



Matthew Rodriquez
Secretary for
Environmental Protection

California Regional Water Quality Control Board San Francisco Bay Region

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Edmund G. Brown Jr.
Governor

December 15, 2011
File No. 2189.8009 (EKW)
GeoTracker Parent Facility 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
E-mail: scott.d.anderson@navy.mil

SUBJECT: No Further Action for Site 5 North Fuel Farm Dry Wells, Former Naval Air Station Moffett Field, Mountain View, Santa Clara County

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	Water Board Case No.
Site 5 North Fuel Farm Dry Wells	T10000000191	43D9048

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 site is satisfactorily cleaned up to standards based on the land uses summarized below, we may reconsider these findings should land use change or new information be discovered regarding previously undetected contamination. The Water Board shall be notified of any changes in future land or groundwater use at this site.

Site Name	Land Use Basis for Cleanup
Site 5 North Fuel Farm Dry Wells	Industrial/Commercial

Furthermore, to ensure the protection of human health, certain land and/or groundwater uses require restriction at this site to manage potential exposure to residual pollution in the soil, soil-gas, or groundwater. The required land and/or groundwater use restrictions are summarized below.

Site Name	Required Land and/or Groundwater Use Restrictions
Site 5 North Fuel Farm Dry Wells	No residential land use; no drinking water groundwater use

Any monitoring wells that will no longer be used must be properly destroyed pursuant to requirements of the Santa Clara Water District. For information regarding these requirements, please contact the Santa Clara Water District at (408) 265-2600.

Attached please find the site closure summary. Please contact Elizabeth Wells of my staff at (510) 622-2440 or ewells@waterboards.ca.gov if you have any questions regarding this matter.

Sincerely,

Bruce H. Wolfe
Executive Officer

Attachments: Site Closure Summary Form

Email Distribution:

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Lynne Kilpatrick (City of Sunnyvale): lkilpatrick@ci.sunnyvale.ca.us
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Lenny Siegel (Center for Public Environmental Oversight): lennysiegel@gmail.com
Peter Strauss (PM Strauss & Associates): petestrauss1@comcast.net

SITE CLOSURE SUMMARY

Date: December 2, 2011

I. 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) 622-2440
Responsible Staff Person: Elizabeth Wells, P.E.	Title: Water Resource Control Engineer
Division: Groundwater Protection	Program: DoD

II. SITE AND FILE INFORMATION	
Site Name: Site 5 North Fuel Farm Dry Wells	
Parent Military Base: Former Naval Air Station Moffett Field	
Site Address: East Patrol Road and Macon Road, Former Naval Air Station Moffett Field, Mountain View, Santa Clara County, California 94035	
Site Latitude (decimal degrees): 37.4173	Longitude: -122.0380
Site Type: Military Cleanup Site	
WB Case No.: 43D9048	GeoTracker Case ID: T10000000191
WB File No. : 2189.8009	GeoTracker Parent Facility ID: SL0608541147

III. 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) 532-0938 E-mail: 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) 532-0928 E-mail: wilson.doctor@navy.mil

SITE CLOSURE SUMMARY [page 2 of 8]

IV. SITE DESCRIPTION, LAND USE, AND BENEFICIAL USE	
<p>Site Size and Description: The site includes Dry Wells 1 through 5. Four of the five dry wells were associated with underground storage tanks (USTs) that were used to store jet fuel. USTs 10 through 13 will be addressed under a separate case. The fifth dry well is associated with fuel distribution lines. Each dry well was an excavated pit, at least 5 feet square and 8 to 10 feet deep, filled with gravel.</p>	
<p>Vicinity: The site is predominately bare soil with some asphalt pavement. The nearest surface water receptor, Marriage Road Ditch, is located approximately 700 feet northwest of the site.</p>	
<p>Site Vicinity Map Attached: Yes</p>	<p>Site Plan Map Attached: Yes</p>
<p>Current Site Use(s): Commercial/Industrial</p>	
<p>Future Land Use(s): Commercial/Industrial</p>	
<p>Beneficial Uses: Domestic and municipal beneficial use of groundwater</p>	
<p>Beneficial Use Exceptions: None</p>	

V. RELEASE INFORMATION						
Source (e.g., UST, AGT, pipeline, sump, wash rack, etc.)	Capacity or dimensions	Contents	How Closed?	Date	Latitude (decimal degrees)	Longitude (decimal degrees)
Dry Well 1	5 feet square and 8 to 10 feet deep	Received sump water from fuel UST	Excavated and removed.	2001	37.4173	-122.0380
Dry Well 2	5 feet square and 8 to 10 feet deep	Received sump water from fuel UST	Excavated and removed.	2001	37.4173	-122.0380
Dry Well 3	5 feet square and 8 to 10 feet deep	Received sump water from fuel UST	Excavated and removed.	2001	37.4173	-122.0380
Dry Well 4	5 feet square and 8 to 10 feet deep	Received sump water from fuel UST	Excavated and removed.	2001	37.4173	-122.0380
Dry Well 5	5 feet square and 8 to 10 feet deep	Received accumulated water from fuel distribution lines	Excavated and removed.	2001	37.4173	-122.0380

SITE CLOSURE SUMMARY [page 3 of 8]

VI. SITE CHARACTERIZATION AND CONCEPTUAL SITE MODEL

Cause and description of release: Four of the dry wells were associated with fuel USTs, which stored jet fuel at the site. The USTs were constructed with bottom sumps; accumulated water was pumped from the sumps and disposed of in the dry wells. The fifth dry well was associated with fuel distribution lines that connected the USTs to a truck fueling rack.

- The five dry wells, which are part of the North Fuel Farm, were investigated as a part of Site 5 between 1988 and 1994. The dry wells were excavated pits filled with gravel.
- In 2001, the five dry wells were excavated and removed. Soil samples were collected from one sidewall of each of the five excavations and groundwater samples were collected from temporary casings installed at the excavations. Soil and groundwater samples were analyzed for total extractable petroleum hydrocarbons (TPH-e) as jet petroleum; benzene, toluene, ethylbenzene and xylenes (BTEX); and polynuclear aromatic hydrocarbons (PAHs). Concentrations of TPH-e and benzene exceeded cleanup standards in soil, and concentrations of TPH-e, benzene and naphthalene exceeded cleanup standards in groundwater.
- The Navy installed 10 groundwater monitoring wells (1 adjacent and 1 downgradient of each dry well). The wells were sampled quarterly for four rounds in 2002 and 2003. TPH-e was detected at concentrations exceeding cleanup standards. However, by the final sampling event in 2003, TPH-e, BTEX and PAHs were not detected in groundwater.
- Additional investigation was conducted in September 2009. A shallow soil sample was collected from 1 to 2 feet below ground surface (bgs) at each of the former dry well locations. Soil samples were analyzed for TPH-e, BTEX and PAHs. BTEX was not detected, and concentrations of TPH-e and PAHs did not exceed cleanup standards.

Groundwater (GW)	Depth to first GW: 7 feet bgs
	GW gradient direction: North/Northeast
	GW sampled?: Yes
GW monitoring wells	GW monitoring wells installed?: Yes
	Total number of monitoring wells used in support of closure decision: 10
	Status of MWs: The monitoring wells may be needed during closure of USTs 10 through 13 at Site 5. Therefore, the Navy does not recommend well destruction at this time.

VII. SITE REMEDIATION AND TREATMENT

Describe basis for cleanup standards: Analytical results for soil were compared against EPA Regional Screening Levels (RSLs) for industrial land use. Results for groundwater were compared against San Francisco Water Board Environmental Screening Levels (ESLs) for groundwater that is a current or potential source of drinking water.

Describe remediation efforts for soil and groundwater: The dry wells were excavated and removed in 2001. Based on site investigations, the dry wells did not significantly impact soil or groundwater; no remedial action is deemed necessary for soil and groundwater.

SITE CLOSURE SUMMARY [page 4 of 8]

Treatment and Disposal of Affected Materials						
Material	Amount		Action		Date	
Soil and gravel	Approximately 1375 cubic feet		Excavated and removed.		2001	
Groundwater	None		N/A		N/A	
Free Product/Separate-Phase Petroleum Hydrocarbons						
Remaining after cleanup?		Amount		Where documented?		
No		N/A		N/A		
Pre- and Post-Remediation (Residual) Pollutant Concentrations						
POLLUTANT	SOIL (ppm)		GW (ppb)		SOIL VAPOR (ppb or ug/m³)	
	Before	After	Before	After	Before	After
TPH-gasoline	NS	NS	NS	NS	NS	NS
TPH-diesel	NS	43	ND<50	660	NS	NS
TPH-motor oil	NS	50	ND<130	NS	NS	NS
TPH-jet fuel	NS	1,100	47,000	ND<100	NS	NS
TPH-kerosene	NS	24	NS	NS	NS	NS
Benzene	NS	13	610	ND<1	NS	NS
Toluene	NS	4.8	150	ND<1	NS	NS
Ethylbenzene	NS	1.7	200	ND<1	NS	NS
Xylenes	NS	11	1,100	ND<2	NS	NS
MTBE	NS	NS	NS	ND<1	NS	NS
Acenaphthene	NS	0.653	35.5	ND<1	NS	NS
Anthracene	NS	0.0126	0.627	ND<0.11	NS	NS
Fluoranthene	NS	2.2	6.02	ND<0.2	NS	NS
Fluorene	NS	0.242	6.1	0.60	NS	NS
Napthalene	NS	0.874	89.9	1	NS	NS
Pyrene	NS	2.2	2.02	ND<.11	NS	NS

SITE CLOSURE SUMMARY [page 5 of 8]

VIII. LIMITATIONS, RESTRICTIONS, AND POST-CLOSURE REQUIREMENTS

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 commercial/industrial land use. 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 2002). No residential land use and no groundwater use for drinking water is allowed.

POST-CLOSURE REQUIREMENTS

Water Board staff shall be notified of any changes in land or groundwater use at the site and may reconsider the NFA status based on such changes.

SITE CLOSURE SUMMARY [page 6 of 8]

IX. CLOSURE CRITERIA CHECKLIST
<p>1a) Pollutant sources are identified and evaluated</p> <ul style="list-style-type: none">√ <i>Leak/spill sources (tanks, sumps, pipelines, etc.) are identified and controlled</i>√ <i>The pollutant source zone (sorbed/entrained residual pollutants and free product that sustain groundwater & vapor plumes) is identified and delineated</i>
<p>Comments: None</p>
<p>1b) The site is adequately characterized</p> <ul style="list-style-type: none">√ <i>Site history, hydrology, and hydrogeology are characterized</i>√ <i>The nature & extent (lateral and vertical) of pollutants are characterized in soil, groundwater & soil gas, as necessary</i>
<p>Comments: None</p>
<p>1c) Exposure pathways, receptors, and potential risks, threats, and other environmental concerns are identified and assessed</p> <ul style="list-style-type: none">√ <i>Nearby receptors (wetlands, streams, wells, homes, schools, businesses, etc.) are identified</i>√ <i>Groundwater & vapor migration/exposure pathways, natural & artificial (storm drains, sewer lines, buried channels, abandoned wells, etc.) are assessed</i>√ <i>Reasonably anticipated land and water use scenarios have been considered</i>√ <i>Actual and potential risks to receptors and adverse affects to beneficial uses are assessed</i>
<p>Comments: None</p>
<p>2a) Pollutant sources are remediated to the extent feasible</p> <ul style="list-style-type: none">√ <i>The technical and economic feasibility of source remediation methods/technologies have been evaluated</i>√ <i>Feasible source remediation technologies have been implemented</i>√ <i>Appropriate source remediation performance monitoring has been conducted</i>√ <i>Source mass removal has been documented</i>√ <i>The effects of source remediation on groundwater/vapor plume behavior have been evaluated</i>
<p>Comments: None</p>
<p>2b) Unacceptable risks to human health, ecological health, and sensitive receptors, considering current and future land and water uses, are mitigated</p> <ul style="list-style-type: none">√ <i>Necessary & appropriate corrective actions have been implemented</i>√ <i>Confirmation sampling, monitoring, and/or risk management measures demonstrate that risks are mitigated</i>
<p>2c) Unacceptable threats to groundwater and surface water resources, considering existing and potential beneficial uses, are mitigated</p>

SITE CLOSURE SUMMARY [page 7 of 8]

<ul style="list-style-type: none"> √ <i>Necessary & appropriate corrective actions have been implemented</i> √ <i>Confirmation sampling, monitoring, and/or risk management measures demonstrate that threats are mitigated</i>
<p>Comments: None</p>
<p>3a) Groundwater plumes are stable or decreasing¹</p> <ul style="list-style-type: none"> √ <i>Appropriate plume monitoring has confirmed the lateral and vertical extent over time</i> √ <i>Spatial and temporal trends for pollutants, including parent and breakdown products, have been evaluated</i> √ <i>Spatial and temporal trends for natural attenuation indicators have been evaluated</i> √ <i>Evidence of breakdown to acceptable end products is documented</i> √ <i>Plume concentrations are decreasing and the plume is not moving or expanding</i>
<p>Comments: None</p>
<p>3b) Cleanup standards have been met or can be met in a reasonable timeframe</p> <ul style="list-style-type: none"> √ <i>The estimated timeframe to achieve cleanup standards throughout the affected area is evaluated</i> √ <i>The anticipated timeframe for beneficial use of the affected and nearby water resources is evaluated</i> √ <i>The potential to adversely affect beneficial uses is assessed considering cleanup and beneficial use timeframes, hydrogeologic conditions, and the CSM</i>
<p>Comments: TPH-e (50 to 1100 mg/kg at depths of 8 to 11.5 feet bgs) and benzene (0.003 to 13.0 mg/kg at depths of 8 to 11.5 feet bgs) concentrations in soil exceed cleanup standards. TPH-e has been historically detected at concentrations exceeding cleanup standards in groundwater. However, concentrations in groundwater have decreased and were not detected during most recent sampling.</p>
<p>3c) Risk management measures are appropriate, documented, and do not require future Water Board oversight</p> <ul style="list-style-type: none"> √ <i>Necessary risk management measures (land use restrictions, engineered vapor barriers, soil management plans, etc.) are implemented and documented</i> √ <i>Risk management measures do not require future Water Board oversight</i>
<p>Comments: Cleanup standards for this site were based on commercial/industrial land use. Under the <i>Record of Decision for the NASA Ames Development Plan</i> (November 2002), land use is restricted to those uses outlined by Mitigated Alternative 5 in the <i>NASA Ames Development Plan, Final Programmatic Environmental Impact Statement</i> (July 2002). No residential land use and no groundwater use for drinking water is allowed.</p>

¹ *For petroleum groundwater plumes, stability is a sufficient criterion. For solvent or other non-petroleum groundwater plumes, closure should be supported by evidence of a decreasing plume.*

SITE CLOSURE SUMMARY [page 8 of 8]

X. ADDITIONAL COMMENTS

Based on soil and groundwater sampling results for petroleum hydrocarbons, cleanup to industrial/commercial standards, and the restrictions on no residential use and no groundwater use for drinking water, this site does not pose a significant risk to human health, the environment or water quality. In accordance with the "Regional Board Supplemental Instructions to State Water Board December 8, 1995, Interim Guidance on Required Cleanup at Low-Risk Fuel Sites" (Water Board, January 5, 1996), this site is considered a low-risk fuel site, and petroleum remaining in soil and groundwater is expected to degrade.

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

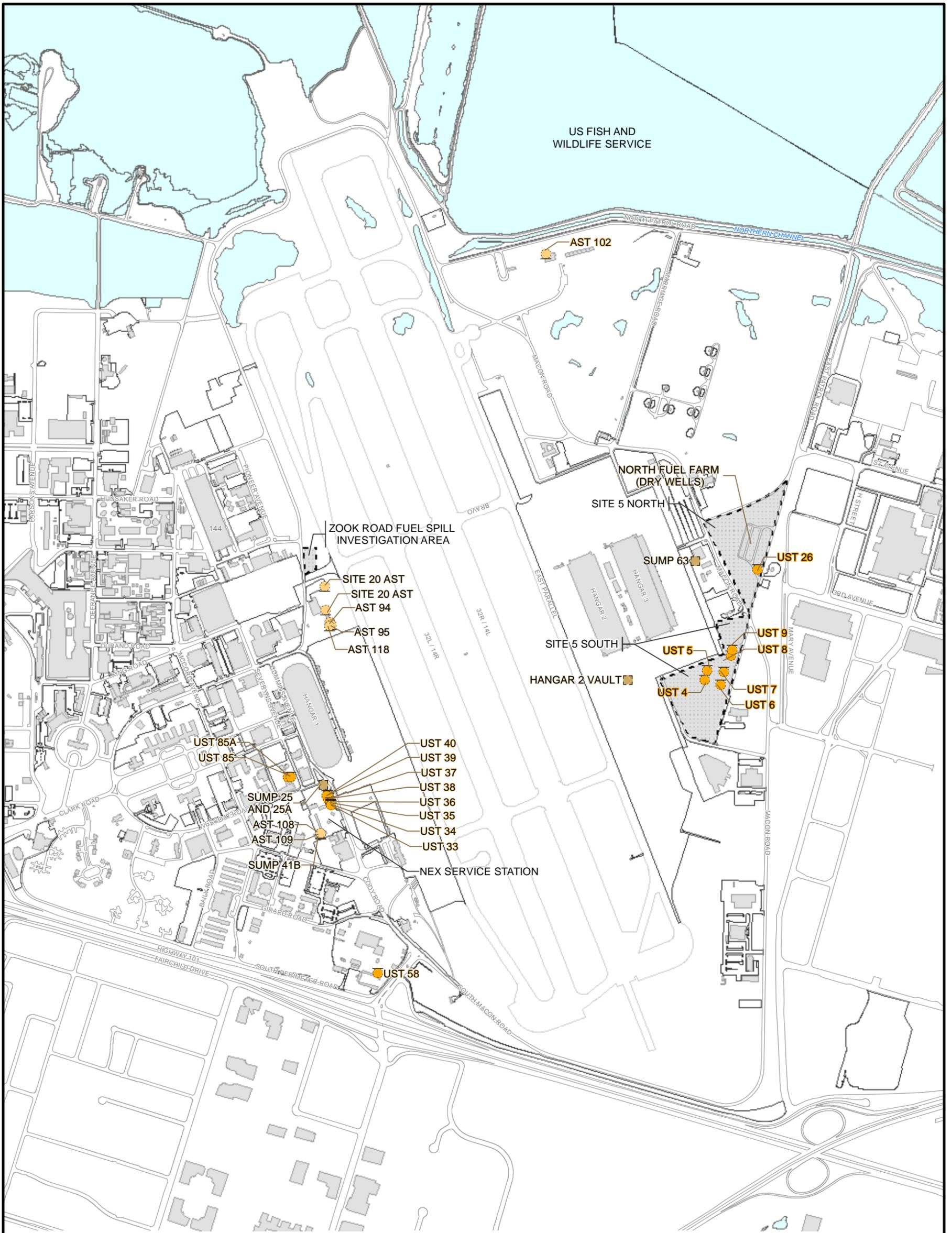
REPORTS ON FILE	Where is report(s) filed?: Water Board, Oakland
Draft Phase III Basewide Tank Closure Report Further Assessment Sites, Tetra Tech.	March 9, 2004
Final Work Plan for Petroleum Sites Sampling and Evaluation for Closure or Removal Actions, Tetra Tech.	August 28, 2009
Final Completion Report and Request for Closure or No Further Action for Moffett Petroleum Sites, Tetra Tech.	June 24, 2011

Attachments:

- 1 - Site Vicinity Map
- 2 - Site Plan

Notes and Abbreviations:

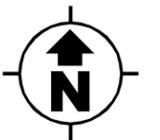
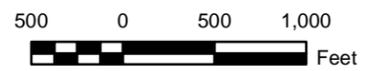
- GW – Groundwater
- TPH – Total Petroleum Hydrocarbons



LEGEND

- AST 108 FORMER AST LOCATION
- UST 37 FORMER UST LOCATION
- SUMP 41B FORMER SUMP OR VAULT LOCATION
- ROAD
- RUNWAY
- BUILDING
- WATER

- NOTES:
- AST - ABOVEGROUND STORAGE TANK
 - UST - UNDERGROUND STORAGE TANK
 - NEX - NAVY EXCHANGE



<p>BASE REALIGNMENT AND CLOSURE PROGRAM MANAGEMENT OFFICE WEST SAN DIEGO, CALIFORNIA</p>	
<p>COMPLETION REPORT AND REQUEST FOR CLOSURE OR NO FURTHER ACTION FOR MOFFETT PETROLEUM SITES</p>	
<p>FIGURE 1-3</p>	
<p>PETROLEUM SITES FOR CLOSURE REQUEST</p>	
<p>FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA</p>	
<p>REVIEW: A AUTHOR: RKH DCN: ECSD-3211-0009-0007 FILE NUMBER: 100804L6344.mxd</p>	

