ND	0.09	0.02	15-Apr	0.05 J	0.09	0.02	21-May	0.1 J	0.09	0.02	13-Jun
Benzo(a)anthracene	EPA 8270C-SIM	µg/l	Q	0.02 J	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Chrysene	EPA 8270C-SIM	µg/l	Q	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Benzo(k)fluoranthene	EPA 8270C-SIM	µg/l	Q	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Benzo(a)pyrene	EPA 8270C-SIM	µg/l	Q	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Benzo(b)fluoranthene	EPA 8270C-SIM	µg/l	Q	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Indeno(1,2,3-cd)pyrene	EPA 8270C-SIM	µg/l	Q	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Dibenz(a,h)anthracene	EPA 8270C-SIM	µg/l	Q	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Benzo(g,h,i)perylene	EPA 8270C-SIM	µg/l	Q	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun

Notes:

- = Not measured/Not applicable
- BOLD** = Analyte detected
- EPA = Environmental Protection Agency
- J = Estimated concentration. Compound detected at a concentration below its RL and above the MDL.
- MDL = Method Detection Limit
- ND = Not Detected (Analyte was not detected above the RL.)
- Q = Quarterly
- RL = Reporting Limit
- µg/l = micrograms per liter

Table 3C

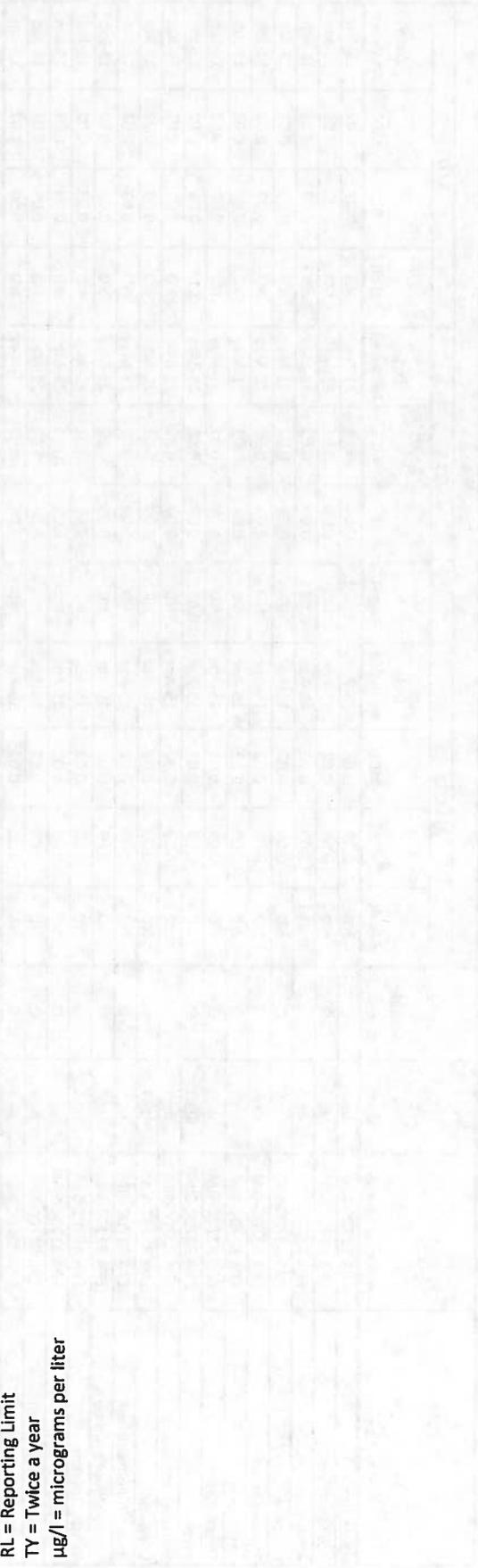
PGWTP Summary of Influent 1,4-Dioxane Analytical Results
Former Naval Fuel Depot Point Molate, Richmond, California



Constituent	Analytical Method	Units	Permit Required Sample Frequency	Sample Date			
				Result	RL	MDL	Date Analyzed
1,4-Dioxane	EPA 8270C-SIM	µg/l	TY	ND	0.93	0.066	21-May

Notes:

- = Not measured/not applicable
- BOLD** = analyte detected
- EPA = Environmental Protection Agency
- MDL = Method Detection Limit
- ND = Not Detected (Analyte was not detected above the RL.)
- RL = Reporting Limit
- TY = Twice a year
- µg/l = micrograms per liter



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Table 4A
PGWTP Summary of Effluent BTEX and Total Petroleum Hydrocarbons Analytical Results
Former Naval Fuel Depot Point Molate, Richmond, California

Constituent	Analytical Method	Units	Sample Freq.	Effluent Limit.	Sample Date											
					4/11/13				5/17/13				6/7/13			
					Result	RL	MDL	Date Analyzed	Result	RL	MDL	Date Analyzed	Result	RL	MDL	Date Analyzed
Benzene	EPA 8260B	µg/l	M	5	ND	0.5	0.1	11-Apr	ND	0.5	0.1	20-May	ND	0.5	0.1	8-Jun
Toluene	EPA 8260B	µg/l	M	5	ND	0.5	0.1	11-Apr	ND	0.5	0.1	20-May	ND	0.5	0.1	8-Jun
Ethylbenzene	EPA 8260B	µg/l	M	5	ND	0.5	0.1	11-Apr	ND	0.5	0.1	20-May	ND	0.5	0.1	8-Jun
Total xylenes	EPA 8260B	µg/l	M	5	ND	0.5	0.1	11-Apr	ND	0.5	0.1	20-May	ND	0.5	0.1	8-Jun
TPH _g	EPA 8015B	µg/l	M	50	ND	50	13	10-Jan	13 J ⁽²⁾	50	11	21-May	ND	50	11	13-Jun
TPH _d ⁽¹⁾	EPA 8015B	µg/l	M	50	2.7 J ⁽²⁾	17	2.6	16-Apr	ND	17	2.6	22-May	5.7 J ⁽²⁾	17	2.6	12-Jun
TPH _{bc} ^(1,3)	EPA 8015B	µg/l	M	--	ND	100	--	16-Apr	ND	100	--	22-May	ND	100	--	12-Jun

Notes:

- (1) Silica gel cleanup used for TPH_d and TPH_{bc} analysis
- (2) Analyte detected in Trip Blank and/or Method Blank
- (3) TPH_{bc} has a trigger limit of 50 µg/l. However, the analytical method reporting limit was 300 µg/l on January 10, 2012 and has been 100 µg/l since January 25, 2012.
- = not measured/not applicable
- BOLD** = Analyte detected
- EPA = Environmental Protection Agency
- J = Estimated concentration. Compound detected at a concentration below its RL and above the MDL.
- M = Monthly
- MDL = Method Detection Limit
- ND = Not Detected (Analyte was not detected above the RL.)
- RL = Reporting Limit
- TPH_{bc} = total petroleum hydrocarbons quantified as bunker C
- TPH_d = total petroleum hydrocarbons quantified as diesel
- TPH_g = total petroleum hydrocarbons quantified as gasoline
- µg/l = micrograms per liter
- Y = Sample exhibits chromatographic pattern, which does not resemble standard.

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Table 4B
PGWTP Summary of Effluent PAHs Analytical Results
Former Naval Fuel Depot Point Molate, Richmond, California

Constituent	Analytical Method	Units	Sample Frequency	Trigger	Sample Date											
					4/11/13			5/17/13			6/7/13					
					Result	RL	MDL	Date Analyzed	Result	RL	MDL	Date Analyzed	Result	RL	MDL	Date Analyzed
Naphthalene	EPA 8270C-SIM	µg/l	M	-	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Acenaphthylene	EPA 8270C-SIM	µg/l	M	-	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Acenaphthene	EPA 8270C-SIM	µg/l	M	-	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Fluorene	EPA 8270C-SIM	µg/l	M	-	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Phenanthrene	EPA 8270C-SIM	µg/l	M	-	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Anthracene	EPA 8270C-SIM	µg/l	M	-	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Fluoranthene	EPA 8270C-SIM	µg/l	M	-	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Pyrene	EPA 8270C-SIM	µg/l	M	-	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Benzo(a)anthracene	EPA 8270C-SIM	µg/l	M	0.0044	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Chrysene	EPA 8270C-SIM	µg/l	M	0.044	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Benzo(b)fluoranthene	EPA 8270C-SIM	µg/l	M	0.0044	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Benzo(k)fluoranthene	EPA 8270C-SIM	µg/l	M	0.0044	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Benzo(a)pyrene	EPA 8270C-SIM	µg/l	M	0.0044	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Indeno(1,2,3-cd)pyrene	EPA 8270C-SIM	µg/l	M	0.0044 ⁽¹⁾	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Dibenz(a,h)anthracene	EPA 8270C-SIM	µg/l	M	0.0044	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun
Benzo(g,h,i)perylene	EPA 8270C-SIM	µg/l	M	-	ND	0.09	0.02	15-Apr	ND	0.09	0.02	21-May	ND	0.09	0.02	13-Jun

Notes:

(1) The RL is greater than the trigger concentration and the minimum level listed in Appendix 4 of the 2005 State Water Resources Control Board, Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays,

-- = Not measured/Not applicable

EPA = Environmental Protection Agency

MDL = Method Detection Limit

RL = Reporting Limit

ND = Not Detected (Analyte was not detected above the RL.)

PAHs = Polycyclic aromatic hydrocarbons

M = Monthly

µg/l = micrograms per liter

Table 4C

PGWTP Summary of Effluent 1,4-Dioxane Analytical Results
Former Naval Fuel Depot Point Molate, Richmond, California



Constituent	Analytical Method	Units	Permit Required Sample Frequency	Sample Date		
				Result	RL	MDL
1,4-Dioxane	EPA 8270C-SIM	µg/l	TY	ND	0.93	0.066
						Date Analyzed 21-May

Notes:

- = Not measured/not applicable
- BOLD** = analyte detected
- EPA = Environmental Protection Agency
- MDL = Method Detection Limit
- ND = Not Detected (Analyte was not detected above the RL.)
- RL = Reporting Limit
- TY = Twice a year
- µg/l = micrograms per liter

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ATTACHMENT A
VISUAL OBSERVATION FORMS

Site Visit Date: 4/11/13 Personnel: Chris Jones	
Visual for Receiving waters	
None	Floating and suspended materials of waste origin (oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of
None	Discoloration and turbidity: Description of color, source, and size of affected area
None	Odor: presence or absence, characterization, source distance of travel, and wind direction
Yes, birds	Evidence of beneficial water use: presence of waterfowl or wildlife, people fishing, and other recreational activities in the vicinity of the site
N/A	Hydrographic condition, if relevant (Tidal conditions, depth of sample)
61, Wind 8.0 mph W, 0.1" total precipitation	Weather Conditions: air temperature, wind direction/velocity, Total precipitation in previous 5 days and on day of observation
Visual for Groundwater Treatment System	
None	Odor: presence or absence, characterization, source, distance of travel, and wind direction
8.0 mph W	Weather Conditions: Wind direction/velocity
None	Deposits, discolorations, and/or plugging in the treatment system that could adversely affect the system reliability and performance
Yes	Operation of the float and pressure shutoff valves installed to prevent system overflow or bypass

Site Visit Date: 5/23/13 Personnel: Chris Jones	
Visual for Receiving waters	
None	Floating and suspended materials of waste origin (oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of
None	Discoloration and turbidity: Description of color, source, and size of affected area
None	Odor: presence or absence, characterization, source distance of travel, and wind direction
Yes, birds	Evidence of beneficial water use: presence of waterfowl or wildlife, people fishing, and other recreational activities in the vicinity of the site
N/A	Hydrographic condition, if relevant (Tidal conditions, depth of sample)
66, Wind 5.0 mph W, 0.0" total precipitation	Weather Conditions: air temperature, wind direction/velocity, Total precipitation in previous 5 days and on day of observation
Visual for Groundwater Treatment System	
None	Odor: presence or absence, characterization, source, distance of travel, and wind direction
5.0 mph W	Weather Conditions: Wind direction/velocity
None	Deposits, discolorations, and/or plugging in the treatment system that could adversely affect the system reliability and performance
Yes	Operation of the float and pressure shutoff valves installed to prevent system overflow or bypass

Site Visit Date: 6/7/13 Personnel: Chris Jones	
Visual for Receiving waters	
None	Floating and suspended materials of waste origin (oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of
None	Discoloration and turbidity: Description of color, source, and size of affected area
None	Odor: presence or absence, characterization, source distance of travel, and wind direction
Yes, birds, chipmunks	Evidence of beneficial water use: presence of waterfowl or wildlife, people fishing, and other recreational activities in the vicinity of the site
N/A	Hydrographic condition, if relevant (Tidal conditions, depth of sample)
63, Wind 4.0 mph W, 0.0" total precipitation	Weather Conditions: air temperature, wind direction/velocity, Total precipitation in previous 5 days and on day of observation
Visual for Groundwater Treatment System	
None	Odor: presence or absence, characterization, source, distance of travel, and wind direction
4.0 mph W	Weather Conditions: Wind direction/velocity
None	Deposits, discolorations, and/or plugging in the treatment system that could adversely affect the system reliability and performance
Yes	Operation of the float and pressure shutoff valves installed to prevent system overflow or bypass

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September 15, 2013

Mr. George Leyva
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

sent via: email

Subject: Monthly Remediation Status Report for Work in August 2013, Former Naval Fuel Depot Point Molate, Richmond, California

Dear Mr. Leyva:

This monthly remediation status report summarizes the remediation activities conducted by Terraphase Engineering Inc. (Terraphase) on behalf of the City of Richmond at the former Naval Fuel Depot Point Molate (the Site). This remediation status report is intended to meet the requirements of Task 9 in the Regional Water Quality Control Board (RWQCB) Order R2-2011-0087 (RWQCB 2011d). The requirements of Task 9 are as follows:

The Discharger shall submit a report to the Regional Water Board, 30 days prior to the start of any onsite remediation activities, and then on a monthly basis beginning 30 days after the start of the remediation activities, outlining the onsite remediation activities accomplished during the past month and those planned for the following month. The first monthly report at the beginning of each quarter shall include monitoring and test results and any conclusions or proposed changes to the remediation process based on those results. If any changes to the remediation are proposed during any monthly report, applicable supporting monitoring or test data will be submitted at that time. The status report shall also verify that the Prohibitions in Section A, stipulated above, have been adhered to. Should any of those prohibitions be trespassed, the report shall propose a recommendation acceptable to the Executive Officer to correct the trespass.

This remediation status report provides a monthly update on the progress of environmental investigations, remediation, maintenance, and monitoring at the Site. This report is organized around each task listed in the RWQCB Order R2-2011-0087 (RWQCB 2011d). Additional tasks related to the Installation Restoration (IR) Site 3 Packaged Groundwater Treatment Plant (PGWTP) and site-wide groundwater monitoring are also included below. For major work tasks completed in 2012, please see the monthly status report for December 2012 (Terraphase 2013a). A reference list of reports and submittals is included as an attachment to this letter.

Task 1: Soil Cleanup Goals (Compliance Date: February 13, 2012)

Work completed in August 2013:

None

Major Work Items Previously Completed in 2013:

1. Analysis of the existing soil data compared to the proposed soil cleanup goals

Upcoming Work in September 2013:

None

Task 2: Soil and Groundwater Management Plan (Compliance Date: March 15, 2012)

Complete - *Final Soil and Groundwater Management Plan submitted to the RWQCB September 21, 2012 (Terraphase 2012jj)*

Task 3a: IR Site 3 Feasibility Study and Remedial Action Plan (Compliance Date: May 4, 2012)

Work completed in August 2013:

1. Pre-project planning for IR Site 3 remediation approach

Major Work Items Previously Completed in 2013:

1. Discussion with the RWQCB regarding the draft IR Site 3 Feasibility Study and Remedial Action Plan (FSRAP; Terraphase 2011s)
Developed the internal draft summary of the industrial waste area waste characterization investigation for inclusion in the Waste Characterization Report (Terraphase 2012k) Developed the internal draft estimated costs of remedial alternatives for inclusion in the Waste Characterization Report (Terraphase 2012k)
2. Submitted the internal draft summary of the industrial waste area waste characterization to the City of Richmond and Upstream Point Molate (Upstream)
3. Submitted internal draft estimated costs of remedial alternatives to the City of Richmond and Upstream
4. Meeting on June 11, 2013 with the RWQCB, Upstream and the City of Richmond to discuss the remedial alternatives
5. Preparation and submission of Revised Remediation Scenarios to the RWQCB (Terraphase 2013p)
6. Meeting on July 23, 2013 with the RWQCB, City of Richmond, PMCAC, Nichols Consulting Engineering, and Nelson Environmental Remediation

Upcoming Work in September 2013:

1. Revise the Waste Characterization Report and Feasibility Study/Remedial Action Plan

Task 3b: IR Site 3 Remedial Action Completion Report (Compliance Date: February 3, 2014)

Not Applicable

Task 4a: IR Site 4 Interim Remedial Action Work Plan (Compliance Date: April 3, 2012)

Complete - *IR Site 4 Interim Remedial Action Work Plan submitted to the RWQCB (Terraphase 2011r, 2012gg, 2012ii, and 2012mm)*

Task 4b: IR Site 4 Interim Remedial Action Completion Report (Compliance Date: November 2, 2012)

Work completed in August 2013:

1. Pre-project planning for the third round of post-treatment performance monitoring

Major Work Items Previously Completed in 2013:

1. Submitted the Interim Remedial Measures Implementation Report to the RWQCB (Terraphase 2013c)
2. Conducted initial post-treatment performance monitoring and evaluate data
3. Conducted the second round of post-treatment performance monitoring

Upcoming Work in September 2013:

1. Conduct the third round of post-treatment performance monitoring

Task 4c: IR Site 4 Human Health Risk Assessment (Compliance Date: November 4, 2013)

Not Applicable

Task 4d: IR Site 4 Feasibility Study and Remedial Action Plan (Compliance Date: February 3, 2014)

Not Applicable

Task 4e: IR Site 4 Remedial Action Completion Report (Compliance Date: February 3, 2015)

Not Applicable

Task 5: UST Management Plan (Compliance Date: March 4, 2013)

Work completed in August 2013:

1. Prepared internal draft of responses to RWQCB comments on the UST Management Plan

Major Work Items Previously Completed in 2013:

1. Reviewed the current environmental closure status of the USTs
2. Reviewed the current UST Post-Closure Monitoring and Maintenance Plan (ITSI 2005)
3. Submitted the UST Management Plan to the City of Richmond, Upstream, and the RWQCB (Terraphase 2013j)
4. Reviewed comments from the RWQCB on the UST Management Plan (Terraphase 2013j)

Upcoming Work in September 2013:

1. Respond to RWQCB comments on the UST Management Plan (Terraphase 2013j) and submit final UST Management Plan to the RWQCB

Task 6: UST Removal Plan (Compliance Date: 90 days prior to UST demolition)

Not Applicable

Task 7: UST Status Report (Compliance Date: June 3, 2012)

Work completed in August 2013:

1. Conducted the routine monthly UST closure monitoring inspections
2. Preparation and submittal of the 2nd Quarter 2013 UST monitoring report to the RWQCB (Terraphase 2013v)

Major Work Items Previously Completed in 2013:

1. Conducted the routine monthly UST closure monitoring inspections

2. Preparation of the combined fourth quarter and annual 2012 monitoring report (Terraphase 2013e).
3. Conducted the biennial UST interior monitoring inspections
4. Prepared the draft five-year UST inspection report
5. Submitted the first quarter UST monitoring report to the RWQCB (Terraphase 2013l)

Upcoming Work in September 2013:

1. Conduct routine monthly UST closure monitoring inspections
2. Submit the UST interior inspection report to the RWQCB

Task 8: Amended Land Use Controls (Compliance Date: When environmental closure is requested)

Not Applicable

Task 9: Remediation Status Reports (Compliance Date: Monthly)

Work completed in August 2013:

1. Submitted the monthly remediation status report for July 2013 to the RWQCB (Terraphase 2013t)

Major Work Items Previously Completed in 2013:

1. Submitted the monthly remediation status report for December 2012 to the RWQCB (Terraphase 2013a)
2. Submitted the monthly remediation status report for January 2013 to the RWQCB (Terraphase 2013g)
3. Submitted the monthly remediation status report for February 2013 to the RWQCB (Terraphase 2013i)
4. Submitted the monthly remediation status report for March 2013 to the RWQCB (Terraphase 2013k)
5. Submitted insurance budget summaries and project status updates for December 2012, January, February, and March 2013 to Upstream, the City of Richmond, the US Navy's Base Realignment and Closure (BRAC) Program, and ACE Group
6. Submitted the monthly remediation status report for April 2013 to the RWQCB (Terraphase 2013m)
7. Submitted the monthly remediation status report for May 2013 to the RWQCB (Terraphase 2013q)
8. Submitted the monthly remediation status report for June 2013 to the RWQCB (Terraphase 2013r)

Upcoming Work in September 2013:

1. Submit the monthly remediation status report for August 2013 to the RWQCB
2. Submit insurance budget summary and project status update for April, May, June, and July 2013 to the City of Richmond, the BRAC Program, and the ACE Group

Task 10: Discoveries During Facility Redevelopment (Compliance Date: 60 days from initial discovery)

None

Task 11: IR Site 1 ROD (Compliance Date: None)

Work completed in August 2013:

1. Routine monthly landfill inspection of signs, gates, locks, etc.
2. Routine operation, maintenance, and monitoring of the landfill treatment system

3. Preparation and submittal of the second quarter 2013 monitoring report to the RWQCB (Terraphase 2013w)

Major Work Items Previously Completed in 2013:

1. Routine monthly landfill inspection of signs, gates, locks, etc. per the Final Post-Closure Maintenance and Monitoring Plan (TTEMI 2002)
2. Routine operation, maintenance, and monitoring of the landfill treatment system
3. Installation and troubleshooting of new settling tank floats
4. Installation and troubleshooting of a new discharge pump
5. Submission of the fourth quarter 2012 monitoring report to the RWQCB (Terraphase 2013f)
6. Installation and troubleshooting of the new sand filters
7. Preparation and submittal of the first quarter 2013 monitoring report (Terraphase 2013n)
8. Quarterly landfill inspection with Contra Costa County Environmental Health
9. Preparation of an addendum to the post-closure maintenance and monitoring plan (PMMP)

Upcoming Work in September 2013:

1. Routine monthly landfill inspection of signs, gates, locks, etc.
2. Routine operation, maintenance, and monitoring of the landfill treatment system
3. Submittal of the PMMP addendum to the RWQCB, Upstream, and the City of Richmond

Task 12: Construction Stormwater General Permit (Compliance Date: Prior to field work)

Not Applicable

IR Site 3: PGWTP

Terraphase, under the direction of Upstream and the City of Richmond, operates, maintains, monitors, and prepares the quarterly and annual monitoring reports for the PGWTP under the existing General Waste Discharge Requirements for: Discharge or Reuse of Extracted and Treated Groundwater Resulting from the Cleanup of Groundwater Polluted by Volatile Organic Compounds (VOC), Fuel Leaks and Other Related Wastes (VOC and Fuel General Permit) (RWQCB 2012a). The following summarizes the activities related to the continued operation, maintenance, and monitoring of the PGWTP.

Work completed in August 2013:

1. Routine operation, maintenance, and monitoring of the PGWTP
2. Troubleshoot equipment/bioreactor
3. Preparation and submittal of the second quarter 2013 monitoring report to the RWQCB (Terraphase 2013u)

Major work items completed previously in 2013:

1. Routine operation, maintenance, and monitoring of the PGWTP
2. Installation of a new compressor for the automatic influent valve
3. Preparation and submission of the combined annual and fourth quarter 2012 monitoring report to the RWQCB (Terraphase 2013d)
4. Installation of an alarm float on the secondary containment pad
5. Prepared an analysis of costs and designs for a replacement bio-reactor tank
6. Preparation and submittal of the first quarter 2013 monitoring report to the RWQCB (Terraphase 2013o)
7. Repairs to the extraction well pumps and oil-water separator discharge pump
8. Emergency repairs to the bio-reactor and associated equipment

Upcoming Work in September 2013:

1. Routine operation, maintenance, and monitoring of the PGWTP
2. Optimize configuration of the PGWTP

Site-wide Groundwater Monitoring

The purpose of the site-wide groundwater monitoring is to provide groundwater quality data that can be evaluated against established screening criteria for the Site. This program will help protect human health and the environment and prevent releases to the San Francisco Bay. Integrating data collected under this program with previous data is intended to support compliance and closure in accordance with regulatory requirements. Groundwater monitoring is being conducted on a semi-annual basis (wet-season and dry-season) per the Site-Wide Groundwater Monitoring Plan (Terraphase 2011n) that was approved by the RWQCB on August 30, 2011 (RWQCB 2011b). Data collected is summarized and submitted as semi-annual monitoring reports to the RWQCB.

Work completed in August 2013:

1. Pre-project planning for the semi-annual dry season groundwater monitoring event

Major work items completed previously in 2013:

1. Submitted the Dry-Season Semi-Annual Groundwater Monitoring Report (Terraphase 2013b) to the City of Richmond, Upstream, and the RWQCB
2. Disposal of wastes generated during well destruction activities
3. Submitted Well Completion Reports for the well destruction activities to Contra Costa County Environmental Health and the California Department of Water Resources
4. Submitted the final Well Abandonment Completion Report to the RWQCB, the City of Richmond, and Upstream (Terraphase 2013h)
5. Prepared and submitted the semi-annual wet season groundwater monitoring report to the RWQCB (Terraphase 2013s)

Upcoming Work in September 2013:

1. Pre-project planning for the semi-annual dry season groundwater monitoring event

Prohibitions Verification

As required in Task 9 of the RWQCB Order, the following prohibitions (Section A of the RWQCB Order) were adhered to during the remedial activities in August 2013, to the knowledge of Terraphase.

1. The discharge of wastes and/or non-hazardous or hazardous substances in a manner which will degrade, or threaten to degrade, water quality or adversely affect, or threaten to adversely affect, the beneficial uses of the waters of the State is prohibited.
2. Further migration of wastes or hazardous substances through subsurface transport to waters of the State is prohibited.
3. Activities associated with the subsurface investigation and cleanup that will cause adverse migration of wastes or hazardous substances are prohibited.
4. The tidal marsh habitat and wetland habitats onsite shall be completely avoided unless encroachment on these areas is required to implement Facility remediation work and resultant impacts to the affected habitat are mitigated through a plan approved by the Executive Officer. A setback of 50 feet shall be established around the tidal marsh and any wetland area as a means of preventing any unintended impacts to it from the remediation.
5. The Site's offshore eel-grass habitat shall be completely avoided during any remedial work to the maximum extent practicable.

Summary

The above detailed summaries by task provide a look at the ongoing remediation activities at the former Naval Fuel Depot Point Molate. The most significant of which are the IR Site 3 FS/RAP and Waste Characterization Report. The RWQCB's comments on the FS/RAP and Waste Characterization Report (including soil cleanup goals) will be incorporated into the two documents with additional information collected during the soil gas investigation and industrial waste area investigation and re-submitted to the RWQCB as draft final in 2013. The draft final FS/RAP and Waste Characterization Report will be presented to the PMCAC prior to submittal to the RWQCB. In-situ groundwater remediation at IR Site 4 using Enhanced Reductive Dechlorination (ERD) was completed in December 2012 and monitoring of the remediation is on-going. The semi-annual dry season groundwater monitoring is scheduled for October 2013.

If you have questions regarding this report, please call Ryan Janoch at (510) 645-1850.

Sincerely,
For Terraphase Engineering Inc.

DRAFT

Ryan Janoch, PE (C78735)
Senior Professional Engineer

cc: Craig Murray, City of Richmond
Carlos Privat, City of Richmond
Bruce Goodmiller, City of Richmond
LaShonda White, City of Richmond
Michael Leacox, Nichols Consulting Engineers
David Clark, BRAC Program Management Office
Venkat Puranapanda, ACE Group
Eileen Whittey, PMCAC
Paul Carman, PMCAC
Joan Garrett, PMCAC

Attachments: Point Molate Bibliography

Point Molate Bibliography

- City of Richmond. 2012. Letter from Richard Mitchell (Planning Department) to Mr. Tristan Tozer (California Office of Historic Preservation) RE: *Section 106 Consultation for the Point Molate IR Site 3 Remediation Project, Former Naval Fuel Depot Point Molate, Richmond, CA*. April 3.
- Innovative Technical Solutions, Inc. (ITSI). 2005. Post-Closure UST Maintenance and Monitoring Plan. December.
- Regional Water Quality Control Board - San Francisco Bay Region (RWQCB). 2006. Order No. R2-2006-0075 NPDES No. CAG912002 General Waste Discharge Requirements for: Discharge or Reuse of Extracted and Treated Groundwater Resulting from the Cleanup of Groundwater Polluted by Fuel Leaks and Other Related Wastes at Service Stations and Similar Sites. November 13.
- RWQCB. 2007. Letter from Ms. Lila Tang to United States Navy Subject: *Notice of General Permit Coverage for Discharges from the Packaged Groundwater Treatment Plant located at Naval Fuel Depot Point Molate, Richmond, Contra Costa County, CA 94801, under the Requirements of Order No. R2-2006-0075, NPDES Permit No. CAG912002 (Fuels General Permit)*. June 6.
- RWQCB. 2010. Letter from Mr. George Leyva to Mr. Steve Duran RE: *Approval of Field Assessment Methodology for Potentially Mobile Free Petroleum Product at Installation Restoration (IR) Site 3 at the former Naval Fuel Depot (NFD) Point Molate, Richmond, Contra Costa County*. November 30.
- RWQCB. 2011a. Letter from Mr. George Levya to Mr. Steve Duran RE: *Approval of Excavation Delineation Work Plan for Former Point Molate NFD Site-3 Richmond, Contra Costa County*. August 26.
- RWQCB. 2011b. Letter from Mr. George Levya to Mr. Steve Duran RE: *Approval of Site-Wide Groundwater Monitoring Plan for the Former Point Molate Naval Fuel Depot, Richmond, Contra Costa County*. August 30.
- RWQCB. 2011c. Letter from Mr. George Levya to Mr. Steve Duran RE: *Approval of Draft Groundwater Remediation Work Plan, IR Site 4, Drum Lot 2/Building 87 Area, Former Naval Fuel Depot Point Molate, Richmond*. November 8.
- RWQCB. 2011d. Order No. R2-2011-0087 Updated Site Cleanup Requirements and Recission of Order Nos. 95-235, 97-124 and 97-125, City of Richmond and United States Department of Defense, Department of the Navy for the: Former Point Molate Naval Fuel Depot, Located at 1009 Western Drive, Richmond, Contra Costa County. December 19.
- RWQCB. 2012a. Order No. R2-2012-0012 NPDES No. CAG912002 General Waste Discharge Requirements for: Discharge or Reuse of Extracted and Treated Groundwater Resulting from the Cleanup of Groundwater Polluted by Volatile Organic Compounds (VOC), Fuel Leaks and Other Related Wastes (VOC and Fuel General Permit). February 8.
- RWQCB. 2012b. Letter from Mr. George Levya to Mr. Bruce Goodmiller RE: *Review and Comments - Draft FS/RAP, Former Naval Fuel Depot Point Molate, Richmond, Contra Costa County*. February 17.
- RWQCB. 2012c. Letter from Ms. Lila Tang to Mr. Steve Duran RE: *Reauthorization to Discharge from the Packaged Groundwater Treatment Plant (PGWTP) located at the former Naval Fuel Depot, Point Molate, Western Drive, City of Richmond, Contra Costa County under the Requirements of Order No. R2-2012-0012, NPDES Permit No. CAG912002 (VOC and Fuel General Permit)*. March 22.

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- Terraphase. 2010b. Notice of Increased Flow through the Packaged Groundwater Treatment Plant, Former Naval Fuel Depot Point Molate, Richmond, California (Order No. R2-2006-0075 NPDES No. CAG912002). November 17.
- Terraphase. 2011a. Fourth Quarter 2010 Landfill Monitoring Report IR Site 1, Former Naval Fuel Depot Point Molate, Richmond, California. January 25.
- Terraphase. 2011b. Combined Fourth Quarter and Annual 2010 Self-Monitoring Report for the Packaged Groundwater Treatment Plant, Former Naval Fuel Depot Point Molate, Richmond, California (Order No. R2-2006-0075, NPDES Permit No. CAG912002. February 15.
- Terraphase. 2011c. Response to Comments and Questions Regarding the Fourth Quarter and Annual 2010 Self-Monitoring Report for the Packaged Groundwater Treatment Plant, Former Naval Fuel Depot Point Molate, Richmond, California Order No. R2-2006-0075, NPDES Permit No. CAG912002). March 23.
- Terraphase. 2011d. First Quarter 2011 Landfill Monitoring Report IR Site 1, Former Naval Fuel Depot Point Molate, Richmond, California. April 22.
- Terraphase. 2011e. First Quarter 2011 Self-Monitoring Report for the Packaged Groundwater Treatment Plant, Former Naval Fuel Depot Point Molate, Richmond, California (Order No. R2-2006-0075, NPDES Permit No. CAG912002). April 22.
- Terraphase. 2011f. First Five Year Review Former Point Molate Naval Fuel Depot Installation Restoration Site 1, Richmond, California. June 6.
- Terraphase. 2011g. Notice of Temporary Shutdown of the Packaged Groundwater Treatment Plant, Former Naval Fuel Depot Point Molate, Richmond, California (Order Number R2-2006-0075, NPDES Permit Number CAG912002). June 7.
- Terraphase. 2011h. Field and Laboratory Assessment of Mobile Free Product Report, IR Site 3, Former Point Molate Naval Fuel Depot, Richmond, California. June 15.
- Terraphase. 2011i. Notice of Intent (Discharge Permit Application) for the Packaged Groundwater Treatment Plant, Former Naval Fuel Depot Point Molate, Richmond, California (Order No. R2-2006-0075 NPDES Number CAG912002). July 11.
- Terraphase. 2011j. Second Quarter 2011 Landfill Monitoring Report IR Site 1, Former Naval Fuel Depot Point Molate, Richmond, California. July 18.
- Terraphase. 2011k. Second Quarter 2011 Self-Monitoring Report for the Packaged Groundwater Treatment Plant, Former Naval Fuel Depot Point Molate, Richmond, California (Order No. R2-2006-0075, NPDES Permit No. CAG912002). July 23.
- Terraphase. 2011l. Start-Up Phase Report for the Packaged Groundwater Treatment Plant, Former Naval Fuel Depot Point Molate, Richmond, California (Order No. R2-2006-0075, NPDES Permit Number CAG912002). August 2.
- Terraphase. 2011m. Work Plan for Excavation Delineation and Waste Characterization of Petroleum-Affected Soil, IR Site 3, Former Point Molate Naval Fuel Depot, Richmond, California. August 17.
- Terraphase. 2011n. Site-Wide Groundwater Monitoring Plan, Former Naval Fuel Depot Point Molate, Richmond, California. August 19.

- Terraphase. 2011o. Third Quarter 2011 Self-Monitoring Report for the Packaged Groundwater Treatment Plant, Former Naval Fuel Depot Point Molate, Richmond, California (Order No. R2-2006-0075, NPDES Permit No. CAG912002. October 18.
- Terraphase. 2011p. Wet-Season Semi-Annual Groundwater Monitoring Report, Former Naval Fuel Depot Point Molate, Richmond, California. October 27.
- Terraphase. 2011q. Third Quarter 2011 Landfill Monitoring Report IR Site 1, Former Naval Fuel Depot Point Molate, Richmond, California. October 28.
- Terraphase. 2011r. Groundwater Remediation Work Plan IR Site 4, Drum Lot 2/Building 87 Area, Former Naval Fuel Depot Point Molate Richmond, California. November 30.
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- Terraphase. 2012a. Monthly Summary Report for Work through December 2011, Former Naval Fuel Depot Point Molate Richmond, California. January 9.
- Terraphase. 2012b. Comments Regarding the Tentative Order No. R2-2012-XXXX NPDES No. CAG912002, VOC and Fuel General Permit. January 11.
- Terraphase. 2012c. Fourth Quarter 2011 Landfill Monitoring Report IR Site 1, Former Naval Fuel Depot Point Molate, Richmond, California. January 19.
- Terraphase. 2012d. Annual 2011 Underground Storage Tank (UST) Monitoring Report. January 20.
- Terraphase. 2012e. Supplemental Information Regarding the Packaged Groundwater Treatment Plant, Former Naval Fuel Depot Point Molate, Richmond, California (Tentative Order No. R2-2012-XXX NPDES No. CAG912002, VOC and Fuel General Permit). January 27.
- Terraphase. 2012f. Combined Fourth Quarter and Annual 2011 Self-Monitoring Report for the Packaged Groundwater Treatment Plant, Former Naval Fuel Depot Point Molate, Richmond, California (Order No. R2-2006-0075, NPDES Permit No. CAG912002). January 28.
- Terraphase. 2012g. Application for 401 Water Quality Certification for Point Molate IR Site 3 Remediation Project, Former Naval Fuel Depot Point Molate Richmond, California. February 10.
- Terraphase. 2012h. Application for Nationwide Permit Number 38 Coverage for Point Molate IR Site 3 Remediation Project, Former Naval Fuel Depot Point Molate Richmond, California. February 10.
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- Terraphase. 2012m. Monthly Summary Report for Work through February 2012, Former Naval Fuel Depot Point Molate Richmond, California. March 13.
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- Terraphase. 2012p. Wetland Mitigation and Monitoring Plan IR Site 3 Remediation Project, Former Naval Fuel Depot Point Molate, Richmond, California. April 23.
- Terraphase. 2012q. Response to Comments - Point Molate Community Advisory Committee Letter on Proposed Treatment and Study of IR Site 4 Drum Lot 2, Building 87 Area Point Molate. May 3.
- Terraphase. 2012r. Addendum to the Revised Final Groundwater Remediation Work Plan for IR Site 4, Drum Lot 2/Building 87 Area, Former NFD Point Molate, Richmond, California. May 3.
- Terraphase. 2012s. First Quarter 2012 Self-Monitoring Report for the Packaged Groundwater Treatment Plant, Former Naval Fuel Depot Point Molate, Western Drive, Richmond, California. May 3.
- Terraphase. 2012t. First Quarter 2012 Installation Restoration Site 1 Landfill Post-Closure Monitoring Report, Former Naval Fuel Depot Point Molate, Richmond, California. May 15.
- Terraphase. 2012u. First Quarter 2012 Underground Storage Tank (UST) Monitoring Report, Former Naval Fuel Depot Point Molate, Richmond, California. May 15.
- Terraphase. 2012v. Monthly Remediation Status Report for Work in April 2012, Former Naval Fuel Depot Point Molate Richmond, California. May 15.
- Terraphase. 2012w. Soil Gas Survey Work Plan, Installation Restoration Site 3, Former Naval Fuel Depot Point Molate, Richmond, California. May 22.
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12.A.4.14



August 15, 2013

Mr. George Leyva
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Subject: Second Quarter 2013 Underground Storage Tank (UST) Monitoring Report, Former Naval Fuel Depot Point Molate, Richmond, California

Dear Mr. Leyva,

On behalf of the City of Richmond and under direction from Upstream Point Molate, LLC, Terraphase Engineering Inc. (Terraphase) has prepared the attached Second Quarter 2013 Underground Storage Tank (UST) Monitoring Report. This report describes the activities and status for the ongoing monitoring and maintenance program for USTs 1 through 20 at the former Naval Fuel Depot Point Molate located in Richmond, California. The inspections were conducted in accordance with the work plan prepared by Terraphase for UST inspection (Terraphase 2011) and the Final Post-Closure UST Maintenance and Monitoring Plan (PMMP) (ITSI 2005)

If you have any question or comments regarding this report, please contact Ryan Janoch at (510) 645-1850.

Sincerely,
For Terraphase Engineering Inc.

A handwritten signature in blue ink that reads 'Ryan Janoch'.

Ryan Janoch, P.E. (C78735)
Senior Professional Engineer

cc: Carlos Privat, City of Richmond
Craig Murray, City of Richmond
Jim Levine, Upstream Point Molate
David Clark, BRAC Program Management Office
Michael Leacox, Nichols Consulting Engineers
Eileen Whittey, PMCAC
Paul Carman, PMCAC
Joan Garrett, PMCAC

Attachments: 2nd Quarter 2013 Underground Storage Tank (UST) Monitoring Report

Terraphase Engineering Inc.
1404 Franklin Street, Suite 600
Oakland, California 94612
www.terrphase.com

12.A.5.1

**2nd Quarter 2013 MONITORING REPORT
UNDERGROUND STORAGE TANKS
FORMER NAVAL FUEL DEPOT POINT MOLATE,
RICHMOND, CALIFORNIA**

Prepared on Behalf

City of Richmond
450 Civic Center Plaza
Richmond, California

Prepared for

Mr. Jim Levine
Upstream Point Molate LLC
2000 Powell Street, Suite 920
Emeryville, California

Prepared by

Terraphase Engineering Inc.
1404 Franklin Street, Suite 600
Oakland, California

August 15, 2013

Project Number 0001.001.020



File Ref: qmr-2Q2013-UST-text

12.A.5.4

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Acronyms and Abbreviations

bbf	barrel
BAI	Barajas and Associates, Inc.
BRAC	Base Realignment and Closure
CCHSD	Contra Costa Health Services Department
FOSET	Finding of Suitability for Early Transfer
ITSI	Innovative Technical Solutions, Inc.
JP-5	jet propellant grade 5 fuel
MSL	mean sea level
NFD	Naval Fuel Depot
ORS	oil recovery system
PMMP	Post-Closure UST Maintenance and Monitoring Plan
RWQCB	California Regional Water Quality Control Board, San Francisco Bay Region
Terraphase	Terraphase Engineering Inc.
TtEMI	Tetra Tech EM Inc.
UST	underground storage tank
VP	valve pit

Certification

All engineering conclusions and recommendations in this document have been prepared by a California Professional Engineer.



August 15, 2013

Ryan Janoch, PE
Senior Professional Engineer
California Professional Engineer 78735

Date

1.0 INTRODUCTION

On behalf of the City of Richmond under the direction of Upstream Point Molate, LLC, Terraphase Engineering Inc. (Terraphase) has prepared this Underground Storage Tank (UST) Quarterly Monitoring Report to summarize the monitoring conducted on a monthly and quarterly basis as part of the ongoing monitoring and maintenance of USTs 1 through 20 at the former Naval Fuel Depot (NFD) Point Molate in Richmond, California. The inspections were conducted in accordance with the work plan prepared by Terraphase for UST Inspection (Terraphase 2011) and the final Post-Closure UST Maintenance and Monitoring Plan (PMMP) (ITSI 2005).

2.0 HISTORY OF UST OPERATIONS AT NFD POINT MOLATE

The former NFD Point Molate was a fuel storage facility that had the capacity to store more than 40 million gallons of fuel. Prior to closure, the facility mainly held jet propellant grade 5 fuel (JP-5) and marine diesel fuel. Historically, other fuels were stored at the depot, including bunker fuel and aviation gasoline. Fuel was transferred to and from the facility by offloading and onloading ships and barges at the depot fuel pier, as well as through the Santa Fe Pacific Pipeline transfer station.

The former NFD Point Molate is on the San Pablo peninsula (Figure 1), approximately 1.5 miles north of the Richmond-San Rafael Bridge in the City of Richmond, Contra Costa County, California. Former NFD Point Molate covers approximately 412 acres in the Potrero Hills along the northeastern shore of San Francisco Bay of which 140 acres are submerged within San Francisco Bay. The San Pablo peninsula is the land mass between San Pablo Bay and San Francisco Bay. Former NFD Point Molate contains approximately 1.6 miles of shoreline, and its property extends into the adjacent hillsides to the top of the San Pablo ridge. Topography at the facility ranges from flat, filled areas (reclaimed tidal areas) near the Bay to steep, dissected slopes of nearly 500 feet above mean sea level (MSL) in elevation. The facility is bordered to the north, south, and east by the Chevron Corp. Richmond refinery (Chevron Richmond refinery) and to the west by San Francisco Bay.

Fuel storage and transfer operations at the facility ceased in May 1995. Former NFD Point Molate became a closing base under the Base Realignment and Closure (BRAC) IV program in September 1995, and operational closure of the facility occurred in September 1998. In September 2003, approximately 372 acres of the depot were transferred to the City of Richmond under a Finding of Suitability to Transfer (Navy 2003). The remaining 40 acres of the 412-acre federal facility were transferred to the City on March 29, 2010 on the basis of a Finding of Suitability for Early Transfer (FOSET; Navy 2008).

The Navy closed in place (without filling with concrete or other material) USTs 1 through 20, due to the large size and the good condition of the USTs. Tanks B and C were removed due to their relatively smaller size, central location, and history of bunker fuel releases near Tank B. The *Underground Storage Tank and Hillside Pipeline Closure Conceptual Design* (TtEMI, 1999), was reviewed by the Hazardous Materials Programs office at the Contra Costa Health Services Department (CCHSD), the City of Richmond, and the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB). CCHSD, the agency overseeing structural closure of the USTs, officially approved the conceptual plan in a letter dated 23 July 1999.

CCHSD approved final closure in place of USTs 1 through 20 in a letter dated 24 February 2005; CCHSD also recognized that associated fuel product pipelines and valves were cleaned and rendered inoperable, and that Tanks B and C were completely removed. To date, USTs 1, 4, 7, 9, 10, 11, 12, 14, 16, 17 and 20 have received environmental closure (NFA) letters from the RWQCB. The remaining USTs (USTs 2, 3, 5, 6, 8, 13, 15, 18, and 19) have not received

environmental closure from the RWQCB. Regardless of the closure status of the USTs with the RWQCB, they require on-going maintenance and monitoring to reduce the chances that they will become a physical hazard. This report describes the monitoring and maintenance for USTs 1 through 20.

USTs 1 through 20 each have a capacity of approximately 50,000 barrels (bbls), which is equivalent to 2.1 million gallons. Figure 2 is a site plan showing the locations of the USTs and appurtenances at the former NFD Point Molate.

Between 1943 and 1975, bunker fuel, marine diesel fuel, and JP-5 were stored at the former NFD Point Molate. Between 1975 and 1995, the northern portion of the facility (USTs 1, 2 and 5 through 13) was used to store and transfer diesel fuel. The southern portion of the facility (USTs 3, 4 and 14 through 19) was used to store and transfer JP-5. UST 20 stored bunker fuel from 1943 to 1975, and stored naval ballast, sediment and wastewater from 1975 to 1995.

USTs 1 through 20 were constructed between 1942 and 1943 by blasting bedrock in the hillside to create "benches" for the USTs. Concrete was poured into wooden forms built on the benches, apparently in direct contact with bedrock. The UST floors, walls, and roof support columns were constructed; the concrete roofs were then installed. Completed USTs were covered with varying amounts of fill (four to eight feet); fill materials were presumably blasted rock and locally-derived excavated fill. Appendix A includes a more detailed description of UST construction, as excerpted from the *Final Report, Structural Integrity Evaluation of Underground Storage Tanks at Naval Fuel Depot, Point Molate, Richmond, California* (AGS, 2000).

Approximate dimensions of USTs 1-20 are as follows:

- Each tank has an interior clear diameter of 135'-4".
- Each tank has an interior clear height of 20'-0".
- Each tank has roof and floor slabs 1'-4" and 1'-6" thick, respectively.
- Tank walls are 1'-6" thick up to 10'-0" in height and 1'-3" thick above that.

Each UST was constructed with a perimeter drain surrounding the tank bottom. Original design drawings indicate that each drain consisted of open joint tiles placed in a gravel bed. Each drain was laid on a slope to fall approximately 12 inches from the upper (uphill side) UST perimeter to the lower (downhill side) perimeter. Water collected by these drains was to the oil recovery system (ORS; TtEMI, 2002). The purpose of the perimeter drains was to prevent infiltrating surface water from accumulating in the backfill outside of the UST walls. Figure 3 is a typical cross section of a UST at former NFD Point Molate.

3.0 SITE INSPECTIONS

The PMMP requires:

- Monthly inspections of the gates, locks, and fences.
- Quarterly inspections of the vegetation for erosion control; surface grade for erosion control; UST systems (ground surface, French drain outfalls, and tank vents); and groundwater monitoring wells.
- Biannual (Two-year) inspections of the UST interiors for standing water.
- Five-year structural inspections, structural inspections after significant loading events, and structural inspections after major seismic events.

The purpose of the site inspections is to conduct the inspection tasks established in the Final PMMP (ITSI 2005), including: security, erosion control, condition of the UST systems, and condition of the groundwater monitoring wells to identify conditions that may warrant maintenance or repair. This section provides an overview of observations made during the inspections. Recommendations for repairs that could not be completed during the site inspection are provided in Section 5. Individual UST sites are referred to by tank number (e.g., UST 6).

The location of tanks, monitoring wells, and French drains are shown on Figure 2. Summary table of the inspection field notes are provided in Appendix A.

3.1 Monthly Inspection of Gates, Locks, and Fences

The gates, locks, and fences along Western Drive that provide security for the UST sites are inspected to make sure they are in good condition, locked, and secure.

Observations during the monthly inspections of the gates, locks, and fences performed on April 11, May 23, June 7, 2013:

- The gates, locks, and fences for gates 15 through 19 are in good condition, locked, and secure.
- The motor for opening and closing gate 23 needs to be repaired for proper function of the gate. This gate is under constant surveillance as it is located next to the guard house (Building 123).

3.2 Quarterly Inspection of Erosion Control

3.2.1 Vegetation

Vegetation protects the soil surface from wind and water erosion, improves slope stability, and improves visual aesthetics. A site-specific hydroseed mix that includes drought-tolerant native plant seeds has been used for providing a vegetative cover at the UST sites.

Vegetation on UST sites are inspected for bare spots, signs of stress, color changes, etc. and areas of both healthy and sickly growth were noted on a quarterly basis.

Observations during the quarterly inspection performed on May 16 and May 23, 2012:

- Vegetation on the surfaces of the USTs 1 through 20 was mostly brown due to lack of precipitation during the dry season.

3.2.2 Surface Grade

Uniformity of the slight grade on top of the USTs mitigates erosion and reduces surface water infiltration.

The soil cover is inspected for erosion visible depressions, ponded water, cracks, and slope failure and inspected the grade on top of the USTs to see if there was a uniformity of the slight (0.5 percent to 1 percent) grade on a quarterly basis.

Observations during the quarterly inspection performed on May 16 and May 23, 2013:

- No indication of erosion, ponded water, cracks, depressions, or slope failure was found at USTs 1 through 20.

3.3 Quarterly Inspection of UST Systems

3.3.1 Ground Surface

The structural integrity of the USTs can be compromised by surface loads. Loading by structures, vehicles, and debris is prohibited. Overloading is a serious condition that could lead to catastrophic failure and must be addressed by a licensed structural engineer.

Ground surfaces of the USTs are inspected for surface loads including structures, signs of vehicle traffic, and dumping of debris on a quarterly basis.

Observations during the quarterly inspection performed on May 16 and May 23, 2013:

- Indications of light vehicle traffic such as tire tracks are present at USTs 1 through 20. The tire tracks are likely from lawn mowers.

3.3.2 Tank Vents

The aboveground vent at each UST provides equilibrium of the UST atmosphere with the outside atmosphere and allows for humidity to escape the UST interior.

The vents are inspected for signs of vandalism and to assure that the vent opening was intact on a quarterly basis.

Observations during the quarterly inspection performed on May 16 and May 23, 2013:

- The vents do not show any indication of vandalism and the vent openings were intact at USTs 1 through 20.

3.3.3 French Drain Outfalls

French drains at each UST are intended to direct water surface water infiltration away from the structural joint between the tank ceiling and upper sidewalls. Rip-rap is located at each outfall to reduce erosion. French drain outfalls are inspected for vandalism or displacement on a quarterly basis.

The quarterly observations for the French drain outfalls can be found in the Appendix A, which is attached to this report. The West drain at UST 6, South drain at UST 15, and East drain at Tank 16 could not be located. It is suspected that they were previously destroyed or were never constructed by the Navy.

3.4 Quarterly Inspection of Groundwater Monitoring Wells

There are groundwater monitoring wells adjacent to most of the USTs. The well casings are typically completed aboveground and protected with a standpipe. The wells are locked with keyed padlocks.

The surface completions of the monitoring wells are inspected for general condition on a quarterly basis. The standpipe cover should be opened and the well casing should be inspected. A cap should be present on the casing and there should be no standing water in the standpipe. Grout surrounding the casing and the standpipe should be in good condition.

The quarterly observations for the groundwater monitoring wells can be found in the Appendix A, which is attached to this report.

4.0 RECOMMENDATIONS

Recommendations for repairs that could not be completed during the site inspection are provided below.

4.1 Gates, Locks, and Fences

If locks are rusted or are missing, or if gates or fences are in disrepair, the City of Richmond must be notified that repairs should be made.

Recommended actions:

The motor on gate 23 had been repaired recently but failed to work again shortly after repairs were made. Gate 23 needs to be repaired again.

4.2 Erosion Control

4.2.1 Vegetation

If significant bare spots are found, the bare spots must be reseeded or planted in accordance with the specification for hydroseeding. Irrigation during the establishment period must be provided, as necessary.

Recommended actions:

Bare and/or brown vegetation is present at USTs 1 through 20, but the bare and/or brown patches of vegetation are not significant enough to require reseeded or planting. The brown vegetation is most likely due to lack of rainfall. This will be monitored for future degradation.

4.2.2 Surface Grade

Erosion must be mitigated. Visible depressions and cracks must be backfilled. Slope failures must be mitigated by backfilling and placing rip-rap or other erosion-limiting engineered control.

Recommended actions:

None

4.3 UST Systems

4.3.1 Ground Surface

Any objects, debris, or material that represents a load to the USTs must be removed. If a UST has been significantly overloaded, a structural inspection must be conducted.

Recommended actions:

None

4.3.2 Tank Vents

Vents must be repaired as required. Any object in the vent opening must be removed.

Recommended actions:

None

4.3.3 French Drain Outfalls

Blockages of the drain pipe must be removed. Riprap must be replaced in kind. Small vegetation growing into the rip-rap is beneficial and should not be removed.

Recommended actions:

Some sediment build-up was observed at the West drain outfall for UST 16 and the Northeast drain outfall for UST 20. These two outfalls were cleared at the time of inspection and should be monitored for further sediment build-up.

4.4 Groundwater Monitoring Wells

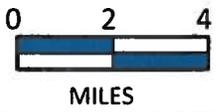
If standing water is present in the well standpipes, it must be removed from the standpipe and the condition allowing water to accumulate should be mitigated. If casing caps are missing, they should be replaced. If grout is cracked, it should be removed and replaced.

Recommended actions:

None

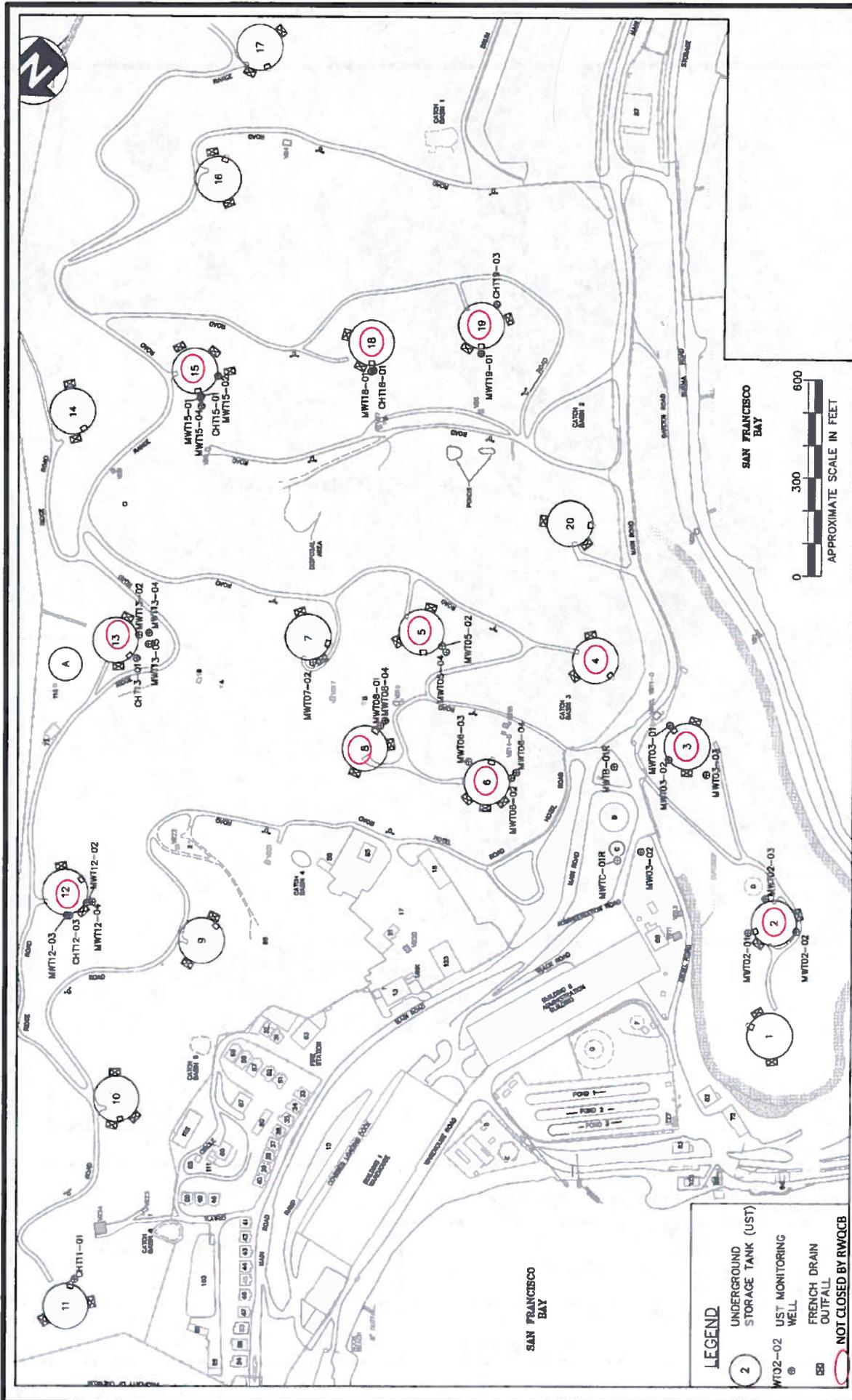
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<p>SAFETY FIRST</p>	<p>CLIENT: Upstream Point Molate LLC</p>	<p>Site Location Map</p>
	<p>PROJECT: UST Monitoring Report</p>	
	<p>PROJECT NUMBER: 0001.001.020</p>	<p>FIGURE 1</p>

12.A.5.19

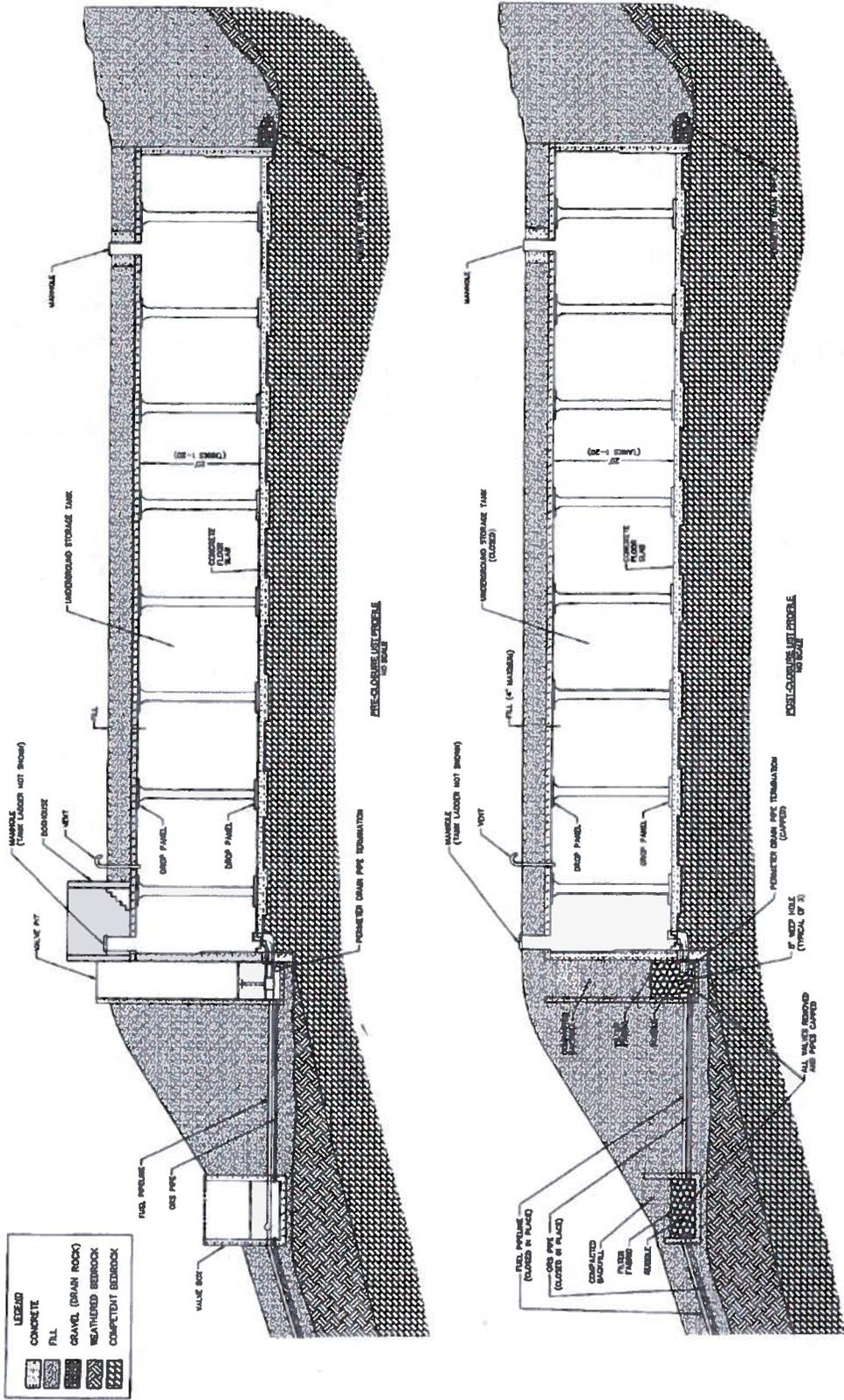


SAFETY FIRST 	CLIENT: Upstream Point Molate LLC
	PROJECT: UST Monitoring Report
	PROJECT NUMBER: 0001.001.020

UST Locations

FIGURE 2

12.A.5.20



SAFETY FIRST 	CLIENT: Upstream Point Molate, LLC	UST Cross Section	
	PROJECT: UST Monitoring Report		
	PROJECT NUMBER: 0001.001.020	FIGURE 3	

Source: ITS: 2005

12.A.5.21

APPENDIX A
SUMMARY TABLES

12.A.5.22

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Appendix A - Table 2
Observations for the Groundwater Monitoring Wells
Former Naval Fuel Depot Point Molate, Richmond, California



Tank	Groundwater Monitoring Well	Observations during the May 2013 Inspection
UST 2	MWT02-01	Good condition
	MWT02-03	Good condition
UST 3	MWT03-02	Good condition
UST 5	MWT05-02	Good condition
UST 6	MWT06-02	Good condition
UST 8	MWT08-01	Good condition
UST 12	MWT12-03	Good condition
UST 13	MWT13-02	Good condition
UST 15	MWT15-02	Good condition
UST 18	MWT18-01	Good condition
UST 19	MWT19-01	Good condition

Appendix A - Table 1
Observations for the French Drain Outfalls
Former Naval Fuel Depot Point Molate, Richmond, California



Tank	French Drain Outfall	Observations during the May 2013 Inspection
UST 1	East drain	Good condition
	West drain	Good condition
UST 2	North drain	Good condition
	South drain	Good condition
UST 3	North drain	Good condition
	South drain	Good condition (Some brush was cleared)
UST 4	North drain	Good condition
	East drain	Good condition
UST 5	North drain	Good condition
	South drain	Good condition
UST 6	North drain	Good condition
	Northwest drain	Good condition
	West drain	Cannot be located
UST 7	East drain	Good condition
	West drain	Good condition
UST 8	North drain	Good condition
	Southwest drain	Good condition
UST 9	North drain	Good condition
	South drain	Good condition

Appendix A - Table 1
Observations for the French Drain Outfalls
Former Naval Fuel Depot Point Molate, Richmond, California



Tank	French Drain Outfall	Observations during the May 2013 Inspection
UST 10	Northwest drain	Good condition
	West drain	Good condition
	Southeast drain	Good condition
UST 11	North drain	Good condition
	South drain	Good condition
UST 12	East drain	Good condition
	West drain	Good condition
UST 13	Northwest drain	Good condition
	South drain	Good condition
UST 14	Northwest drain	Good condition
	Southeast drain	Good condition (Dense Vegetation)
UST 15	South drain	Cannot be located
	Southwest drain	Good condition
	East drain	Good condition (Dense Vegetation)
UST 16	East drain	Cannot be located
	West drain	Good condition (Dense Vegetation)
UST 17	North drain	Good condition
	South drain	Good condition
UST 18	Northeast drain	Good condition
	Northwest drain	Good condition

Appendix A - Table 1
Observations for the French Drain Outfalls
Former Naval Fuel Depot Point Molate, Richmond, California



Tank	French Drain Outfall	Observations during the May 2013 Inspection
UST 19	North drain	Good condition
	South drain	Good condition
UST 20	Northeast drain	Good condition (Soil was cleared)
	West drain	Good condition

12.5.28

The following is a list of the
 names of the persons who
 were present at the meeting
 held on the 12th day of
 May 1928.

12.5.28

12.5.28