Case Closure Summary
Non-LOP or Voluntary Assistance Program

I. AGENCY INFORMATION

DATE: April 2, 2009

Agency Name: County of San Diego, Environmental Health, SAM	Address: P.O. Box 129261
City/State/ZIP: San Diego, CA 92112-9261	Phone: (619) 338-2222 FAX: (619) 338-2377
DEH Staff Person: CAROL FENNER	Title: ENVIRONMENTAL HEALTH SPECIALIST II

II. CASE INFORMATION

Case No. H39734-001	RWQCB Case No. N/A
Site Name: MARINE AVIATION MISHAP SITE	Site Address: 4406 AND 4416 CATHER AVENUE, SAN DIEGO, CA 92122

Property Owners:

4416 CATHER AVENUE	4406 CATHER AVENUE
VICTORIANO O. DUNGCA 27675 VISTA BAHIA WAY HAYWARD, CA 94542-2157	JOHN WU SUNNY WU 1827 AMALFI STREET SAN DIEGO, CA 92037

Responsible/Requesting Parties	Address	Phone Number
UNITED STATES MARINE CORPS LT. COLONEL B. M. HALL	P. O. BOX 452001 SAN DIEGO, CA 92145-2001	(858) 577-1108

Type of Case: NON-TANK CASE

Agency notification of DEH Oversight: DTSC: 12/16/2008 RWQCB: 12/16/2008

III. SITE CHARACTERIZATION AND/OR INFORMATION

Purpose of Investigation: OTHER CAUSE, OTHER TYPE OF RELEASE	Substances Investigated: JET FUEL (JP-5), METALS, POLYNUCLEAR AROMATIC HYDROCARBONS

Site Characterization complete? YES 3/20/2009

Monitoring Wells Installed? NO	Total Number: 0	Proper Screened Interval NA	Number of decommissioned wells: 0

Range of groundwater levels on the site? 100 (ESTIMATED)	Groundwater Flow Direction:

Most Sensitive Current Use: Potential Beneficial Groundwater Use: IND
Existing Beneficial Surface Water Use: REC1, REC2 and Potential: IND

Are Drinking Water Wells Affected? NO	RWQCB Basin Number: 906.40-Miramar Hydrologic Area
Is Surface Water Affected? NO	Nearest Surface Water name: INTERMITTENT CREEK, ROSE CANYON

Off-Site Beneficial Use Impacts (addresses/locations): NONE

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL

Material	Amount	(Include Units)	Action (Treatment or Disposal)	Date
DEMOLITION DEBRIS/ASH/SOIL	380	TONS	SYCAMORE/MIRAMAR LNDFLLS, SAN DIEGO	2/18/2008
SOIL	25120	POUNDS	U. S. ECOLOGY, BEATTY, NV	2/4/2009
SOIL	33860	POUNDS	U. S. ECOLOGY, BEATTY, NV	3/16/2009

Non-LOP - Underground Storage Tank Oversight handled outside the LOP
Non-Tank – Voluntary Assistance Program

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III. SITE CHARACTERIZATION AND/OR INFORMATION (Continued) H39734-001

MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS

SOIL	MAXIMUM	REMAINING
JP-5	=17,000 mg/kg	= 31 mg/kg
Gasoline	< 10 mg/kg	< 10 mg/kg
Diesel	< 10 mg/kg	< 10 mg/kg
TPH Extended	< 10 mg/kg	< 10 mg/kg
TRPH	= 29 mg/kg	= 29 mg/kg
Polynuclear Aromatic Hydrocarbons (PAHs)	= 0.605 mg/kg	< 0.006 mg/kg
Polychlorinated Biphenyls (PCBs)	< 0.1 mg/kg	< 0.1 mg/kg
Arsenic	= 17.1 mg/kg	= 14.8 mg/kg
Barium	= 93.3 mg/kg	= 93.3 mg/kg
Cobalt	= 12.8 mg/kg	= 12.8 mg/kg
Cadmium	= 1.52 mg/kg	= 1.52 mg/kg
Chromium	= 36.6 mg/kg	= 36.6 mg/kg
Copper	= 22.1 mg/kg	= 22.1 mg/kg
Lead	= 26.9 mg/kg	= 26.9 mg/kg
Nickel	= 18.2 mg/kg	= 10.7 mg/kg
Vanadium	= 27.3 mg/kg	= 27.3 mg/kg
Zinc	= 76.8 mg/kg	= 70.3 mg/kg
Asbestos	< 1%	< 1%

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III. SITE CHARACTERIZATION AND/OR INFORMATION (Continued) **H39734-001**

Comments: A jet fighter aircraft based at Marine Corps Air Station (MCAS) Miramar crashed into a residential area of San Diego, California, on December 8, 2008. The impact of the aircraft and the ensuing fire resulted in four fatalities at one University City residence (4416 Cather Avenue) and the destruction of the both the residence and the house located on the adjoining property at 4406 Cather Avenue (Note: these two properties are herein referred to as the "site"). The Marine Corps applied to the County of San Diego, Department of Environmental Health (DEH), Voluntary Assistance Program (VAP). DEH Case #H39734-001 was opened to provide regulatory oversight for environmental site assessment and corrective action activities at the crash site and its immediate vicinity.

Following the initial emergency response actions at the site, the Marine Corps removed the aircraft wreckage and debris from the crash site and temporarily stored it at MCAS Miramar. A contractor was hired to perform demolition of damaged structures and removal of associated debris. Construction and foundation materials, landscape debris, damaged vehicles, and ash were placed in bins and disposed to the Sycamore Landfill under manifest. The site was graded and storm water best management practices (BMPs) were implemented to prevent soil erosion. A chain-link fence with a locking gate was installed around the perimeter of the site to prevent public access during the environmental investigation and associated remedial actions.

Soil samples were collected at the site following the demolition/debris removal activities. The initial site soil samples were collected at the site and neighboring properties from December 18 -30, 2008, and were analyzed for Total Recoverable Petroleum Hydrocarbons (TRPH), Total Petroleum Hydrocarbons (TPH, using gasoline, diesel, and extended standards), metals, polychlorinated biphenyls (PCBs), and asbestos. PCBs and asbestos were not detected in the samples. The maximum concentration of TRPH detected in the initial soil samples was 29 milligrams per kilogram (mg/kg). TPH was not detected in the samples as gasoline, diesel, or heavier chain hydrocarbons; however, jet propulsion fuel (JP-5) was detected in the samples at a maximum concentration of 3,600 mg/kg. Ten of the 17 CAM Metals were detected in the initial soil samples collected at the site, from neighboring properties, and from nearby locations identified as representative of "background" conditions (i.e., locations outside of the aircraft wreckage debris field where only naturally-occurring metals would be present). Arsenic was the only metal in samples collected onsite with detected concentrations that exceeded screening criteria; however, the detected concentrations were within the range of arsenic results for "background" samples. Arsenic and cadmium were the only metals with detected concentrations that exceeded screening criteria in samples collected on neighboring properties; however, the detected concentrations were also within the range of results for "background" samples.

Based on the initial soil sample results, JP-5 was identified as the primary contaminant of concern (COC) for the site. Visual evidence of soil staining, odor, as well as initial soil sample results, indicated that a release of JP-5 had occurred in the northeast portion of the site. The release was apparently related to the aircraft crash and occurred as a result of damage to a fuel tank located on the wing. The area was partially excavated on February 4, 2009, to further assess the extent of the JP-5 release. The maximum detected concentration of JP-5 (17,000 mg/kg) was reported for a soil sample collected at the base of the initial excavation.

A work plan was prepared for a second phase of environmental investigation activities and submitted to DEH by the Marine Corps' consultant (Trevet, Inc,). Activities were proposed to characterize the lateral and horizontal extents of the JP-5-impacted soil and to further characterize site soils for metals and polynuclear aromatic hydrocarbons (PAHs). Upon DEH approval of the work plan, direct-push methods were used to sample subsurface soil in and around the initial excavation footprint to a maximum depth of 16 feet below ground surface (bgs). The direct-push borings were advanced to a maximum depth of 16 feet below ground surface. Surface soils that had been disturbed during demolition/debris removal activities were also sampled at 16 site locations. Twelve soil samples were collected at undisturbed depths of 1.5 to 2 feet bgs at locations that were outside the footprints of former structures. Analytical results for soil samples collected during the second phase indicated that further excavation was needed in the northeast corner of the site to achieve the Marine Corps' goal of non-detectable levels of JP-5 in soil confirmation samples. A final excavation measuring 21 by 10 feet and ranging in depth from 3 to 8 feet resulted in achieving the removal of the JP-5-impacted soil. Four areas of limited extent were also excavated elsewhere on the site to remove JP-5-impacted soils (including PAHs) with concentrations in excess of 100 mg/kg. Clean soil was imported to the site to backfill the excavations. The affected areas were then compacted to meet City of San Diego standards.

Groundwater is estimated to occur at least 100 feet beneath the site and is designated as non-beneficial by the Regional Water Quality Control Board. Surface water was not impacted as a result of the crash due to implementation of BMPs and the use of vacuums to capture water generated during emergency response firefighting activities. Soils impacted by JP-5 and PAHs were removed from the site and disposed to appropriately licensed disposal facilities.

Because current site conditions do not present a human health hazard, the consultant has recommended no further action at the site. DEH concurs with this recommendation.

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IV. CLOSURE

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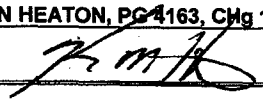
Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? YES
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? YES
Does corrective action protect public health for current land use? YES Case review based on current/proposed use as: RESIDENTIAL
Are there other issues DEH needs to follow up on: NO
Site Management Requirements: Any contaminated soil excavated as part of subsurface construction work must be managed in accordance with the legal requirements at that time.
Should corrective action be reviewed if land use changes? YES
List Enforcement Actions Taken: NONE
List Enforcement Actions Rescinded: NONE
Is this account up to date and current? YES

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: KEVIN HEATON, PG 4163, CHg 163	Title: SENIOR HYDROGEOLOGIST
Signature: 	Date: APRIL 2, 2009

VI. RWQCB NOTIFICATION

Date Submitted to RWQCB: N/A	RWQCB Response: N/A	
RWQCB Staff Name: N/A	Title: N/A	Date: N/A

VII. ADDITIONAL COMMENTS, DATA, ETC.

NONE

This document, and the related CASE CLOSURE LETTER, shall be retained by the lead agency as part of the official site file.