

CITY OF RICHMOND
Pt. Molate Community Advisory Committee
Monday, November 9, 2015 6:30 PM
Multi-Purpose Room, 440 Civic Center Plaza

Members:

Shana Bagley
Vice Chair

Bruce Beyaert

Bruce Brubaker

Paul Carman

Charles Duncan
Chair

Joan Garrett

Dorothy Gilbert

Al Guggemos

Jim Hanson

Mark Howe

Jeanne Kortz

Jeff Lee

Bob McNeil

Katrinka Ruk

Pam Stello

AGENDA

1. **Call to Order** (1 min.)
2. **Roll Call** (1 min.)
3. **Welcome and Meeting Procedures** (1 min.)

Individuals who would like to address the committee on matters not listed on the agenda may do so under Open Forum. Please file a speaker's card with the note taker prior to the commencement of Open Forum. Individuals who want to comment on an individual item, please file a speaker's card before the item is called. The standard amount of time for each speaker will be three minutes.

At 8:30 PM, any items remaining on the agenda that require immediate attention may be taken out of turn, as necessary. All other items will be continued to another or the following committee meeting in order to make fair and attentive decisions. This meeting adjourns at 9:00 PM. The meeting may be extended by a majority vote of the committee.

4. **Agenda Review and Adoption** (2 min.)
The order in which items will be heard may be adjusted at this time. In addition, items may be removed from or placed on the Consent Calendar at this time.
5. **Announcements through the Chair** (2 min.)
 1. Welcome and introduction to new PMCAC Members Jeanne Kortz and Pam Stello.
6. **Open Forum** (3 minutes per person limit)
7. **Presentations, Discussion & Action Items** (40 min.)
 - a. Presentation: Trust for Public Land – Urban Land Institute Tech Panel proposal (15 min.), Q&A (5 min.) Jennifer Isacoff, TPL Director of Parks for People Bay Area Program
 - b. Discussion: Weekly and monthly remediation progress report out with Terraphase (10 min.), Q&A (5 min.) Bill Carson, Principal, Terraphase
 1. Weekly IR Site 3 Progress Reports – 10/5-10/9/2015; 10/12-10/16/2015; 10/19-10/23/2015; 10/26-10/30/2015
 2. ACE Report – September 2015
 3. Q3 2015 UST SMR Report
 4. Q3 2015 PGWTP SMR Report
 - c. Discussion: Communications Protocol with Pt. Molate Working Group (5 min.)
8. **Staff Reports** (10 min.)
Following discussion of each item, the Committee may vote to make recommendations to staff or to the City Council.
 - a. Project Manager's Staff Report (10 min.) – including
 1. Expenditures and balance from the Navy Escrow Fund
 2. Expenditures and balance from the General Fund
 3. Insurance Reporting filings
 4. Lease/Occupation Status for all Pt Molate users
 5. Monthly summary of security incidents
 6. Monthly summary of authorized entries
 7. Caretaker Summary
 8. Beach Park
 9. IR Site 3 Remediation and Abatement Project
 10. Other

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9. Consent Calendar (2 min.)

Items on the consent calendar are considered matters requiring little or no discussion and will be acted upon in one motion

- a. APPROVE – PMCAC meeting minutes of October 14, 2015

10. PMCAC Quarterly Report to City Council (5 min.)

11. Future Agenda Items (5 min.)

- a. Point Molate Resource Assessment Document – Lech Naumovich, Botanist

12. City Council Liaison Reports (12 min.)

- a. Report by Councilmember Martinez regarding recent issues in Richmond relevant to the Advisory Committee. (10 min.)
- b. PMCAC appointment status – TBD (2 min.)

13. Chair and Sub-Committee Reports (15 min.)

Following discussion of each item, the Committee may vote to make recommendations to staff or to the City Council.

- a. Clean-Up and Restoration (3 min.)
- b. Parks and Open Space (3 min.)
- c. Legal (3 min.)
- d. Finance (3 min.)
- e. Chair (2 min.)
 1. Identification of pending schedule conflicts – Dec. 14, 2015; Jan.11, 2016

14. Adjournment of PMCAC regular meeting

15. Assemblage of PMCAC Standing Sub-Committees

Scheduled Meetings

Committee Meeting - Monday, December 14, 2015, 6:30 pm. This meeting is held in a building that is accessible to people with disabilities. Persons with disabilities, who require auxiliary aids of services using city facilities, services or programs or would like information of the city's compliance with the American Disabilities Act (ADA) of 1990, contact: Rochelle Monk, City of Richmond (510) 620-6511 (voice).

Pt. Molate Community Advisory Committee Staff Liaison Contact: Craig K. Murray (510) 307-8140, craig_murray@ci.richmond.ca.us.

Agenda and minute information on the PMCAC can be found on the City Clerk's web location: <http://ca-richmond2.civicplus.com/index.aspx?NID=2442>

Additional correspondence can be directed to PtMolateCAC@gmail.com

PMCAC Repository Information is available at: <https://docs.google.com/open?id=0B9WXrZeb-72MzVkJZWQ1ZDQhNWJwNC00ZjE4LTgxYjctOTQyMDk4Y2FjNDYw>

Date: October.14.2015

Project: Point Molate IR Site 3

Number: 0078.001.019

Subject: Weekly Summary 10.5.2015 to 10.9.2015

Construction Tasks Completed

- SWPPP inspections
- 0-5 Excavation including step-outs
- 5-10 Excavation including step-outs
- 10+ Excavation including step-outs
- Excavation of clean overburden (0 – 10' bgs)
- Removal of sheet pile wall
- Installation of contingency extraction trench
- Excavation of deep soil (10 – 17' bgs) area adjacent to building 82 has been completed
- Dewatering has been completed
- Installation of stormwater drain
- Install contingency extraction trench
- Confirmation sampling has been completed
- Export of Class II material
- All rental equipment associated with PGWTP has been removed from the site
- Adler tank has been cleaned and removed from the site

Construction Tasks in Progress

- Import soil. Approximately 144 truckloads of clean import fill were imported to the site. Approximately 2000 CY of soil.
- Final grading
- Import and application of compost
- Continue containerizing excavated transite pipe
- Site clean-up

Environmental Monitoring Task

- Air monitoring stations set up and take down
- Air monitoring stations set up and take down
 - Air monitoring results to date indicate that dust has not exceeded the action levels at the site perimeter (PM-10 >0.05 mg/m³ over an 8 hour average)
- Monitoring of streets for soil tracking

- No significant tracking of soil was observed during the soil import activities
- Operation of the PGWTP
 - The system has been run in compliance with existing NPDES permit. As of the July 31, 2015 the system is no longer discharging water and all associated rental equipment has been taken off rent.
- Confirmation sampling
 - Confirmation sampling is now complete for the site.
- Weekly SWPPP Inspection Action Items
 - The concrete pad should be swept around the import stockpile
 - Straw wattles should be extended to protect the northern end of the import stockpile.
 - The drain inlet on the southwest corner of building 6 needs to be protected with filter fabric and straw wattles

Planned Tasks for Next Week

- Continue importing compost, disc in compost, final grading, clean-up

Remaining Tasks

- Final grading
- Demo building 125
- Hydroseed
- Final Survey
- Clean-up



Date: October.21.2015

Project: Point Molate IR Site 3

Number: 0078.001.019

Subject: Weekly Summary 10.12.2015 to 10.16.2015

Construction Tasks Completed

- SWPPP inspections
- 0-5 Excavation including step-outs
- 5-10 Excavation including step-outs
- 10+ Excavation including step-outs
- Excavation of clean overburden (0 – 10' bgs)
- Removal of sheet pile wall
- Installation of contingency extraction trench
- Excavation of deep soil (10 – 17' bgs) area adjacent to building 82 has been completed
- Dewatering has been completed
- Installation of stormwater drain
- Install contingency extraction trench
- Confirmation sampling has been completed
- Export of Class II material
- All rental equipment associated with PGWTP has been removed from the site
- Adler tank has been cleaned and removed from the site
- All import has been completed

Construction Tasks in Progress

- Final grading
- Import and application of compost
- Site clean-up

Environmental Monitoring Task

- Air monitoring stations set up and take down
- Air monitoring stations set up and take down
 - Air monitoring results to date indicate that dust has not exceeded the action levels at the site perimeter (PM-10 >0.05 mg/m³ over an 8 hour average)
- Monitoring of streets for soil tracking
 - No significant tracking of soil was observed during the soil import activities
- Operation of the PGWTP

- The system has been run in compliance with existing NPDES permit. As of the July 31, 2015 the system is no longer discharging water and all associated rental equipment has been taken off rent.
- Confirmation sampling
 - Confirmation sampling is now complete for the site.
- Weekly SWPPP Inspection Action Items
 - The concrete pad (former stockpile location) should be swept and cleaned
 - The drain inlet on the southwest corner of building 6 needs to be protected with filter fabric and straw wattles

Planned Tasks for Next Week

- Continue importing compost, disc in compost, final grading, clean-up

Remaining Tasks

- Final grading
- Demo building 125
- Hydroseed
- Final Survey
- Clean-up



Compost arriving on-site



Cutting swale across wester part of site



Work on stockpile area



Date: October.29.2015

Project: Point Molate IR Site 3

Number: 0078.001.019

Subject: Weekly Summary 10.19.2015 to 10.23.2015

Construction Tasks Completed

- SWPPP inspections
- 0-5 Excavation including step-outs
- 5-10 Excavation including step-outs
- 10+ Excavation including step-outs
- Excavation of clean overburden (0 – 10' bgs)
- Removal of sheet pile wall
- Installation of contingency extraction trench
- Excavation of deep soil (10 – 17' bgs) area adjacent to building 82 has been completed
- Dewatering has been completed
- Installation of stormwater drain
- Install contingency extraction trench
- Confirmation sampling has been completed
- Export of Class II material
- All rental equipment associated with PGWTP has been removed from the site
- Adler tank has been cleaned and removed from the site
- All import has been completed

Construction Tasks in Progress

- Final grading
- Import and application of compost
- Site clean-up

Environmental Monitoring Task

- Air monitoring stations set up and take down
- Air monitoring stations set up and take down
 - Air monitoring results to date indicate that dust has not exceeded the action levels at the site perimeter (PM-10 >0.05 mg/m³ over an 8 hour average)
- Monitoring of streets for soil tracking
 - No significant tracking of soil was observed during the soil import activities
- Operation of the PGWTP

- The system has been run in compliance with existing NPDES permit. As of the July 31, 2015 the system is no longer discharging water and all associated rental equipment has been taken off rent.
- Confirmation sampling
 - Confirmation sampling is now complete for the site.
- Weekly SWPPP Inspection Action Items
 - The concrete pad (former stockpile location) should be swept and cleaned
 - The drain inlet on the southwest corner of building 6 needs to be protected with filter fabric and straw wattles

Planned Tasks for Next Week

- Continue importing compost, disc in compost, final grading, clean-up

Remaining Tasks

- Final grading
- Demo building 125
- Hydroseed
- Final Survey
- Clean-up



Compost being delivered to the site



Compost
applied to the
site



Former
stockpile area

Date: November.5.2015

Project: Point Molate IR Site 3

Number: 0078.001.019

Subject: Weekly Summary 10.26.2015 to 10.30.2015

Construction Tasks Completed

- SWPPP inspections
- 0-5 Excavation including step-outs
- 5-10 Excavation including step-outs
- 10+ Excavation including step-outs
- Excavation of clean overburden (0 – 10' bgs)
- Removal of sheet pile wall
- Installation of contingency extraction trench
- Excavation of deep soil (10 – 17' bgs) area adjacent to building 82 has been completed
- Dewatering has been completed
- Installation of stormwater drain
- Install contingency extraction trench
- Confirmation sampling has been completed
- Export of Class II material
- All rental equipment associated with PGWTP has been removed from the site
- Adler tank has been cleaned and removed from the site
- All import has been completed

Construction Tasks in Progress

- Final grading
- Import and application of compost
- Site clean-up

Environmental Monitoring Task

- Air monitoring stations set up and take down
- Air monitoring stations set up and take down
 - Air monitoring results to date indicate that dust has not exceeded the action levels at the site perimeter (PM-10 >0.05 mg/m³ over an 8 hour average)
- Monitoring of streets for soil tracking
 - No significant tracking of soil was observed during the soil import activities
- Operation of the PGWTP

- The system has been run in compliance with existing NPDES permit. As of the July 31, 2015 the system is no longer discharging water and all associated rental equipment has been taken off rent.
- Confirmation sampling
 - Confirmation sampling is now complete for the site.
- Weekly SWPPP Inspection Action Items
 - Perimeter control such as a fiber roll needs to be placed along the western edge of the excavated area.

Planned Tasks for Next Week

- Final survey, hydroseed

Remaining Tasks

- Demo building 125
- Hydroseed
- Final Survey
- Clean-up



Final monitoring well installation



Access road along IR 3 southern border



October 30, 2015

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

Subject: Third Quarter 2015 Underground Storage Tank (UST) Monitoring Report, Former Naval Fuel Depot Point Molate, Richmond, California

Dear Ms. Beth,

On behalf of the City of Richmond, Terraphase Engineering Inc. (Terraphase) has prepared the attached Third Quarter 2015 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 Final Post-Closure UST Maintenance and Monitoring Plan (PMMP) (ITSI 2005).

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

Sincerely,
For Terraphase Engineering Inc.

A handwritten signature in blue ink, appearing to read 'T-S'.

Tomer Schetrit, P.E. (C81411)
Project Engineer

A handwritten signature in blue ink, appearing to read 'Chris Jones'.

Chris Jones
Senior Staff Engineer

cc: Carlos Privat, City of Richmond
Craig Murray, City of Richmond
Jim Whitcomb, BRAC Program Management Office
Michael Leacox, NCE
Eileen Whittey, PMCAC
Paul Carman, PMCAC
Joan Garrett, PMCAC
Lori Braunesreither, Contra Costa County Environmental Health Services

Attachments: 3rd Quarter 2015 Underground Storage Tank (UST) Monitoring Report

**3rd QUARTER 2015 MONITORING REPORT
UNDERGROUND STORAGE TANKS
FORMER NAVAL FUEL DEPOT POINT MOLATE,
RICHMOND, CALIFORNIA**

Prepared on Behalf of

City of Richmond
450 Civic Center Plaza
Richmond, California

Prepared by

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

November 15, 2015

Project Number 0078.001.024



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- 1 Site Location Map
- 2 UST Locations
- 3 UST Cross Section

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- A Summary Tables of Quarterly Inspection

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

1.0 INTRODUCTION

On behalf of the City of Richmond 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 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 Stenmark 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 July 14, August 19, and September 29, 2015:

- The gates, locks, and fences for gates 15 through 19 are in good condition, locked, and secure.
- Gate 23 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 are noted on a quarterly basis.

Observations during the quarterly inspection performed on September 29, 2015:

- Small, bare and/or brown patches of vegetation were present at USTs 1 through 20. Brown patches are most likely due to lack of rain during the first quarter of 2015.

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, slope failure, and 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 September 29, 2015:

- No indication of erosion, ponded water, depressions, or slope failure was found at USTs 1 through 20.
- Small animal burrows were observed on the surface of USTs 2 and 3. The burrows will be monitored during future inspections.

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 September 29, 2015:

- 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 September 29, 2015:

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

3.3.3 French Drain Outfalls

French drains at each UST are intended to direct 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 Table 1 of Appendix A, which is attached to this report. The West drain at UST 6 and the South drain at UST 15 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 many 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 covers are opened, well casings and well caps are inspected, and grout surrounding each casing is inspected.

The quarterly observations for the groundwater monitoring wells can be found in Table 2 of Appendix A, which is attached to this report.

3.5 Biannual Interior Inspections for Standing Water

Every two years the manhole covers are removed on each UST and the interiors are inspected for standing water and sheen.

The biannual observations for standing water in USTs 1 through 20 can be found in Table 3 of 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:

None

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. This should 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:

The vent screens at USTs 1 and 18 are peeling away from the opening and should be re-secured.

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:

The vegetation around the West drain on UST 16 and the Northeast drain on UST 20 should be cleared and maintained to allow access to these drains.

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

5.0 REFERENCES

- AGS, 2000. Structural Integrity Evaluation of Underground Storage Tanks at Naval Fuel Depot, Point Molate, Richmond, California, Final Report. September.
- Barajas and Associates, Inc. (BAI). 2007. Basewide Groundwater Monitoring, Site 1 Post Closure Monitoring and Maintenance, and Closed Underground Storage Tank Monitoring and Maintenance, Site Health and Safety Plan, Naval Fuel Depot Point Molate, Richmond, California. June.
- CDM. 2009. Final Annual 2007 – 2008 Post-Closure UST Monitoring Report Former Naval Fuel Depot Point Molate Richmond, California. September 30.
- Innovative Technical Solutions, Inc. (ITSI). 2005. Final Post-Closure UST Maintenance and Monitoring Plan, Former Naval Fuel Depot Point Molate, Richmond, California. December.
- _____. 2005b. Final Post-Construction Summary Report for Closure of the UST, Pipeline, and Valve Box Systems at Naval Fuel Depot Point Molate, Richmond, California. November 17.
- (United States) Department of the Navy and City of Richmond. 2003. Finding of Suitability for Transfer, Naval Fuel Depot Point Molate, Richmond, California. May 27.
- _____. 2008. Finding of Suitability for Early Transfer, Disposal Areas 3, 5, 10, and 13, Naval Fuel Depot Point Molate, Richmond, California. September 12.
- Terraphase. 2011. Underground Storage Tank Monitoring and Maintenance Plan, Former Naval Fuel Depot Point Molate, Richmond, California. March 11 (revised April 4).
- Terraphase. 2012. Well Abandonment Work Plan, Former Naval Fuel Depot Point Molate, Richmond, California. August 8.
- Tetra Tech EM Inc. (TtEMI), 1999. Underground Storage Tank and Hillside Pipeline Closure Conceptual Design, Naval Fuel Depot Point Molate, Richmond, California. 30 April.
- _____. 2002. Final Definitive Design for the UST and Hillside Pipeline Closure, Naval Fuel Depot Point Molate, Richmond, California. 24 January.



October 30, 2015

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: Third Quarter 2015 Self-Monitoring Report for the Packaged Groundwater Treatment Plant, Former Naval Fuel Depot Point Molate, Stenmark Drive, Richmond, California (CIWQS 657165) Order No. R2-2012-0012, NPDES No. CAG912002

Dear Ms. Gonzales:

On behalf of the City of Richmond, Terraphase Engineering Inc. (Terraphase) has prepared this National Pollutant Discharge Elimination System (NPDES) Third Quarter 2015 Self-Monitoring Report (SMR) 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 SMR presents the data collected during the third quarter of 2015 ("the reporting period") in accordance with reporting requirements specified in Attachment E of the VOC and Fuel General Permit.

This report presents flow rates and laboratory analytical results of the PGWTP influent and effluent for total petroleum hydrocarbons (TPH); benzene, toluene, ethylbenzene, and total xylenes (BTEX) compounds; and polycyclic aromatic hydrocarbon (PAH).

PGWTP Description

The PGWTP treats groundwater extracted from four screened wells set into a trench that extends below the water 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 directly to two, two-pod sand filters plumbed in parallel. To reduce turbidity, water then passes through an eight basket bag filter containing 5 micron filter bags. Following the bag filter, water then flows through four GAC units (2,000 pounds each) plumbed in series to further reduce the concentrations of the chemicals of concern in the PGWTP's effluent discharge. The configuration of the GAC units was modified on June 5, 2015 to include 6 GAC units running in parallel to allow for treatment of increased flow associated with dewatering during active remediation of IR Site 3. Treated groundwater is discharged directly to San Francisco Bay under the requirements of the NPDES Permit.

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PGWTP 2015 Third Quarter Operations

The PGWTP operated continuously from July 1, 2015 through July 31, 2015. On July 31, 2015 construction dewatering activities were complete and the remaining groundwater in the settling tanks was pumped through the system. 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.

On May 19, 2015 the extraction wells were demolished as part of the active remediation of IR Site 3. After destruction of the extraction wells, groundwater generated as part of construction dewatering activities continued to be directly pumped to the PGWTP.

On June 5, 2015 the PGWTP was upgraded from a treatment capacity of 100 gallons per minute (gpm) to a capacity of 200 gpm per the Modified Notice of Intent (NOI) submitted to the RWQCB on February 4, 2015. The Modified NOI addressed increased flows resulting from dewatering activities occurring at IR Site 3. The upgrade included the addition of a larger pump as well as an additional three GAC units plumbed in parallel to the three existing GAC units. These units were added in addition to the existing treatment system components including two pod sand filter units, an 8 basket bag filter (1-5 μ m), an 18,000 gallon settling tank, and two 20,000 gallon fractionation tanks.

An exceedance of TPH compounds was identified on August 6, 2015, when the analytical results were received, for the July 28, 2015 effluent water samples. The day the analytical report was received, water treatment at the PGWTP had already ceased and the treatment system was in the process of being dismantled however, a sample of the receiving waters was collected and submitted to the analytical laboratory on a 24 hour turn-around time. Expedited results of this re-sampling event were received on August 10, 2015, indicating that there were no detections for PAHs, TPH as Bunker C Fuel (TPHbc) or TPH as diesel (TPHd) in the effluent and detections for TPH as gasoline (TPHg) was below permit limits as well as below the laboratory reporting level. The RWQCB was notified of the events associated with the July violation by phone and e-mail on August 6, 2015.

The City requested rescission of permit coverage on October 1, 2015 and rescission was granted on October 8, 2015.

During the third quarter of 2015, the PGWTP treated approximately 488,205 gallons of groundwater with an average flow rate of approximately 10.9 gallons per minute (Table 1).

During the third quarter of 2015, approximately 1.5 kilograms of TPH were removed by the PGWTP (Table 2).

Summary of NPDES Sampling Results

Influent, effluent, and receiving water samples from the PGWTP were collected and analyzed during the reporting period in accordance with the 2012 Order. Tables 3A and 3B summarize the analytical data for influent samples collected from the PGWTP. Tables 4A and 4B summarize data for the same analytes in effluent samples collected from the PGWTP during the reporting period. Tables 5A, 5B, 5C, and 5D

summarize the data for the receiving water sample collected in compliance with the 2012 Order. The following sections of this report summarize the sampling results.

TPH Analytical Results

Influent and effluent sampling for TPHg, TPHd, and TPHbc was performed on July 9, and July 28, 2015. 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 in effluent samples were below the effluent limitation on July 9 but exceeded the limit of 50 µg/L during the July 28, 2015 sampling event as noted above. The concentrations of TPHd and TPHbc in effluent samples were not detected above laboratory reporting limits on July 9, but exceeded their respective limits during the July 28, 2015 sampling event.

Upon receiving the July 28th analytical report the PGWTP had ceased treating water and was no longer operational. On August 6, 2015, the same day that the July 28th analytical report was received, samples of the receiving waters were collected and submitted to the lab with an expedited turn-around time. The concentrations of TPHg, TPHd, and TPHbc in the samples collected of the receiving water were all below their respective limits as well as the laboratory's reporting limits.

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 equipment 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. As required by the O&M manual approved by the RWQCB, 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 July 9, and July 28, 2015. BTEX influent and effluent analytical results are presented in Table 3A for influent samples and in Table 4A for effluent samples.

Sampling of the receiving water for BTEX compounds was performed on August 6, 2015. The receiving water BTEX analytical results are presented in Table 5A.

The concentrations of BTEX compounds in the effluent and receiving water samples were below analytical laboratory's reporting limit of 0.5 µg/L during the reporting period.

PAH Analytical Results

Influent and effluent sampling for PAH compounds was performed on July 9, and July 28, 2015. PAH analytical results are presented in Table 3B for influent samples and in Table 4B for effluent samples.

Sampling of the receiving water for PAH compounds was performed on August 6, 2015. The receiving water BTEX analytical results are presented in Table 5B.

The concentrations of PAH compounds in the effluent and receiving water samples were not detected above the analytical laboratory's reporting limit of 0.1 µg/L, for the sampling events in July and August, which is the lowest reporting limit that the analytical laboratory can reach.

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 reporting period 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.

- July Trip Blank Detection:
 - TPHg was detected in the trip blank that accompanied the samples collected on July 9, and July 28, 2015. The concentrations were 14 J µg/L and 13 J µg/L respectively.
- August Trip Blank Detection:
 - TPHg was detected in the trip blank that accompanied the receiving water samples collected on August 6, 2015. The concentration was 19 J µg/L.
- August Method Blank Detection:
 - TPHg was detected in the method blanks associated with the receiving water samples collected on August 6, 2015. The concentration was 20 J µg/L.

Estimated Concentrations: 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 value.

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 Limitations.

Compliance Evaluation Summary

During the third quarter 2015 reporting period, the PGWTP complied with the applicable sampling requirements.

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

Sincerely,
For Terraphase Engineering Inc.

Draft

Tomer Schetrit P.E. (C81411)
Senior Project Engineer

Chris Jones
Senior Staff Engineer

cc: Carlos Privat, City of Richmond
Craig Murray, City of Richmond
Venkat Puranapanda, ACE Group
Jim Whitcomb, United States Navy BRAC
Michael Leacox, NCE
Margarete Beth, California RWQCB
Joan Garrett, PMCAC
Bruce Bayaert, 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
- 4A PGWTP Summary of Effluent BTEX and Total Petroleum Hydrocarbons Sample Results
- 4B PGWTP Summary of Effluent PAH Sample Results
- 5A PGWTP Summary of Receiving Water BTEX and Total Petroleum Hydrocarbons Sample Results
- 5B PGWTP Summary of Receiving Water PAH Sample Results
- 5C PGWTP Summary of Receiving Water VOC Sample Results
- 5D PGWTP Summary of Receiving Water Dissolved Oxygen 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)
July ⁽²⁾	31	488,205	1,847,856	10.9

Notes:

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

gpm = gallons per minute

(2) July was the final month of operation for the PGWTP

Third Quarter 2015 Summary (7/1/2015 to 7/31/2015)	
Total days of operation	31
Total volume of groundwater treated (gallons)	488,205
Average flow rate (gpm)	10.9

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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 ^(2,4) (µg/l)	Total TPH Effluent Concentration ^(2,4) (µg/l)	Total TPH Removal Concentration (µg/l)	TPH Mass Removed Per Period ⁽³⁾ (kg)	TPH Mass Removal (kg/day) Rate
July	31	488,205	1,847,856	3,545	2,716	829	1.5	0.05

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.

(4) Influent and effluent values based on the average of two sampling events in July

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 2015 Summary (7/1/2015 to 7/31/2015)	
TPH mass removed this period (kg)	1.5

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							
				7/9/15				7/28/15			
				Result	RL	MDL	Date Analyzed	Result	RL	MDL	Date Analyzed
Benzene	EPA 8260B	µg/l	Q	ND	0.5	0.1	9-Jul	ND	0.5	0.1	29-Jul
Toluene	EPA 8260B	µg/l	Q	ND	0.5	0.1	9-Jul	1.2	0.5	0.1	29-Jul
Ethylbenzene	EPA 8260B	µg/l	Q	ND	0.5	0.1	9-Jul	ND	0.5	0.1	29-Jul
Total xylenes	EPA 8260B	µg/l	Q	ND	0.5	0.1	9-Jul	1.3	0.5	0.1	29-Jul
TPHg	EPA 8015B	µg/l	Q	160 J⁽²⁾	50	13	10-Jul	110 Y⁽²⁾	50	13	28-Jul
TPHd ⁽¹⁾	EPA 8015B	µg/l	Q	1,400 Y	17	5.5	10-Jul	320 Y	17	5.5	3-Aug
TPHbc ⁽¹⁾	EPA 8015B	µg/l	Q	4,000 Y	100	--	10-Jul	1,100 Y	100	--	3-Aug

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.

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							
				7/9/15				7/28/15			
				Result	RL	MDL	Date Analyzed	Result	RL	MDL	Date Analyzed
Napthalene	EPA 8270C-SIM	µg/l	Q	0.1 J	0.2	0.04	10-Jul	ND	0.3	0.06	28-Apr
Acenaphthylene	EPA 8270C-SIM	µg/l	Q	0.08 J	0.2	0.04	10-Jul	ND	0.3	0.06	28-Apr
Acenaphthene	EPA 8270C-SIM	µg/l	Q	0.4	0.2	0.04	10-Jul	0.2 J	0.3	0.06	28-Apr
Fluorene	EPA 8270C-SIM	µg/l	Q	0.5	0.2	0.04	10-Jul	ND	0.3	0.06	28-Apr
Phenanthrene	EPA 8270C-SIM	µg/l	Q	0.3	0.2	0.04	10-Jul	ND	0.3	0.06	28-Apr
Anthracene	EPA 8270C-SIM	µg/l	Q	ND	0.2	0.06	10-Jul	ND	0.3	0.09	28-Apr
Fluoranthene	EPA 8270C-SIM	µg/l	Q	0.1 J	0.2	0.04	10-Jul	ND	0.3	0.06	28-Apr
Pyrene	EPA 8270C-SIM	µg/l	Q	0.5	0.2	0.05	10-Jul	0.1 J	0.3	0.07	28-Apr
Benzo(a)anthracene	EPA 8270C-SIM	µg/l	Q	0.1 J	0.2	0.04	10-Jul	ND	0.3	0.06	28-Apr
Chrysene	EPA 8270C-SIM	µg/l	Q	0.3	0.2	0.05	10-Jul	ND	0.3	0.08	28-Apr
Benzo(b)fluoranthene	EPA 8270C-SIM	µg/l	Q	0.05 J	0.2	0.04	10-Jul	ND	0.3	0.06	28-Apr
Benzo(k)fluoranthene	EPA 8270C-SIM	µg/l	Q	ND	0.2	0.04	10-Jul	ND	0.3	0.06	28-Apr
Benzo(a)pyrene	EPA 8270C-SIM	µg/l	Q	0.06 J	0.2	0.04	10-Jul	ND	0.3	0.06	28-Apr
Indeno(1,2,3-cd)pyrene	EPA 8270C-SIM	µg/l	Q	ND	0.2	0.04	10-Jul	ND	0.3	0.06	28-Apr
Dibenz(a,h)anthracene	EPA 8270C-SIM	µg/l	Q	ND	0.2	0.04	10-Jul	ND	0.3	0.06	28-Apr
Benzo(g,h,i)perylene	EPA 8270C-SIM	µg/l	Q	ND	0.2	0.05	10-Jul	ND	0.3	0.07	28-Apr

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 4A

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



Constituent	Analytical Method	Units	Sample Freq.	Effluent Limit.	Sample Date							
					7/9/15				7/28/15			
					Result	RL	MDL	Date Analyzed	Result	RL	MDL	Date Analyzed
Benzene	EPA 8260B	µg/l	M	5	ND	0.5	0.1	29-Jul	ND	0.5	0.1	29-Jul
Toluene	EPA 8260B	µg/l	M	5	ND	0.5	0.1	29-Jul	ND	0.5	0.1	29-Jul
Ethylbenzene	EPA 8260B	µg/l	M	5	ND	0.5	0.1	29-Jul	ND	0.5	0.1	29-Jul
Total xylenes	EPA 8260B	µg/l	M	5	ND	0.5	0.1	29-Jul	ND	0.5	0.1	29-Jul
TPHg	EPA 8015B	µg/l	M	50	17 J⁽²⁾	50	13	29-Jul	96 Y⁽²⁾	50	13	29-Jul
TPHd ⁽¹⁾	EPA 8015B	µg/l	M	50	19 Y	21	6.9	4-Aug	1,100 Y	21	6.9	4-Aug
TPHbc ^(1,3)	EPA 8015B	µg/l	M	--	ND	130	--	4-Aug	4,200	130	--	4-Aug

Notes:

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

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

(3) TPHbc has a trigger limit of 50 µg/l. However, the analytical method reporting 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

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.

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							
					7/9/15				7/28/15			
					Result	RL	MDL	Date Analyzed	Result	RL	MDL	Date Analyzed
Napthalene	EPA 8270C-SIM	µg/l	M	-	ND	0.1	0.02	10-Jul	ND	0.1	0.02	28-Apr
Acenaphthylene	EPA 8270C-SIM	µg/l	M	-	ND	0.1	0.02	10-Jul	0.03 J	0.1	0.02	28-Apr
Acenaphthene	EPA 8270C-SIM	µg/l	M	-	ND	0.1	0.02	10-Jul	ND	0.1	0.02	28-Apr
Fluorene	EPA 8270C-SIM	µg/l	M	-	ND	0.1	0.02	10-Jul	ND	0.1	0.02	28-Apr
Phenanthrene	EPA 8270C-SIM	µg/l	M	-	ND	0.1	0.02	10-Jul	ND	0.1	0.02	28-Apr
Anthracene	EPA 8270C-SIM	µg/l	M	-	ND	0.1	0.03	10-Jul	ND	0.1	0.03	28-Apr
Fluoranthene	EPA 8270C-SIM	µg/l	M	-	ND	0.1	0.02	10-Jul	ND	0.1	0.02	28-Apr
Pyrene	EPA 8270C-SIM	µg/l	M	-	ND	0.1	0.02	10-Jul	ND	0.1	0.02	28-Apr
Benzo(a)anthracene	EPA 8270C-SIM	µg/l	M	0.0044	ND	0.1	0.02	10-Jul	ND	0.1	0.02	28-Apr
Chrysene	EPA 8270C-SIM	µg/l	M	0.044	ND	0.1	0.03	10-Jul	ND	0.1	0.03	28-Apr
Benzo(b)fluoranthene	EPA 8270C-SIM	µg/l	M	0.0044	ND	0.1	0.02	10-Jul	ND	0.1	0.02	28-Apr
Benzo(k)fluoranthene	EPA 8270C-SIM	µg/l	M	0.0044	ND	0.1	0.02	10-Jul	ND	0.1	0.02	28-Apr
Benzo(a)pyrene	EPA 8270C-SIM	µg/l	M	0.0044	ND	0.1	0.02	10-Jul	0.05 J	0.1	0.02	28-Apr
Indeno(1,2,3-cd)pyrene	EPA 8270C-SIM	µg/l	M	0.0044 ⁽¹⁾	ND	0.1	0.02	10-Jul	ND	0.1	0.02	28-Apr
Dibenz(a,h)anthracene	EPA 8270C-SIM	µg/l	M	0.0044	ND	0.1	0.02	10-Jul	ND	0.1	0.02	28-Apr
Benzo(g,h,i)perylene	EPA 8270C-SIM	µg/l	M	-	ND	0.1	0.02	10-Jul	ND	0.1	0.02	28-Apr

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, and Estuaries of California (SIP). However, for EPA 8270C-SIM, the lowest level for the reporting limit that the analytical laboratory can report down to is 0.09 µg/L.

-- = 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 5A

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



Constituent	Analytical Method	Units	Effluent Limit.	Sample Date			
				8/6/15			
				Result	RL	MDL	Date Analyzed
Benzene	EPA 8260B	µg/l	5	ND	0.5	0.1	6-Aug
Toluene	EPA 8260B	µg/l	5	ND	0.5	0.1	6-Aug
Ethylbenzene	EPA 8260B	µg/l	5	ND	0.5	0.1	6-Aug
Total xylenes	EPA 8260B	µg/l	5	ND	0.5	0.1	6-Aug
TPHg	EPA 8015B	µg/l	50	20 J⁽²⁾	50	5.7	6-Aug
TPHd ⁽¹⁾	EPA 8015B	µg/l	50	ND	17	5.5	7-Aug
TPHbc ^(1,3)	EPA 8015B	µg/l	--	ND	100	--	7-Aug

Notes:

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

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

(3) TPHbc has a trigger limit of 50 µg/l. However, the analytical method reporting 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

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

Table 5B
 PGWTP Summary of Receiving Water PAHs Analytical Results
 Former Naval Fuel Depot Point Molate, Richmond, California



Constituent	Analytical Method	Units	Trigger	Sample Date			
				8/6/15			
				Result	RL	MDL	Date Analyzed
Napthalene	EPA 8270C-SIM	µg/l	-	ND	0.09	0.02	7-Aug
Acenaphthylene	EPA 8270C-SIM	µg/l	-	ND	0.09	0.02	7-Aug
Acenaphthene	EPA 8270C-SIM	µg/l	-	ND	0.09	0.02	7-Aug
Fluorene	EPA 8270C-SIM	µg/l	-	ND	0.09	0.02	7-Aug
Phenanthrene	EPA 8270C-SIM	µg/l	-	ND	0.09	0.02	7-Aug
Anthracene	EPA 8270C-SIM	µg/l	-	ND	0.09	0.02	7-Aug
Fluoranthene	EPA 8270C-SIM	µg/l	-	ND	0.09	0.02	7-Aug
Pyrene	EPA 8270C-SIM	µg/l	-	ND	0.09	0.02	7-Aug
Benzo(a)anthracene	EPA 8270C-SIM	µg/l	0.0044	ND	0.09	0.02	7-Aug
Chrysene	EPA 8270C-SIM	µg/l	0.044	ND	0.09	0.02	7-Aug
Benzo(b)fluoranthene	EPA 8270C-SIM	µg/l	0.0044	ND	0.09	0.02	7-Aug
Benzo(k)fluoranthene	EPA 8270C-SIM	µg/l	0.0044	ND	0.09	0.02	7-Aug
Benzo(a)pyrene	EPA 8270C-SIM	µg/l	0.0044	ND	0.09	0.02	7-Aug
Indeno(1,2,3-cd)pyrene	EPA 8270C-SIM	µg/l	0.0044 ⁽¹⁾	ND	0.09	0.02	7-Aug
Dibenz(a,h)anthracene	EPA 8270C-SIM	µg/l	0.0044	ND	0.09	0.02	7-Aug
Benzo(g,h,i)perylene	EPA 8270C-SIM	µg/l	-	ND	0.09	0.02	7-Aug

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 5C
PGWTP Summary of Receiving Water VOC Analytical Results
Former Naval Fuel Depot Point Molate, Richmond, California



Constituent	Analytical Method	Units	Sample Date			
			8/6/15			
			Result	RL	MDL	Date Analyzed
Freon 12	EPA 8260B	µg/l	ND	1.0	0.1	6-Aug
Chloromethane	EPA 8260B	µg/l	ND	1.0	0.1	6-Aug
Vinyl Chloride	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Bromomethane	EPA 8260B	µg/l	ND	1.0	0.2	6-Aug
Chloroethane	EPA 8260B	µg/l	ND	1.0	0.1	6-Aug
Trichlorofluoromethane	EPA 8260B	µg/l	ND	1.0	0.1	6-Aug
Acetone	EPA 8260B	µg/l	ND	10	3.3	6-Aug
Freon 113	EPA 8260B	µg/l	ND	2.0	0.1	6-Aug
1,1-Dichloroethene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Methylene Chloride	EPA 8260B	µg/l	ND	5	0.1	6-Aug
Carbon Disulfide	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
trans-1,2-Dichloroethene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Vinyl Acetate	EPA 8260B	µg/l	ND	10	0.3	6-Aug
1,1-Dichloroethane	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
2-Butanone	EPA 8260B	µg/l	ND	10	0.1	6-Aug
cis-1,2-Dichloroethene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
2,2-Dichloropropane	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Chloroform	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Bromochloromethane	EPA 8260B	µg/l	ND	0.5	0.2	6-Aug
1,1,1-Trichloroethane	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
1,1-Dichloropropene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Carbon Tetrachloride	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
1,2-Dichloroethane	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Trichloroethene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
1,2-Dichloropropane	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Bromodichloromethane	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Dibromomethane	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
4-Methyl-2-Pentanone	EPA 8260B	µg/l	ND	10	0.2	6-Aug
cis-1,3-Dichloropropene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
trans-1,3-Dichloropropene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
1,1,2-Trichloroethane	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
2-Hexanone	EPA 8260B	µg/l	ND	10	0.2	6-Aug
1,3-Dichloropropane	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Tetrachloroethene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Dibromochloromethane	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
1,2-Dibromoethane	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Chlorobenzene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
1,1,1,2-Tetrachloroethane	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Styrene	EPA 8260B	µg/l	ND	0.5	0.2	6-Aug
Bromoform	EPA 8260B	µg/l	ND	1.0	0.1	6-Aug
Isopropylbenzene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
1,1,2,2-Tetrachloroethane	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
1,2,3-Trichloropropane	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Propylbenzene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Bromobenzene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
1,3,5-Trimethylbenzene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
2-Chlorotoluene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
4-Chlorotoluene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug

Table 5C

PGWTP Summary of Receiving Water VOC Analytical Results
Former Naval Fuel Depot Point Molate, Richmond, California



Constituent	Analytical Method	Units	Sample Date			
			7/14/15			
			Result	RL	MDL	Date Analyzed
tert-Butylbenzene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
1,2,4-Trimethylbenzene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
sec-Butylbenzene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
para-Isopropyl Toluene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
1,3-Dichlorobenzene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
1,4-Dichlorobenzene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
n-Butylbenzene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
1,2-Dichlorobenzene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
1,2-Dibromo-3-Chloropropane	EPA 8260B	µg/l	ND	2	0.5	6-Aug
1,2,4-Trichlorobenzene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug
Hexachlorobutadiene	EPA 8260B	µg/l	ND	2	0.2	6-Aug
Naphthalene	EPA 8260B	µg/l	ND	2	0.3	6-Aug
1,2,3-Trichlorobenzene	EPA 8260B	µg/l	ND	0.5	0.1	6-Aug

Notes:

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

-- = Not measured/not applicable

A = Annual

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.)

RL = Reporting Limit

µg/l = micrograms per liter

Table 5D

PGWTP Summary of Receiving Water Dissolved Oxygen Analytical Results
Former Naval Fuel Depot Point Molate, Richmond, California



Constituent	Analytical Method	Units	Sample Date		
			8/6/15		
			Result	RL	Date Analyzed
Dissolved Oxygen	SM4500	mg/l	11	1	6-Aug

Notes:

RL = Reporting Limit

mg/l = milligrams per liter

ATTACHMENT A
VISUAL OBSERVATION FORMS

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Site Visit Date: 7/28/15 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)
78 F, 4.3 mph E, 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
4.3 mph E	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