



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND, HAWAII
400 MARSHALL ROAD
JBPBH, HAWAII 96860-3139

5090
Ser EV3 1241
AUG 23 2016

Mr. Steven Mow
Hazard Evaluation & Emergency Response Office
State of Hawaii Department of Health
919 Ala Moana Boulevard, 2nd Floor
Honolulu, HI 96814

Dear Mr. Mow:

SUBJECT: 42nd ANNUAL PERFORMANCE MONITORING REPORT, REMEDIAL ACTION
AREA 1, HOTEL PIER SITE, NAVSUP FLEET LOGISTICS CENTER,
PEARL HARBOR NAVAL COMPLEX, HAWAII

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DEPARTMENT OF HEALTH
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Enclosed for your information and retention is the 42nd Report for Performance Monitoring at Remedial Action Area-1 (RAA-1) of the NAVSUP Fleet Logistics Center, Pearl Harbor Naval Complex, Hawaii. The report evaluates the product monitoring results for the 42nd event encompassing the period from October 1, 2014 to September 30, 2015.

The Hawaii Department of Health had previously determined that with the implementation of administrative notices, a conditional no further action was approved for Hotel Pier. Monitoring will continue at Hotel Pier and administrative notices will be implemented. Note that this will be the last semiannual report. Per the agreement addressed in a June 21, 2013 memorandum from Hawaii State Department of Health, from Mr. Steven Mow, to Mr. Jeffrey Klein, the monitoring period frequency for RAA-1 has been increased from semiannual to annual.

If you have any questions, please contact Mr. Jeff Klein of our Environmental Restoration Product line at 471-1171, extension 237.

(b) (6)

Environmental
Business Line Coordinator
By direction of the
Commanding Officer

Enclosure: 42nd Report, Annual Performance Monitoring Report for the Product Recovery System at RAA-1, Hotel Pier, NAVSUP Fleet Logistics Center, Pearl Harbor Naval Complex, Hawaii, October 2015

SCANNED

121776

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AUG 23 2016

Copy to:

Mr. Christopher Lichens, U.S Environmental Protection Agency, (CD)

SCANNED 

Forty-Second Report
(1 October 2014 – 30 September 2015)

RECEIVED
DEPARTMENT OF HEALTH
2016 AUG 29 P 3:03
HEER OFFICE

**Annual Performance
Monitoring Report
Product Recovery System
Remedial Action Area 1 (RAA-1)**

(Hotel Pier Site)

**NAVSUP FLEET LOGISTICS CENTER
JOINT BASE PEARL HARBOR-HICKAM, OAHU,
HAWAII**

October 2015

Department of the Navy
Naval Facilities Engineering Command, Hawaii
400 Marshall Road
JBPHH HI 96860-3139



Long Term Monitoring/Remedial Action Operations
Contract Number N62742-12-D-1852, CTO 0002, Mod. No. 2



121776

**Forty-Second Report
(1 October 2014 – 30 September 2015)**

**Annual Performance
Monitoring Report
Product Recovery System
Remedial Action Area 1 (RAA-1)
(Hotel Pier Site)
NAVSUP FLEET LOGISTICS CENTER
JOINT BASE PEARL HARBOR-HICKAM, OAHU,
HAWAII**

October 2015

Prepared for:



**Department of the Navy
Naval Facilities Engineering Command, Hawaii
400 Marshall Road
JBPHH HI 96860-3139**

Prepared by:

**Element Environmental, LLC
98-030 Hekaha Street, Unit 9
Aiea, HI 96701**

Prepared under:

**Long Term Monitoring/Remedial Action Operations
Contract Number N62742-12-D-1852, CTO 0002, Mod. No. 2**

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ACRONYMS AND ABBREVIATIONS

AST	Aboveground Storage Tank
ATS	AECOM Technical Services
CTO	Contract Task Order
CS	Collection Sump
E2	Element Environmental, LLC
FLC	Fleet Logistics Center
HDOH	State of Hawaii Department of Health
HSP	Health and Safety Plan
MW	Monitoring Well
NAVFAC	Naval Facilities Engineering Command
NAVSUP	United States Naval Supply Systems Command
NMP	No Measurable Product
NPO	No Product Observed
RAA	Remedial Action Area
RAO	Remedial Action Operations
RI	Remedial Investigation
SESC	Spatial Environmental Solutions Corporation
SW	Microwell
U.S.	United States
V	Vault
VS-3	Valve Station 3
WP	Work Plan

1. INTRODUCTION

This annual report documents and describes product thickness observations for Remedial Action Area 1 (RAA-1), located at Hotel Pier, for the current monitoring period (1 October 2014 – 30 September 2015). The United States (U.S.) Navy, Naval Facilities Engineering Command (NAVFAC) Hawaii authorized the fieldwork and annual report under Contract Number N62742-12-D-1852, Contract Task Order (CTO) 0002, Modification Number 02, awarded 20 September 2014. The fieldwork was performed by Element Environmental, LLC (E2) in accordance with the project specific Work Plan (WP) and Health and Safety Plan (HSP).

1.1 Project Background

RAA-1 is located north of Arizona Street in the vicinity of Neosho Avenue (Figure 1) within the United States Naval Supply Systems Command (NAVSUP) Fleet Logistics Center (FLC) in Pearl Harbor Naval Complex (hereinafter referred to as the Site). The area surrounding RAA-1 has been used as a refueling hub for large naval vessels since World War II.

Based on a remedial investigation (RI) by Ogden in 1997, the subsurface petroleum plume at the Site has been identified as weathered diesel fuel and residual oil. The sources of subsurface petroleum may have been spills in the vicinity of Valve Station 3 (VS-3), associated subsurface product lines for VS-3, and subsurface pipelines running parallel to (b) (3) (A) (ATS 2014).

1.2 Product Recovery System

In 2001, a product recovery system comprised of ten collection sumps (CSs) housed within vaults, ten belt skimmers, and a 1,000-gallon aboveground storage tank (AST) was installed at the Site. Additionally, liners were installed in the storm drain system, and cutoff walls were built to prevent subsurface migration of the product plume into Pearl Harbor.

In 2002, nine of the ten skimmer systems were taken off line due to lack of recovery. In 2004, the remaining system was taken off line for lack of recovery, however passive remediation continued with the use of well socks in CSs where free product was present. All skimmer systems were removed, CS1 through CS7 were abandoned, and vaults 1 through 7 were demolished in 2006. Under Air Force Center for Environmental Excellence Worldwide Environmental Restoration and Construction Contract Number FA8903-04-D-8676, Task Order Number 0028, the AST was removed by Shaw Group, Inc. on 19 December 2006.

Since free-phase product in the sumps was reduced to sheen, the Navy recommended ceasing passive remedial action operations (RAOs) at the Site. If at any time product thickness increases, the Site will be reevaluated.

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2. PERFORMANCE MONITORING ACTIVITIES

The overall purpose of the performance monitoring program is to gather adequate data in order to monitor the status of the free-phase product plume underlying the site. Since the 31st event, the State of Hawaii Department of Health (HDOH) determined that, with the implementation of the recommended monitoring program described in the Environmental Hazard Evaluation/Management Plans for Subsurface Fuel Remedial Action Areas (RAA-1 through RAA-10) (ATS 2014), a conditional no further action was appropriate for RAA-1 (see Appendix A). Subsequently the monitoring frequency at RAA-1 was reduced from semi-annually to annually. This 42nd report documents the monitoring activities performed from 1 October 2014 to 30 September 2015.

2.1 Free-Phase Product Migration Monitoring

Annual performance monitoring of five locations at RAA-1 (vault [V] 8, V9, V10, monitoring well [MW] 17, and microwell [SW] 19) was conducted during this event. The locations were monitored for product thickness during the lowest tide of the day. No product was observed, or has been observed at three locations (i.e. V8, V10 and SW19) over the past four consecutive monitoring events. The product thickness at location V9 was observed to have decreased from 0.60 feet to 0.29 feet since the last monitoring event. Additionally, the product thickness at MW17 was observed to have decreased from 0.23 feet to 0.18 feet since the last monitoring event. There has been no change of product thickness greater than 1 foot in any of the monitoring locations over the past four consecutive events. The largest degree of product thickness fluctuation observed since the monitoring program started in 2004 was observed during the previous (41st) monitoring event when product thickness in V9 increased from no measureable product (NMP) to 0.60 feet.

Product thickness data collected on 1, 2 and 4 September 2015 is presented in Table 1 and the performance monitoring field sheet is included in Appendix B. Table 2 summarizes the product thicknesses at monitoring locations bound by the conditional *no further action* provided by HDOH. Figure 2 depicts the extent of the free-phase product plume delineated in January 2001, prior to the construction of the fuel oil extraction system (IT 2002). The estimated extent of the free-phase product plume remaining at RAA-1 in September 2015 (42nd event) is provided in Figure 3.

2.2 Free-Phase Product Recovery Monitoring

The product recovery system was taken off line in 2004 and has subsequently been removed from RAA-1.

2.3 General

No sheen was observed in the harbor fronting RAA-1 between 1 October 2014 and 30 September 2015.

2.4 Annual Operating Costs

The total operating cost for annual product thickness monitoring at RAA-1 for the period of 1 October 2014 through 30 September 2015 was \$2,500.

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3. RECOMMENDATIONS

This section details the recommendations presented in the 41st event report and the steps taken to address them during the 42nd event. Based on the findings from the 42nd event, additional recommendations are presented for upcoming performance monitoring events at RAA-1.

Previous Recommendations

- In accordance with the HDOH No Further Action Letter dated 2 June 2009 (Appendix A), monitoring frequency should be decreased to an annual basis following three years of semi-annual (6-month) monitoring if measureable free-phase product remains at the Site. If measurable free-phase product is still present within the RAA after 5 years of additional annual monitoring (ending in June 2017), monitoring will continue at 5-year intervals as long as measurable free-phase product is present at the Site. Wells to be included in the next monitoring event will be evaluated after each monitoring round.
- Continue to implement administrative notices as described in the Environmental Hazard Management Plan for Subsurface Fuel Remedial Action Areas (RAA-1 through RAA-10) (ATS 2014).

Current Recommendations

- In accordance with the HDOH No Further Action Letter dated 2 June 2009 (Appendix A), measureable free-phase product remained at the Site after 3 years of semi-annual (6-month) monitoring, resulting in the monitoring frequency being decreased to an annual basis for 2 additional years (at minimum). Wells to be included in the next monitoring event should be evaluated after each monitoring round.
- In accordance with the HDOH No Further Action Letter dated 2 June 2009 (Appendix A), E2 recommends to continue low-tide product thickness monitoring on an annual (12-month) basis at all 5 monitoring locations within RAA-1. This should be continued until June 2017, at which time the presence of measureable free-phase product will be evaluated. If it is determined that measureable free-phase product remains within the RAA, monitoring should be continued at 5-year intervals as long as measureable free-phase product is present at the Site. The next annual monitoring event is scheduled to take place in September 2016.
- E2 recommends to continue to implement administrative notices as described in the Environmental Hazard Management Plan for Subsurface Fuel Remedial Action Areas (RAA-1 through RAA-10) (ATS 2014).

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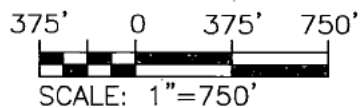
4. REFERENCES

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FIGURES

(b) (3) (A)



DATE:

OCT 2015

PROJECT TITLE:

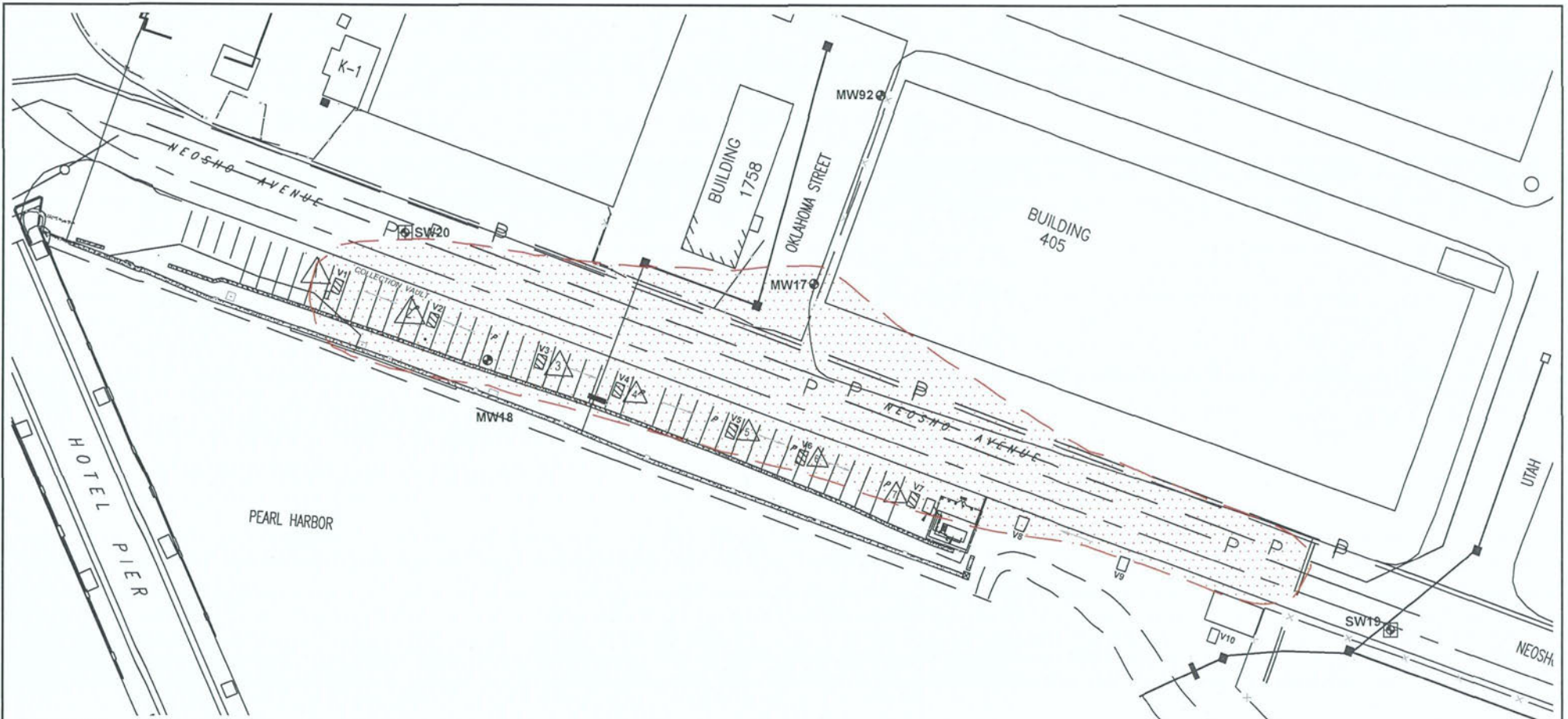
ANNUAL PERFORMANCE MONITORING
HOTEL PIER PRODUCT RECOVERY SYSTEM
JBPHH, OAHU, HAWAII

FIGURE TITLE:

SITE LOCATION MAP

FIGURE NO.:

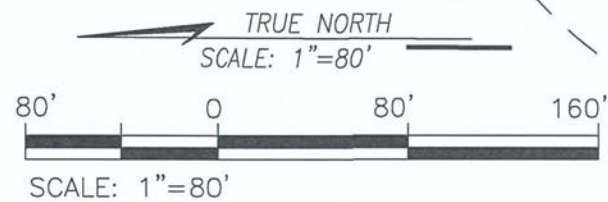
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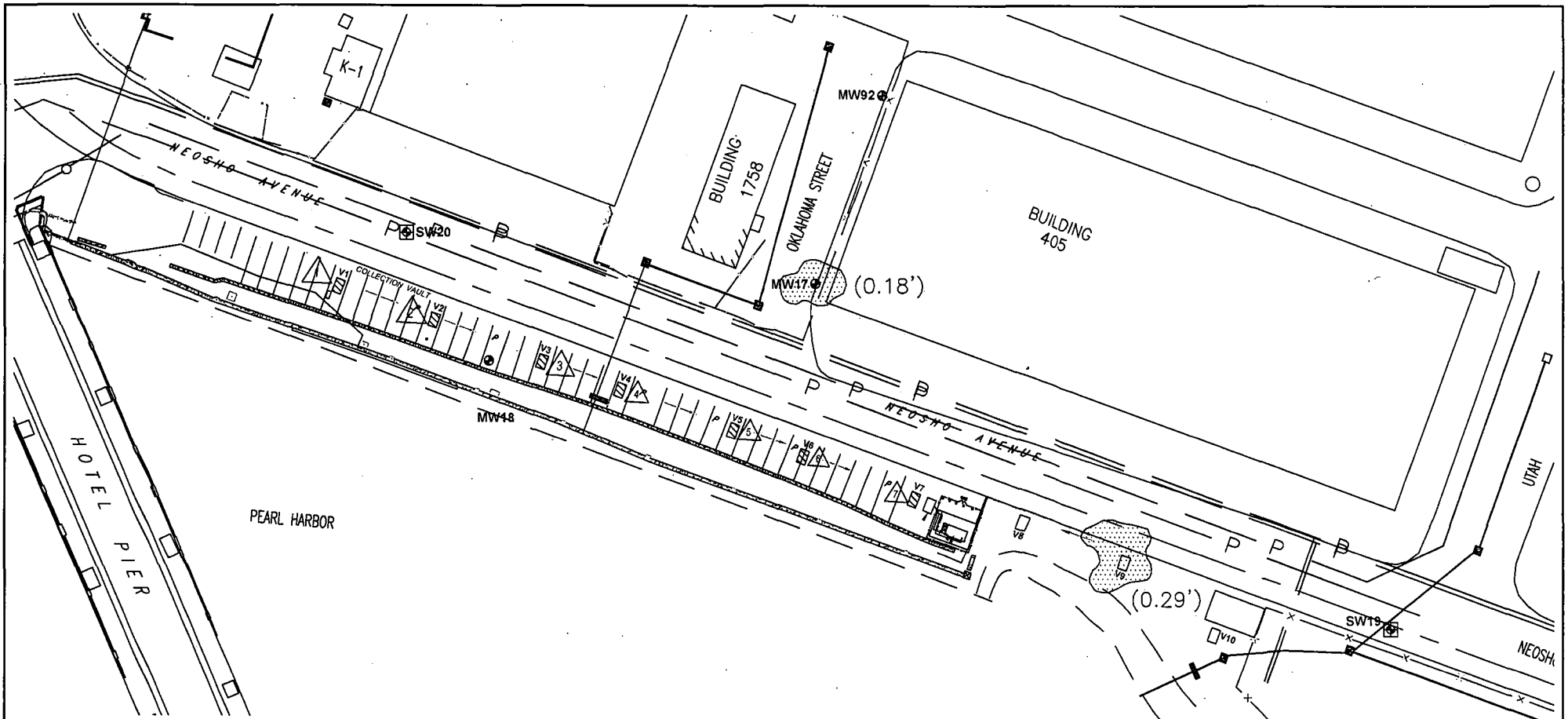
LEGEND

- MONITORING WELL (MW)
- ⊕ MICROWELL (SW)
- VAULT (V)
- ▨ ABANDONED VAULT (V)
- ▨ APPROXIMATE EXTENT OF FREE-PHASE PRODUCT PLUME, JANUARY 2001

Source: Operation and Maintenance Manual, Product Recovery System, Hotel Pier Site Removal Action, FISC, Pearl Harbor, Hawaii - IT Corporation, December 2001

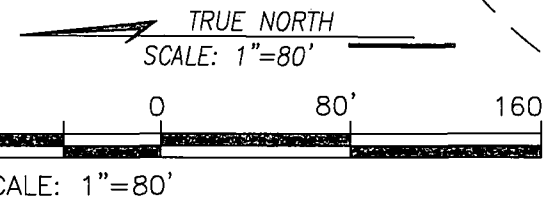


	DATE: OCT 2015	PROJECT TITLE: ANNUAL PERFORMANCE MONITORING HOTEL PIER PRODUCT RECOVERY SYSTEM JBPHH, OAHU, HAWAII
	FIGURE TITLE: LIMIT OF FREE-PHASE PRODUCT PLUME - JANUARY 2001	FIGURE NO.: 2



LEGEND

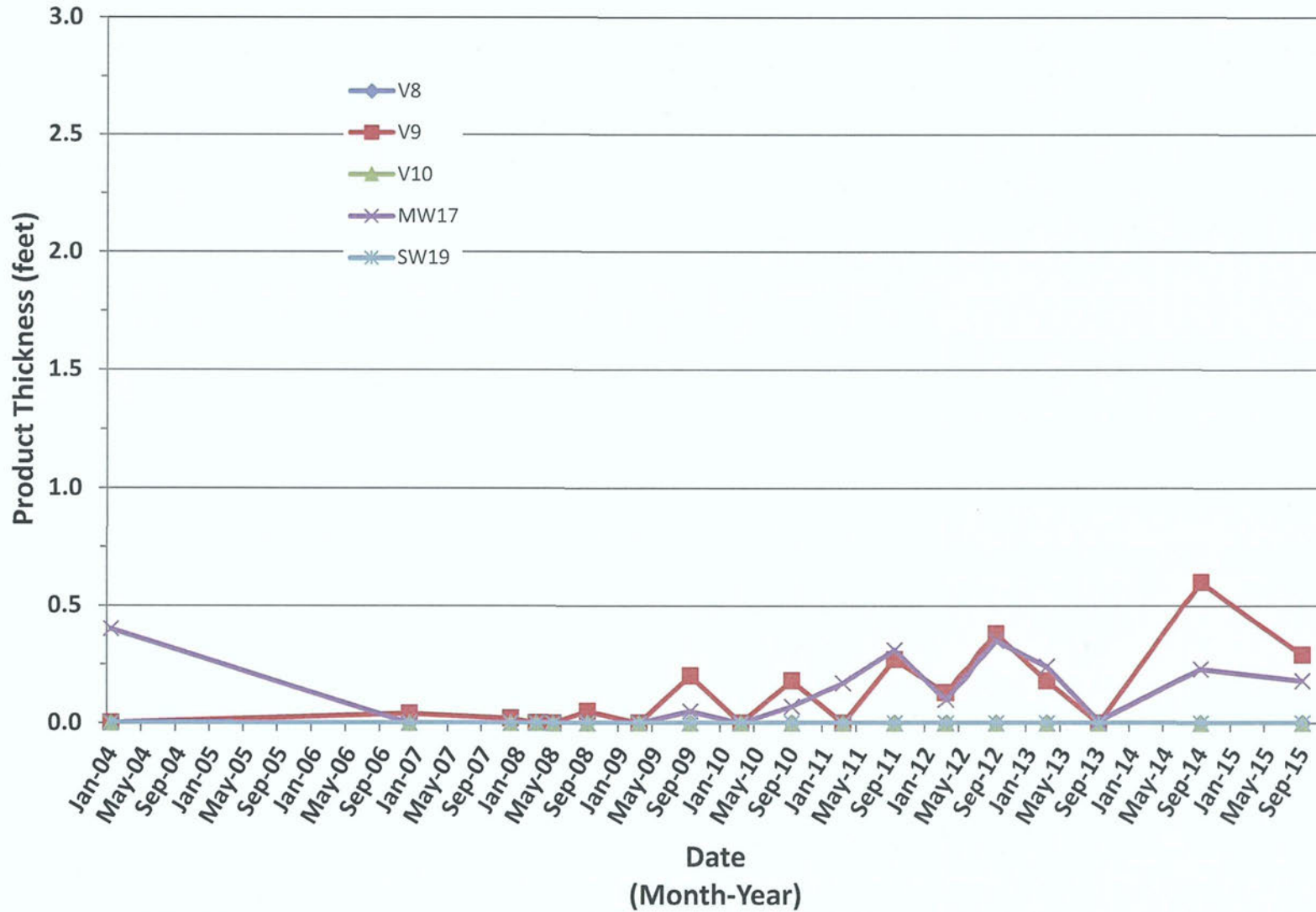
- MONITORING WELL (MW)
- ⊕ MICROWELL (SW)
- VAULT (V)
- ▨ ABANDONED VAULT (V)
- ☉ APPROXIMATE EXTENT OF FREE-PHASE PRODUCT PLUME, SEPTEMBER 2015



Source: Operation and Maintenance Manual, Product Recovery System, Hotel Pier Site Removal Action, FISC, Pearl Harbor, Hawaii - IT Corporation, December 2001

	DATE: OCT 2015	PROJECT TITLE: ANNUAL PERFORMANCE MONITORING HOTEL PIER PRODUCT RECOVERY SYSTEM JBPHH, OAHU, HAWAII
	FIGURE TITLE: LIMIT OF FREE-PHASE PRODUCT PLUME - SEPTEMBER 2015	
		FIGURE NO.: 3

Figure 4
Historical Product Thickness
Hotel Pier RAA-1



TABLES

TABLE 1
42nd Annual Groundwater and Product Monitoring Data
Product Recovery System RAA-1
Hotel Pier Site Removal Action
Pearl Harbor, Hawaii

Monitoring Well			TOC Elevation (feet MLLW)	DTP (feet)	DTW (feet)	Product Thickness (feet)	Measured Groundwater Elevation (feet MLLW)	Corrected Groundwater Elevation ① (feet MLLW)	Tidal Stage	Comments
Well ID	Date	Time								
V8	9/4/2015	17:38	106.20	NPO	2.62	0.00	103.58	103.58	Low Falling	
V9	9/4/2015	17:41	108.24	2.93	3.22	0.29	105.02	105.28	Low Falling	
V10	9/2/2015	13:43	104.10	NPO	2.53	0.00	101.57	101.57	Low Falling	
MW17	9/1/2015	13:14	104.46	5.30	5.48	0.18	98.98	99.14	Low Falling	
SW19	9/2/2015	13:46	107.10	NPO	7.41	0.00	99.69	99.69	Low Falling	

NMP	No Measurable Product	NPO	No Product Observed	①	$CGW=(PT*SG) + MGW$
--	No Measurement Taken	TOC	Top of Casing		
PT	Product Thickness	MLLW	Mean Lower Low Water		
SG	Specific Gravity	DTP	Depth to Product		
MGW	Measured Groundwater Elevation	DTW	Depth to Water		
CGW	Corrected Groundwater Elevation				

TABLE 2
Summary of Product Thickness Data
(HDOH-Required Monitoring)
Hotel Pier RAA-1
Up to and Including the 42nd Event

Event	25 th	26 th	27 th	28 th	29 th	30 th	31 st	32 nd	33 rd	34 th	35 th	36 th	37 th	38 th	39 th	40 th	41 st	42 nd
Date	Jan-04	Dec-06	Dec-07	Mar-08	May-08	Sep-08	Mar-09	Sep-09	Mar-10	Sep-10	Mar-11	Sep-11	Mar-12	Sep-12	Mar-13	Sep-13	Sep-14	Sep-15
Well ID	Measured Product Thickness (feet)																	
V8	NMP	NMP	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO
V9	NMP	0.04	0.02	NMP	NMP	0.05	NMP	0.2	NMP	0.18	NMP	0.27	0.13	0.38	0.18	NMP	0.6	0.29
V10	NMP	NMP	NMP	NPO	Sheen	NPO	NPO	NMP	NPO	NPO	NMP	NPO	NPO	NPO	NPO	NPO	--	NPO
MW17	0.4	NMP	NMP	NPO	NPO	NPO	NMP	0.05	NMP	0.07	0.17	0.31	0.1	0.35	0.24	0.01	0.23	0.18
SW19	NMP	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO	NPO

-- Not Measured
NMP No Measurable Product (product observed)
NPO No Product Observed

APPENDIX A

**No Further Action with Institutional Controls Determination
at PHNC, Halawa-Main Gate GSA, Remedial Action Area 1**

LINDA LINGLE
GOVERNOR OF HAWAII



CHIYOME LEINAALA FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
File: EHA/HEER Office
09-371-SPM

June 2, 2009

Ms. Michelle Yoshioka
Naval Facilities Engineering Command, Pacific
258 Makalapa Drive, Suite 100
Pearl Harbor, HI 96860-3134

Facility/Site: PHNC, Halawa-Main Gate GSA, Remedial Action Area 1

Subject: No Further Action with Institutional Controls Determination at PHNC, Halawa-Main Gate GSA, Remedial Action Area 1

Dear Ms. Yoshioka

This letter is to inform you that the Hawaii Department of Health, (HDOH), Hazard Evaluation and Emergency Response Office (HEER) has determined that, with the implementation of the conditions described below, No Further Action is required at this site.

1. Perform low-tide product thickness measurements at biannual (6-month) intervals for up to 3 years. During the 3 years
 - a. If no free-phase product (No Product Observed [NPO]) has been observed for three consecutive monitoring events (including historical monitoring events), then cease monitoring.
 - b. If free-phase product thickness has not increased by more than 25 percent or 1 foot (whichever is greater) for three consecutive monitoring events, then decrease monitoring frequency to annual.
2. If after 3 years of biannual measurements free-phase product remains at the site, then continue low-tide free-phase product thickness measurements on an annual basis for 2 additional years. During the 2-year monitoring period,
 - a. If no free-phase product (NPO) has been observed for three consecutive monitoring events, then cease monitoring.
3. If after 5 years of additional monitoring, measurable free-phase is still present within the RAA, it is understood that petroleum will be persistent at this site.
 - a. Due to the proximity to Pearl Harbor, monitoring will continue at 5-year intervals as long as measurable free-phase product is present at the site.
 - b. The wells to be included in the next monitoring event will be evaluated after each monitoring round.

Administrative notices will provide the following information pertaining to the Administrative Boundary (Figure A.4 in Attachment A and Figure K.1 in Appendix K of the main document):

1. Soils are present that are above the DOH's screening criteria for Gross Contamination (nuisance) and Direct Exposure to Construction Workers
2. Free-phase product may be encountered if excavations are extended to groundwater. Dewatering may occur, but will need to follow the following guidelines:
 - a. Dewater may be discharged back into the ground in close proximity to the construction site as long as any portion of the dewater does not enter a storm drain, discharge to surface waters, or discharge to a pit where the depth is greater than its width.
 - b. When the dewater has visible oil, the oil will be removed as much as practical before the dewater is discharged to the ground.
3. Soils excavated from near the water table may contain elevated concentrations of TPH and require proper handling and disposal in accordance with the following guidelines:
 - a. Clean and petroleum-impacted soil will not be mixed
 - b. Petroleum-impacted soil will be redeposited in the same area and as much as possible, at the same depth that it was originally encountered
 - c. The top two feet of the excavation should be filled with clean material to minimize human contact with petroleum-impacted soil
 - d. Excess soil that will be transported off site for disposal must be sampled and tested to ensure compliance with DOH and disposal facility guidelines and permit requirements.
4. Excavation machinery decontamination and personal protective equipment may be required for operations in this area.

Please note that the No Further Action with Institutional Controls (NFA IC) Determination is in effect only as long as the institutional controls described in the Environmental Hazard Management Plan (dated May 2009) are properly implemented and remain in place. Should these controls be violated in any way, the NFA IC becomes null and void and an appropriate response action will be required of the responsible party. To maintain protection through future property ownerships, disclosure of the institutional controls will be required in property transfers unless additional actions are taken and approved by HDOH, which remove the conditions set herein.

Furthermore, should future information reveal that contaminant exposure at the above-mentioned site is a threat to public health, the environment, or natural resources, DOH will require a response action to be taken as soon as possible. Deviations from the EHMP must be discussed with HDOH prior to implementation.

Should you have any questions concerning this site, please contact Mr. Steven Mow at 586-4251.

Sincerely,



Fenix Grange, Supervisor
Site Discovery, Assessment and Remediation Section
Hazard Evaluation and Emergency Response Office

APPENDIX B

Performance Monitoring Field Sheet

HOTEL PIER
SEMI-ANNUAL PERFORMANCE MONITORING

DATES: 9/1/15,			INSPECTORS: AL, AC	WEATEHR/LOW TIDES: Sunny, still, ~ 92 °F 9/1: 1219	
WELL ID	DATE	TIME	DEPTH TO PRODUCT	DEPTH TO GROUNDWATER	PRODUCT THICKNESS
* V8	9/4/15	1738	NPO	2.862	sheen
* V9	9/4/15	1741	2.93	3.22	
V10 ✓	9/2/15	1343	NPO	2.53	NPO
MW17	9/1/15	1314	5.30	5.48 5.32	wisdom
SW19	9/2/15	1344	NPO	7.41	

Note: All measurements from top of casing (TOC) in feet.

* Combos changed to 2010:

Combos: 2010, ²⁰¹⁰2424, ²⁰¹⁰2009, 3737, 2020
 ↓8 ↓9