



San Francisco Bay Regional Water Quality Control Board

December 12, 2014 (EKW) Geotracker Global ID: SL0608541147

Department of the Navy Base Realignment and Closure Program Management Office West Attn. Mr. Scott Anderson 1455 Frazee Road, Suite 900 San Diego, CA 92108-4310 Via email: <u>scott.d.anderson@navy.mil</u>

Subject: No Further Action for Site 5 South (USTs 4- 9), Former Naval Air Station Moffett Field, Santa Clara County, Regional Water Board Case Nos. 43D9067

Dear Mr. Anderson:

This letter confirms that based on the available information, and with the provision that the information provided is accurate and representative of site conditions, site investigation and corrective actions are complete and no further action (NFA) is required for the site summarized below:

Site Name	GeoTracker Case ID	Regional Water Board Case No.
Site 5 South (USTs 4-9)	T1000002418	43D9067

Basis and Assumptions

This NFA status applies only to releases of petroleum fuel and fuel constituents associated with the site referenced above. While the information provided indicates that the above-referenced sites are satisfactorily cleaned up to standards consistent with commercial/industrial land use, we may reconsider these findings should land use change or new information be discovered regarding previously undetected contamination.

This NFA is based on the assumption that shallow groundwater beneath the site is suitable for drinking water or other potential uses.

Conditions and Requirements

Residual petroleum contamination remains in the subsurface. To ensure protection of public health, safety, or the environment, and to be consistent with the land and groundwater use assumptions above, the following conditions/requirements apply:

JOHN MULLER, CHAIR | BRUCE H. WOLFE, EXECUTIVE OFFICER

No Further Action for Site 5 South (USTs 4-9) Moffett Field

- <u>No residential land use:</u> The site cannot support residential use due to potentially unacceptable direct contact risk from residual petroleum contamination in soil and groundwater.
- <u>No grading, excavation, or subsurface activities without a soil management plan:</u> Any
 work involving soil excavation, trenching, or groundwater contact must be conducted
 pursuant to a soil management plan that is acceptable to Regional Water Board staff.
 The plan must include procedures for proper notification, handling, and disposal of any
 potentially contaminated soil or groundwater encountered during construction or
 removed from the site. Current and future site workers, tenants, and landowners must be
 notified of the soil management requirements for the property.
- <u>Notify Regional Water Board: land/groundwater use change</u>: The Regional Water Board must be notified in writing of any proposed changes in future land or groundwater use at the site. Formal Regional Water Board concurrence may be required.
- <u>Decommission monitoring wells:</u> Any monitoring wells that will no longer be used must be properly destroyed pursuant to requirements of the Santa Clara Valley Water District (SCVWD). For information regarding these requirements, please contact the SCVWD at (408) 265-2600. Documentation of well destruction shall be submitted to the Regional Water Board

Land Use Controls/Covenants

This NFA status would typically require a deed restriction to secure the above conditions and requirements necessary to protect public health, safety, or the environment. However, in this case, the Regional Water Board does not require a deed restriction for these sites because under the Record of Decision for the NASA Ames Development Plan, land use is restricted to those uses outlined by Mitigated Alternative 4 in the NSASA Ames Development Plan, Final Programmatic Environmental Impact Statement (Plan; July 2002). The Plan provides an equivalent degree of land use control and restricts residential development of this site.

In addition, NASA Ames, the property owner, requires a construction permit for all subsurface work. The permit application includes environmental review and NASA Ames requires that applicants follow appropriate environmental procedures at sites with residual contamination where subsurface activities are planned.

Closing

The Regional Water Board may require a separate cost recovery agreement for regulatory oversight with the future landowner in order to evaluate the above work plans and conditions or to review any proposed change in land or groundwater use.

Attached please find the uniform UST closure letter and site closure summary. Please contact Elizabeth Wells of my staff at (510) 622.2440 or <u>ewells@waterboards.ca.gov</u> if you have any questions regarding this matter.

Sincerely,

Bruce H. Wolfe Executive Officer

Attachments: Uniform Case Closure Letter Site Closure Summary Form

Email distribution:

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Department of the Navy Base Realignment and Closure Program Management Office West Attn. Mr. Scott Anderson 1455 Frazee Road, Suite 900 San Diego, CA 92108-4310 Via email: <u>scott.d.anderson@navy.mil</u>

Subject: Uniform Case Closure Letter, Site 5 South (USTs 4-9), Former Naval Air Station Moffett Field, Santa Clara County, Regional Water Board Case Nos. 43D9067

Dear Mr. Anderson:

This letter confirms the completion of a site investigation and corrective action for the subject underground storage tank(s) formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tank(s) are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, we find that the site investigation and corrective action carried out at your underground storage tank site(s) is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.3 of the Health and Safety Code and that no further action (NFA) related to the petroleum release(s) at the site(s) is required.

This notice is issued pursuant to subdivision (g) of Section 25296.10 of the Health and Safety Code. Please contact our offices if you have any questions regarding this matter.

Sincerely,

Bruce H. Wolfe Executive Officer

JOHN MULLER, CHAIR | BRUCE H. WOLFE, EXECUTIVE OFFICER

SITE CLOSURE SUMMARY

Former Site 5 South

Date: December 3, 2014

1. AGENCY INFORMATION				
Agency Name: SF Bay Regional Water Quality Control Board	Address: 1515 Clay Street, Suite 1400			
City/State/Zip: Oakland, CA 94612	Phone : (510) 622-2300			
Responsible Staff Person: Elizabeth Wells, P.E.	Title: Water Resource Control Engineer			
Division: Groundwater Protection	Program: DoD			

2. SITE AND FILE INFORMATION			
Site Name: Former Site 5 South			
Parent Military Base: Former Naval Air Station Moffett Fig	eld		
Site Address: East Patrol Road and Macon Road, Mountain View, Santa Clara County, California 94035			
Site Latitude (decimal degrees): 37.414261 Longitude: -122.039330			
Site Type: Military UST Site			
WB Case No.: 43D9067 GeoTracker Case ID: T1000002418			
WB File No. : 2189.8009 Paperless Office ID: SL0608541147			

3. RESPONSIBLE PARTY:

Company/Agency: Base Realignment and Closure Program Management Office West Contact Name: Scott Anderson Contact Title: BRAC Environmental Coordinator Street Address: 1455 Frazee Road, Suite 900 City, State, Zip Code: San Diego, CA 92108 Tel. No.: (619)531-0938 Email: scott.d.anderson@navy.mil Company/Agency: Base Realignment and Closure Program Management Office West Contact Name: Wilson Doctor Contact Title: Remedial Project Manager Street Address: 1455 Frazee Road, Suite 900 City, State, Zip Code: San Diego, CA 92108 Tel. No.: (619)531-0928 Email: wilson.doctor@navy.mil

4. SITE DESCRIPTION, LAND USE, AND BENEFICIAL USE

Site Size and Description: Former Site 5 is divided geographically by the intersection of Macon and East Patrol Roads. Site 5 South is located south of the intersection and to the west of Macon Road. The site formerly contained seven underground storage tanks (USTs): 4 through 9, and 18 (UST 18 was closed under separate cover). In addition, the site contained five dry wells, underground piping, and a tank car and truck unloading facility. The tanks and fuel components, including the dry wells, were constructed in the 1940s and 1950s, and were removed in 1995.

Vicinity: Former Site 5 South currently is leased as a secure parking and storage area for recreational vehicles. The site, which is unpaved, is immediately north of Building 49 and about 500 feet southeast of Hangers 2 and 3. A portion of the area between Former Site 5 South and the hangars is a burrowing owl exclusion area. The nearest surface water body is the Eastern Diked Marsh, approximately 3,000 feet north of the site.

Site Plan Map Attached: Yes

Current Site Use(s): Commercial/Industrial

Future Land Use(s): Commercial/Industrial

Beneficial Uses: Municipal and domestic groundwater use

Beneficial Use Exceptions: None

5. RELEASE INFORMATION						
Source	Capacity or dimensions	Contents	How Closed?	Date	Latitude (decimal degrees)	Longitude (decimal degrees)
UST 4	50,000-gallon	Diesel	Removed	1995	37.414121	- 122.039802
UST 5	50,000-gallon	Jet fuel	Removed	1995	37.414499	-122.039738
UST 6	25,000-gallon	Jet fuel	Removed	1995	37.414039	-122.039266
UST 7	25,000-gallon	Gasoline	Removed	1995	37.414601	-122.03918
UST 8	150,000-gallon	Jet fuel	Removed	1995	37.414942	-122.038954
UST 9	150,000-gallon	Jet fuel	Removed	1995	37.415155	-122.038836
Piping	~ 6500 ft	Mixed petroleum	Removed	1995	37.414261	-122.039330
Dry Wells (5)	8 ft dia., 8 ft deep	Condensate water	Removed	1995	37.414261	-122.039330

6. SITE CHARACTERIZATION AND CONCEPTUAL SITE MODEL

Cause and description of release: Site 5 South is a former tank farm that was constructed in the 1940s and 1950s to provide gasoline, diesel, and jet fuel for ongoing Navy operations. Seven USTs were located at the site; UST 18 was removed and closed under separate cover. The remaining six USTs were constructed with bottom sumps; accumulated water was pumped from the sumps and disposed of in five dry wells. Site 5 South also included piping and an unloading facility for tank cars and trucks. In 1995, the USTs and associated components were removed.

Characterization:

- October 1988-April 1992: Groundwater samples collected from six monitoring wells during ten sampling events were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), total petroleum hydrocarbons (TPH) as jet propellant grade 5 (JP-5), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals. All detections were either less than project action levels (PALs) or non-detect.
- 1988-1991: Soil samples were collected from 12 borings and analyzed for BTEX, JP-5, VOCs, SVOCs, and metals. Only JP-5 was detected at a concentration greater than the PAL at concentrations of 590 and 1000 milligrams per kilograms (mg/kg) in samples from two borings.
- September 1993-June 1995: Groundwater samples were collected during six quarterly sampling events from nine wells and analyzed for BTEX, TPH-extractable (TPH-e), and TPH-purgeable (TPH-p). With the exception of TPH as motor oil (TPH-mo) in one groundwater sample collected in December 1993 (1,900 micrograms per liter [µg/L]), all results were below PALs.
- February 1994: Soil samples were collected from five borings and grab groundwater samples were collected from five additional borings. All samples were analyzed for TPH as diesel (TPHd), JP-5, TPH as kerosene, and TPH-mo. All soil results were non-detect; all groundwater results were below PALs.
- 1999: Groundwater samples were collected from select wells within Site 5 South as part of base-wide annual groundwater monitoring and analyzed for BTEX and methyl tertiary butyl ether (MTBE). BTEX and MTBE were not detected.
- 2009: Additional investigations were conducted to characterize the extent of elevated TPH-e previously detected at various locations at the site: 1) beneath piping northeast of UST 4, 2) beneath the UST 4/5 drywell, 3) beneath piping northeast of UST 5, 4) in the vicinity of USTs 8 and 9 (excavation confirmation samples and one boring). Soil and grab groundwater samples were collected from 21 borings during three rounds of field activities that included step-out borings. Results for soil samples were less than PALs. Several grab groundwater samples contained TPH-e at concentrations greater than PALs. However, results from step-out borings were less than PALs or non-detect. The data indicated that only isolated "plumelets" are present (limited in extent with lateral extent defined).
- 2009: Groundwater samples were collected from the seven existing monitoring wells and analyzed for TPH-e. All results were less than the PALs.

Groundwater (GW)	Depth to first GW: 6 to 7 feet bgs	
	GW gradient direction: North-northwest	
	GW sampled?: Yes	
GW monitoring wells	GW monitoring wells installed?: Yes	
wens	Total number of monitoring wells used in support of closure decision: 9	
	Status of MWs: 2 were decommissioned, 7 wells remain	

7a. CLEANUP STANDARDS AND SITE REMEDIATION

Describe basis for cleanup standards: Analytical results for soil samples were compared against site-specific project action levels, either U. S. Environmental Protection Agency (EPA) Region 9 Regional Screening Levels (RSLs) or San Francisco Regional Water Board environmental screening levels (ESLs) for gross contaminant ceiling levels for nuisance at industrial/commercial sites where groundwater is a current or potential drinking water source.

Describe risk-based approach to develop cleanup standards: RSLs or ESLs

Describe remediation efforts for soil and groundwater:

In September-October 1995, USTs 4 through 9, five dry wells, and associated piping were emptied, cleaned, and removed. Soil was over-excavated 5 feet around each tank and soil samples were collected from the excavation perimeters at USTs 4, 5, 8, and 9 at the soil/groundwater interface and analyzed for BTEX, TPH-e, TPH-p, and lead. Benzene (at UST 5) and TPH-e (at UST 5, 8, and 9) were detected at concentrations greater than PALs.

Groundwater was encountered at 6 to 7 feet bgs during excavation; no sheen was observed on groundwater within the excavations.

Additional excavation was conducted at each tank and confirmation soil samples were collected from the extended excavation side walls. Soil samples were collected every 20 lineal feet from beneath the pipelines and trench drain systems and from beneath the dry wells. Soil samples were analyzed for BTEX, TPH-p, TPH-e, and lead. TPH-e was reported above PALs in two sidewall samples from the combined UST 8 and UST 9 excavation, samples from beneath two dry wells, and two samples from beneath piping. No other chemicals were detected above PALs.

	SOIL (ppm)		GW (ppb)		SOIL VAPOR (ppb or µg/m³)	
CONTAMINANT	Residual	Project Action Level	Residual	Project Action Level	Residual	Project Action Level
TPH-gasoline	7.5	500	1600	100	NS	NA
TPH-diesel	1,480	500	4,500	100	NS	NA
JP-5	1000	500	5,200	100	NS	NA
TPH-motor oil	52	2500	ND (<110)	100	NS	NA
Benzene	0.103	5.6	ND (<2)	1	NS	NA
Toluene	0.0651	930	ND (<2)	40	NS	NA
Ethylbenzene	0.0094	29	ND (<2)	30	NS	NA
Xylenes	0.85	300	ND (<2)	20	NS	NA
MTBE	NS	NA	ND(<10)	5	NS	NA
Naphthalene	1.7	20	ND	3.4	NS	NA

7b. RESIDUAL (MAX) CONTAMINANT CONCENTRATIONS

Lead 11.3 800	25 50,000) NA
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NS=not sampled ND= not detected; detection limit not provided if not shown

1a	Pollutant sources are identified and evaluated					
	\checkmark	Leak/spill sources (tanks, sumps, pipelines, etc.) are identified and controlled				
	V	The pollutant source zone (sorbed/entrained residual pollutants and free product that sustain groundwater & vapor plumes) is identified and delineated				
Con		ts: Yes. The USTs and associated appurtenances were removed and soil containing elevated entrations of petroleum hydrocarbons around the USTs was excavated.				
1b	The	site is adequately characterized				
	\checkmark	Site history, hydrology, and hydrogeology are characterized				
	V	The nature & extent (lateral and vertical) of pollutants are characterized in soil, groundwater & soil gas, as necessary				
Con	nmen	ts: Yes. See Table 6.				
1c	Exposure pathways, receptors, and potential risks, threats, and other environmental concerns are identified and assessed					
	V	Nearby receptors (wetlands, streams, wells, homes, schools, businesses, etc.) are identified				
	V	Groundwater & vapor migration/exposure pathways, natural & artificial (storm drains, sewer lines, buried channels, abandoned wells, etc.) are assessed				
	\checkmark	Reasonably anticipated land and water use scenarios have been considered				
	V	Actual and potential risks to receptors and adverse effects to beneficial uses are asses				
Con	East	<i>ts:</i> Yes. There are no water supply wells at Moffett Field. The nearest surface water body is the ern Diked Marsh, approximately 3,000 feet north of the site. The site, which is unpaved, is leased cure parking and storage area for recreational vehicles.				
2a	Poll	utant sources are remediated to the extent feasible				
	V	The technical and economic feasibility of source remediation methods/technologies hav been evaluated				
	\checkmark	Feasible source remediation technologies have been implemented				
	\checkmark	Appropriate source remediation performance monitoring has been conducted				
	\checkmark	Source mass removal has been documented				
	1	The effects of source remediation on groundwater/vapor plume behavior have been				

	evaluated
Con	nments: Yes. Primary (USTs and associated components) and secondary (contaminated soil) source have been removed. Site characterization results indicate residual petroleum hydrocarbons in groundwater are limited in extent.
2b	Unacceptable risks to human health, ecological health, and sensitive receptors, considering current and future land and water uses, are mitigated
	√ Necessary & appropriate corrective actions have been implemented
	√ Confirmation sampling, monitoring, and/or risk management measures demonstrate tha risks are mitigated
Con	inments: Yes. Based on soil and groundwater sampling results for petroleum hydrocarbons, cleanup to industrial/commercial standards, and the restriction on residential use, this site does not pose a significant risk to human health, the environment or water quality. Residual chemical concentrations soil and groundwater are limited in extent, and only isolated plumelets of petroleum hydrocarbons, based on grab groundwater data, remain. Recent groundwater samples from site monitoring wells contained no petroleum hydrocarbons at concentrations greater than PALs, indicating concentrations are stable or decreasing. In accordance with the "Regional Board Supplemental Instruction to State
	Water Board December 8, 1995, Interim Guidance on Required Cleanup at Low-Risk Fuel Sites" (W Board, January 5, 1995), this site is considered a low-risk fuel site.
2c	 Water Board December 8, 1995, Interim Guidance on Required Cleanup at Low-Risk Fuel Sites" (W Board, January 5, 1995), this site is considered a low-risk fuel site. Unacceptable threats to groundwater and surface water resources, considering existing and potential beneficial uses, are mitigated
2c	Water Board December 8, 1995, Interim Guidance on Required Cleanup at Low-Risk Fuel Sites" (W Board, January 5, 1995), this site is considered a low-risk fuel site. Unacceptable threats to groundwater and surface water resources, considering existing and

- \checkmark Appropriate plume monitoring has confirmed the lateral and vertical extent over time
- \checkmark Spatial and temporal trends for pollutants, including parent and breakdown products, have been evaluated
- $\sqrt{}$ Spatial and temporal trends for natural attenuation indicators have been evaluated
- \checkmark Evidence of breakdown to acceptable end products is documented
- \checkmark $\,$ Plume concentrations are decreasing and the plume is not moving or expanding

Comments: Yes. Extent of TPH-e in groundwater has been defined, is limited in extent, and is stable or decreasing. Concentrations higher than the PALs will continue to degrade over time.

- 3b Cleanup standards have been met or can be met in a reasonable timeframe
 - \checkmark The estimated timeframe to achieve cleanup standards throughout the affected area is evaluated
 - √ The anticipated timeframe for beneficial use of the affected and nearby water resources is evaluated
 - ✓ The potential to adversely affect beneficial uses is assessed considering cleanup and beneficial use timeframes, hydrogeologic conditions, and the CSM

Comments: Petroleum hydrocarbons in soil and groundwater exceeding PALs were detected at select locations. Step out soil and grab groundwater sampling conducted demonstrated that contamination is limited in extent and monitoring well data were less than PALs. Reporting limits were less than the PALs, with the exception of JP-5/motor oil and benzene, which had method detection limits of 110 and 2 ppb (PALs are 100 and 1 ppb, respectively) for groundwater samples. Because the primary and secondary sources of petroleum hydrocarbons have been removed, cleanup standards are expected to be met in a reasonable time frame.

- 3c Risk management measures are appropriate, documented, and do not require future Water Board oversight
 - √ Necessary risk management measures (land use restrictions, engineered vapor barriers, soil management plans, etc.) are implemented and documented
 - √ Risk management measures do not require future Water Board oversight

Comments: Under the Record of Decision for the NASA Ames Development Plan (November 2002), land use is restricted to those uses outlined by Mitigated Alternative 5 in the NASA Ames Development Plan, Final Programmatic Environmental Impact Statement (July 200). No residential land use is allowed. NASA requires a construction permit for all subsurface work that includes appropriate soil management protocols. A soil management plan is required for grading, excavation, and subsurface activities.

For petroleum groundwater plumes, stability is usually a sufficient criterion. For solvent or other non-petroleum groundwater plumes, closure should be supported by evidence of a decreasing plume in time and space.

9. NFA BASIS AND ASSUMPTIONS

This no further action status applies only to releases of petroleum fuel and fuel constituents at the subject site.

Cleanup standards for this site were based on industrial/commercial land use and that groundwater is a potential source of drinking water.

10a. NFA CONDITIONS AND REQUIREMENTS

- 1. <u>No residential land use:</u> The site cannot support residential use due to potentially unacceptable direct contact risk from residual petroleum contamination in shallow (<10 feet below ground surface) soil.
- 2. <u>No grading, excavation, or subsurface activities without a soil management plan:</u> Any work must include procedures for proper notification, handling, and disposal of any potentially contaminated soil or groundwater encountered during construction or removed from the site. Current and future site workers, tenants, and landowners must be notified of the soil management requirements for the property.
- <u>Notify Regional Water Board staff land/groundwater use change:</u> The Regional Water Board must be notified in writing of any proposed changes in future land or groundwater use at the site. Formal Regional Water Board concurrence may be required.
- 4. <u>Decommission monitoring wells:</u> Any monitoring wells that will no longer be used must be properly destroyed pursuant to requirements of the Santa Clara Valley Water District (SCVWD). For information regarding these requirements, please contact the Santa Clara Valley Water District at (408) 265-26000. Documentation of well destruction shall be submitted to the Region Water Board.

10b. LAND USE CONTROLS/COVENANTS

Residential land use is not allowed under the *Record of Decision for the NASA Ames Development Plan* (November 2002). NASA requires a construction permit for all subsurface work; permit application includes environmental review and NASA requires applicants follow appropriate environmental procedures at sites with residual contamination.

11. ADDITIONAL COMMENTS

12. TECHNICAL REPORTS, CORRESPONDENCE, ETC., THAT THIS CLOSURE RECOMMENDATION WAS BASED UPON

REPORTS ON FILE	Where is report(s) filed?: Oakland	
Basewide Petroleum Site Evaluation Methols, Site 5 Petroleum Evaluation, Tetra Tech	May 21, 1999	
Final Work Plan for Petroleum Sites Samp Actions, TetraTech EC, Inc.	August 28, 2009	
Final Request for Closure or No Further Action for former Site 5 South former USTs 4 through 9, Dry wells, and Associated Piping, TetraTech EC, Inc.		August 23, 2012

Attachments: Site Location Map Site Plan and Sample Location Map

Notes and Abbreviations:

GW – Groundwater TPH – Total Petroleum Hydrocarbons



