Naval Facilities Engineering Systems Command Hawaii
JBPHH HI

Site Management Plan Update Pearl Harbor Naval Complex (Redacted)

JOINT BASE PEARL HARBOR-HICKAM OAHU HI

October 2024

DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

TABLE OF CONTENTS APPENDIX D

SECTION	TITLE	PAGE
D.1	Aiea Laundry	1
D.2	DRMO Manana Storage Area	8
D.3	Ford Island	10
D.3.1	Ford Island Landfill	11
D.3.2	Ford Island Remedial Investigation	12
D.4	PWC Transformer Sites	13
D.5	PHNC Shipyard, Subsurface Oil	16
D.5.1	Building No. 8	16
D.5.2	Oscar-2 Pier	18
D.5.3	Lower Tank Farm	20
D.5.4	LNAPL and PCBs on Groundwater	20
D.6	PHNC Naval Base (NAVBASE) Subsurface Oil	21
D.6.1	Upper Tank Farm	23
D.6.2	Former Upper Tank Farm	25
D.6.3	Past Sludge Disposal Area, Upper Tank Farm (IAS-21a)	26
D.6.4	Upper Tank Farm Canyon Disposal Area (IAS-23, NSC-13)	27
D.6.5	Middle Tank Farm Tanks	28
D.6.6	Former Middle Tank Farm	28
D.6.7	Abandoned Underground Tank (IAS-24, NSC-14)	29
D.6.8	Valve Chamber No. 2	30
D.6.9	Valve Chamber No. 3	31
D.6.10	Valve Chamber No. 4	31
D.6.11	Valve Chamber No. 7	32
D.6.12	Adit 1	32
D.6.13	Waste Oil Reclamation Facility (formerly Fuel Reclamation Facility (IAS-20, NSC-[01-10])	33
D.6.14	NEX Gas Station (formerly PWC Gas Station)	33
D.6.15	Gas Station	35
D.6.16	Halawa Service Station	35
D.6.17	Building 60, Sludge Disposal Pit Diesel Purification Plant	36
D.6.18	Merry Point Old Diesel Purification Plant	37
D.6.19	Millican Field (Quarry Loch)	37
D.6.20	Fuel Corridor Pipelines (IAS-29)	38
D.6.21	Environmental Preventive Medicine Unit No. 6	39
D.6.22	Hotel Pier	40
D.6.23	Pierce Street Area (RAA-9)	41

SECTION	TITLE	PAGE
D.6.24	Ward Field (RAA-5)	41
D.7	Naval Shipyard Sites	42
D.7.1	Building 394 Battery Acid Disposal Pit Site	42
D.7.2	Asbestos-Contaminated Shoreline	46
D.7.3	Foundry Shop, Building No. 6	47
D.7.4	Transportation Yard	48
D.7.5	O-1 Pier Shoreline Site	50
D.7.6	Laboratory Annex, Building T25	50
D.7.7	Mercury Handling Room, Building 451	51
D.7.8	Sump Underlying Plating Tanks, Building 67	51
D.7.9	Area North of Building 1754	52
D.8	Red Hill Oily Waste Disposal Pit Site	54
D.9	Pearl City Peninsula	57
D.9.1	Pearl City Peninsula Landfill	58
D.9.2	Pearl City Peninsula Burn Area	61
D.9.3	Pearl City Fuel Annex	62
D.9.4	Open Area South of Building 992	64
D.9.5	Abandoned AVGAS/MOGAS Pipeline Pearl City Peninsula	64
D.10	PHNC Storm Drains	64
D.10.1	NAVSHIPYD Marine Machine Shop (SY-44)	65
D.10.2	NAVSHIPYD Storm Drain System (SY-84)	65
D.10.3	PWC Paint Storage Area (PWC-01)	67
D.10.4	Former NAVSHIPYD Industrial Waste Treatment Plant Collection Sump and Unloading Area (PWC-10, PWC-13)	67
D.10.5	NAVSTA Spent Battery Storage Yard (NAS-04)	69
D.10.6	General Engineering Service Yard - Hose Drain Area (SB-26)	70
D.10.7	NAVSHIPYD Building 68 (IAS-13)	70
D.10.8	Machine, Plating, and Flex Hose Shops (SB-12 and-13)	71
D.10.9	NAVSHIPYD Building 155, Former Sandblast Area (New SWMU 07)	72
D.10.10	NAVSHIPYD Building 4, Concrete Pad and Drain (New SWMU 09)	72
D.10.11	NAVSHIPYD Building 4/4A Capped Storm Drains (New SWMU 10)	72
D.10.12	NAVSHIPYD Building 4/4A Pipe and Copper Shop Floor (New SWMU 15)	72
D.10.13	NAVSHIPYD Building 4/4A Former Boiler Shop Storm Drain (New SWMU 17)	73
D.10.14	FISC Building 449 Battery Charging Area Floor Drain (New SWMU 20)	73
D.10.15	PWC Building 43 Electrical Shop Floor Drain (New SWMU 22)	73
D.10.16	Former Battery Acid Tanks and Pit (New SWMU 29)	73
D.10.17	NAVSTA Building 472 Drum Storage (New SWMU 34)	74
D.10.18	PWC Building 35 Paint Shop (SWMU 001)	74
D.11	Makalapa Pesticide Rinsate Pit	74

SECTION	TITLE	PAGE
D.12	Ewa Junction Fuel Drumming Facility	75
D.13	FLETRAGRU Fire Fighting Training Area	77
D.14	Makalapa Crater	79
D.15	Pearl Harbor Regional Sediment Study	80
D.16	DRMR Pearl City Junction	84
D.17	Waipio Peninsula	85
D.17.1	Herbicide/Pesticide Mixing Area (Oahu Sugar Company)	86
D.17.2	Confined Disposal Area Contaminated Soil	86
D.17.3	Sandblast Grit Disposal Areas	86
D.18	West Loch 87	
D.18.1	Iroquois Point and Puuloa Housing Areas	88
D.18.2	Auxiliary Power Facility, Building 49	88
D.18.3	Munitions Response Program (MRP) sites	89
D.18.3.1	Electrical Component Disposal Area (MRP site)	89
D.18.3.2	West Loch Burning Pit (MRP site)	90
D.18.4	4th Street Coral Pit Landfill	90
D.18.5	West Loch Otto Fuel Waste Storage Area	91
D.18.6	Vehicle Maintenance Facilities	91
D.19	Bishop Point	92
D.20	Naval Housing	94
D.21	Naval Sea Systems Command Inactive Ships On-Site Maintenance Office (NISMO)	95
D.22	PWC Compound	95
D.23	Halawa-Main Gate	96
D.23.1	RAA 11, 12, AND 13	97
D.23.2	Storm Drains - Buildings 449, 472, 651, 660, and 674	98
D.24	Richardson	99
D.25	Various Transformer Sites	101
D.26	Various Per- and Polyfluoroalkyl Substances (PFAS) Sites	104
D.26.1	FLETRAGRU Fire Fighting Training Area, PFAS Release	105
D.26.2	JBPHH Various Fire Stations, PFAS Release	105
D.26.3	JBPHH Building 1613 and 1721, PFAS Release	105

SECTION	TITLE	PAGE
D.26.4	Red Hill, PFAS Release	106
D.26.5	Potential PFAS Areas of Interest	106
D.26.6	Potential PFAS in Pearl Harbor Sediment	106

LIST OF TABLES

NUMBER	TITLE	PAGE
D-1	Remedial Response Group Activities	D-2
D-2	Summary of Remedial Action Areas, Subsurface Oil Investigation	D-22
D-3	Active Site Background Summary	D-109

APPENDIX D
CURRENT STATUS OF ACTIVE PHNC SITES

This appendix discusses the status of the active Pearl Harbor Naval Complex (PHNC) sites presented in Figure 4-1. Active PHNC sites were prioritized into Site Management Plan (SMP) groups on the basis of geography, related contamination and/or contaminant source(s), similarity in anticipated response action(s), and location within common drainage areas (see Section 2.2 for a more detailed discussion of the PHNC prioritization process).

Table D-1 lists each SMP Group and the remedial response activities planned for it (or underway). Table D-3 lists every PHNC site by SMP Group (as shown in Figure 4-1) and summarizes the results of the investigations conducted at each site to date. Sections D.1 through D.25 discuss the information presented in Tables D-1 and D-3.

D.1 AIEA LAUNDRY

The former Aiea Laundry has been designated as a single-site OU comprising of the Aiea Laundry Geographic Study Area (GSA). The Navy Exchange Service Center (NEXCEN) operated the former Aiea Laundry Facility until 1998, when operations ceased and the buildings were demolished. Dry cleaning operations were conducted at the site from the early 1950s to mid-1970s using tetrachloroethene (PCE). Stoddard Solvent was then substituted as the primary dry cleaning solvent until 1994, when a self-contained PCE dry cleaning system was installed.

Site investigations conducted between 1989 and 1993 confirmed the release of dry cleaning solvents and operations wastewater from underground storage tanks (USTs) and subsurface drain pipes. A Removal Action was subsequently implemented in April 1993. Five USTs, a subsurface floor drain system, and a drainage swale area were excavated and disposed of as part of the Removal Action (Ogden 1993). Analytical results from verification samples collected during the removal effort indicated the presence of additional subsurface contaminants. Further soil gas and ambient air sampling were performed to assess potential threats to human health and the environment. These investigations confirmed the presence of contaminants in the subsurface including PCE and PCE biodegradation products such as trichloroethylene (TCE), dichloroethylene (DCE), and vinyl chloride.

TABLE D-1
REMEDIAL RESPONSE GROUP ACTIVITIES

#	SMP Group Name	Remedial Response Activities
1	Aiea Laundry	Removal (OU), RI, FS, PP, ROD
2	DRMO Manana Storage	RI, Removal (OU) , PP, ROD
3	Ford Island	RI, Removals, FS, PP, ROD
4	PWC Transformer Sites	Removals, PP, ROD
5	Shipyard Subsurface Oil	RI, Removals, EHE, EHMP
6	NAVBASE Subsurface Oil	RI, Removals, EHE, EHMP
7	Naval Shipyard Sites	SI, RI, FS, PP, ROD, Removals
8	Red Hill Fuel Facility	Removal, RI
9	Pearl City Peninsula	SI, RI, FS, PP, ROD
10	PHNC Storm Drains	Site Evaluations, Removals, RI
11	Makalapa Pesticide Rinsate Pit	Removal
12	Ewa Junction FDF	RI
13	FLETRAGRU Fire Test Area	Removal, SI, RI
14	Makalapa Crater	SI, RI, FS PP, ROD
15	Pearl Harbor Regional Sediment Study	RI, FS, PP, ROD
16	DRMR Pearl City Junction	SI, Removals, FS, PP, ROD
17	Waipio Península	SI, RI, FS, PP, ROD
18	West Loch	SI, RI, FS, PP, ROD
	West Loch (Munitions Response Program)	PA, SI, RI, FS, PP, ROD
19	Bishop Point	SI, RI, FS, PP, ROD
20	Naval Housing	SI
21	NISMF	Site Evaluations
22	PWC Compound	SI, RI, FS, PP, ROD
23	Halawa-Main Gate	SI, RI, FS, PP, ROD, EHE, EHMP
24	Richardson	SI, RI, Removals, PP, ROD
25	Various Transformer Sites	SI, Removals, RI, FS, PP, ROD
26	Various PFAS Sites	SI, RI

An Interim Removal Action (IRA) to address potential threats to offsite receptors from VOCs detected in the soil gas, and surface and subsurface soil underlying a portion of the site was implemented in 1996. The IRA involved construction of a soil vapor extraction (SVE) system that would be operated for approximately 3 years. The SVE system was deactivated in late-1998, after 2 years of operation, as soil vapor concentrations along the property line dropped significantly below the initial baseline readings to near non-detect levels. The IRA's primary objective of preventing offsite migration of contaminated VOCs based upon sample data at the time appeared effective, however, soil vapor concentrations near the former solvent UST remains elevated. In an attempt to reduce these persistently elevated soil gas concentrations near the source area, the SVE system was reactivated in September 2000 and from February to May 2001. Gas concentrations near the source area fell to below baseline concentrations and levels along the property fence line remained at trace or non-detect levels during this period. Because of these results, the SVE system was deactivated. In addition, at the request of St. Elizabeth Church and School, a soil gas survey was conducted in June 2000. The results indicated that all but one of 26 samples at 7.5' and 22.5' were at non-detect levels. The single detected sample was near the front of the church building at the detection level.

However, while many soil gas sample concentrations of PCE have generally decreased, the soil gas concentrations of its breakdown product, vinyl chloride (VC), at the source area have increased. Reactivated the SVE system in May 2006 to address this increase in VC gas concentration. August 2006 soil gas results at fence line locations indicated that while the VC soil gas concentrations are below the State DOH Environmental Action Level (EAL), the PCE soil gas concentrations are above the EAL. The Navy will continue to do release response actions at the site until soil gas results indicate the PCE gas concentrations are below the EAL.

In conjunction with the SVE IRA, a remedial investigation (RI)/feasibility study (FS) was conducted to address the long-term cleanup objectives and requirements of the OU. There are several draft RI/FS documents for the site each focusing on the investigation done under different task orders. A RI/FS planning document was finalized in August 1995 and field sampling activities were completed in October 1996. A Draft RI/FS Report was submitted in October 1997. Based on regulatory review comments, field work to further characterize the onsite/offsite extent of the contaminated groundwater plume (i.e., chlorinated solvents) was conducted in February 1999, following an approved addendum to the RI/FS planning documents in August 1998. The supplemental field work also included investigation of the potentially contaminated soil underlying the concrete building slabs since the laundry buildings were demolished in late 1998. A revised Draft RI/FS Report was submitted in August 1999. Based on review comments by the United States Environmental Protection Agency (EPA) and State of Hawaii Department of Health (DOH), a WP addendum was prepared to install additional offsite groundwater monitoring wells to characterize the nature and extent of the offsite VOC and diesel contamination in the groundwater.

Results of 9 offsite groundwater monitoring wells installed between 1999 and 2001 indicate that PCE and breakdown products have migrated offsite, via the groundwater, toward Aiea Bay.

Further offsite investigations and groundwater monitoring, including an assessment of ecological risks at Aiea Bay were conducted with the installation of 3 monitoring wells near the shore of Aiea Bay and obtaining 10 seepage water samples in the bay. Results of groundwater samples obtained between June 2001 and February 2002 from the offsite monitoring wells and seepage water samples indicate that PCE and breakdown products have migrated into Aiea Bay. A Draft Final RI/FS Report was submitted in May 2002 incorporating results of the offsite groundwater monitoring wells and seepage water samples. The report concludes that the PCE and breakdown products in the groundwater poses a human health risk and recommends a monitored natural attenuation (MNA) as the remedial alternative.

Based on evaluation of the Draft Final RI/FS Report, a review of regulators' comments (EPA and DOH), and discussions with the regulators, it was determined that before the RI/FS can be finalized, an additional investigation would be required. The additional investigation would eliminate several major data gaps and identify other remedial alternatives since MNA may not be appropriate as a stand-alone remedy, particularly in the downgradient area. A Draft Work Plan for the additional investigation was submitted in June 2006. The Navy's responses to the regulators' comments on the Draft Work Plan were discussed with the regulators in September 2006. The Work Plan was finalized in November 2006 and field work conducted in January 2007. The extent of the diesel plume within the groundwater appears to be limited to an area just offsite, across Moanalua Road. Down gradient wells show no evidence that the diesel product has progressed any further. An IRA to remove free diesel product from the groundwater underlying a former diesel UST was conducted based on the recommendations of the October 1997 Draft RI/FS Report. The Engineering Evaluation/Cost Analysis (EE/CA) and Action Memorandum (AM) associated with the diesel IRA was completed in October 1998. The long-term effectiveness of the diesel IRA is addressed in the revised Draft RI/FS Report of August 1999. As of May 2006, approximately 690 gallons of diesel product have been extracted from the caprock aquifer and recycled.

Onsite and offsite groundwater monitoring is on-going. The June and September 2002 sampling results were presented in November 2002 and February 2003, respectively, as addendums to the RI/FS report. Due to contractual difficulties, groundwater monitoring was suspended from September 2002 to July 2004. Onsite and offsite groundwater monitoring resumed in September 2004. In August 2007, one round of groundwater sampling of all the monitoring wells both existing and newly installed was performed. Analytical results received in September 2007 indicated contaminants may exist as deep as 50 feet below ground surface. Regulatory concurrence was requested to perform a second round of sampling to verify the first round results. During a November 2007 meeting with the regulators, concurrence was obtained to perform a

second round of sampling at only multilevel monitoring wells. The second round of groundwater sampling was performed in January 2008. Analytical results indicated there is no vertical component of the contaminants.

A status update meeting with the regulators was held in January 2008. Discussed during the meeting, was the status of the preparation of the draft RI/FS Addendum report, the site's geological cross sections, soil gas results, and preliminary alternative analysis. In March 2008, a meeting was held with DOH to update status of the project. Although the previous soil gas monitoring indicate that the VOCs detected along the fence line with the adjacent St. Elizabeth Church and School do not pose a risk to human health, the Navy proposed to collect vapor intrusion samples (ambient air and sub slab) from the basement of the church and rectory to verify the acceptable risk level determination. Additionally, a PCE surface soil hot spot found during the 1999 field investigation for the RI/FS is required to be addressed by a surface soil investigation. Concurrence from the regulators to incorporate results of these investigations into the draft RI/FS Addendum report was obtained during meeting with the regulators. The FS addressing soil gas requires optimization before submittal of the draft RI/FS Addendum report. Consequently, submittal of the draft RI/FS Addendum report was postponed until February 2010. The draft RI/FS Addendum report was submitted in February 2010. Informal EPA comments submitted in May 2010 indicated concerns regarding vapor intrusion at the adjacent St. Elizabeth Church and School property. During the May 2010 meeting with the regulators, it was agreed that additional vapor intrusion sampling and operation of the SVE system would be required to establish lines of evidence whether or not vapor intrusion is a concern at the Church property.

A Technical Memorandum for additional vapor intrusion sampling at both the site and St. Elizabeth Church property was submitted in August 2010 in conjunction with the resumption of the SVE system operation. Sampling was conducted in 2010 followed by the operation of the SVE system for four months.

The first round of additional vapor intrusion sampling was completed in December 2010. The results were presented and discussed during a meeting with the regulators in January 2011. EPA, DOH, and Navy agreed that turning on the SVE system is not necessarily the next step, since it might not affect the indoor air quality and therefore the human health risk. The Navy suggested that the decision as to whether to operate the SVE system should be further evaluated until after the results of the second round of sampling were available in April or May 2011, and modeling should be used to predict concentration levels over the next thirty years. The Navy suggested using modeling if the results stay consistent with the December 2010 data to establish relationships between on-site and off-site concentrations. If the second round of data results has higher concentrations than the first round, the Navy will consider continuing to operate the SVE system.

The second round of additional vapor intrusion sampling was completed in June 2011. The results and risk assessment calculations, using this and the previous two sampling results for the St. Elizabeth Church and School property were submitted to the regulators in July 2011. The data results for the indoor air indicated that the PCE concentrations are slightly decreasing. The sub slab PCE concentrations remain nearly the same as the December 2010 results. For the Rectory sub slab, it was substantially less than the December 2010 results. The risk assessment indicates that both the current use and residential scenarios are in the 10-7 range. Also submitted in July 2011 was the proposed soil gas sampling plan for the backyard area. A response to EPA comments on the risk assessment was provided in August 2011. Soil gas sampling was done for the backyard area in August 2011. The backyard area soil gas sampling results were submitted to regulators in September 2011.

A conference with the regulators to discuss backyard area soil gas sampling results, the venting trench Treatability Study, and a proposed schedule for the RI/FS Addendum report, Proposed Plan, and Record of Decision was held in November 2011. After discussing the August 2011 soil gas sampling results for the backyard area, there was agreement that additional well installation and sampling needs to be completed to fully evaluate subsurface soil vapor contamination within the backyard area, and assess human health risk to neighboring occupants. During the meeting, the Navy initially proposed to install eight additional soil vapor monitoring (SVM) wells within the backyard area in December 2011. The EPA initiated discussion regarding future sampling needs and potential contaminant source containment (e.g. vapor barrier, SVE system optimization) at the Former Laundry Facility and Saint Elizabeth Church and Rectory. The Navy presented the June 2011 sampling results for the Site and the sub-slab and indoor air data for the Church and School, emphasizing the relative stability of the sub-slab data at the Church and the decrease in sub-slab concentrations at the Rectory. The EPA stated that due to PCE concentrations in sub-slab soil vapor at the church and rectory exceeding the screening criteria, some form of contaminant source control needs to be implemented along the property boundary. The Navy responded that the implementation of source containment at this time is not technically justified due to the relatively stable and low indoor air and sub-slab vapor concentrations with increasing soil vapor concentrations along the fence line, and the potential effectiveness of installing source containment along the property boundary. The results of continued monitoring along the fence line will be evaluated to determine whether future source containment (e.g. vapor barrier installation, SVE system optimization) implementation is necessary. The Navy stated that this monitoring alternative would be included in the In-Progress Draft Final RI/FS Addendum report. The EPA stated that the Navy needed to provide a letter from state DOH stating that groundwater within the caprock formation at the site is not a source of drinking water to receive the approval from the EPA for monitoring natural attenuation as a proposed remedial alternative in draft RI/FS addendum report. The DOH has since provided the letter. The Navy stated that the status of groundwater at the site and along the shoreline was evaluated in accordance with caprock

groundwater that does not represent a potential source of drinking water. Agreement was made that an In-Progress Draft Final RI/FS Addendum Report would be submitted to the EPA and DOH in late December 2011, including all data from the most recent sampling events for the Former Laundry Facility, the Church and School, the initial Backyard Area sampling results, and the two additional remedial alternatives.

Met with DOH in April 2012 to discuss the approach to address EPA request that DOH provide a letter stating that groundwater within the caprock formation of the site groundwater investigation area is not considered a drinking water resource. Navy sent a letter requesting concurrence on non-drinking water classification for groundwater in the caprock formation at the site was sent to DOH in April 2012. DOH provided their concurrence in May 2012.

The In-Progress Draft Final RI/FS Addendum Report was submitted to the EPA and DOH in January 2012. The Navy needed to confer with their technical experts on the Backyard Area Additional Air Sampling Plan to determine if it will obtain sufficient data to address all the stakeholder's concerns. A proposed Backyard Area Additional Air Sampling Plan was submitted to regulators in March 2012. Regulators' concurrence on a revised plan was obtained in March 2012. Additional SVM wells were installed in the backyard area in April 2012. Soil gas samples were obtained in May 2012. Preliminary results were submitted to regulators in June 2012. A conference call with the regulators was held in July 2012 to discuss the results. During the conference, the Navy proposed to continue the SVE treatability study along the fence line adjacent church property and hot spot detected in the Backyard Area, to reduce the soil gas contamination and to mitigate any potential soil gas migration to the surrounding areas. The EPA and DOH agreed with the Navy's proposal to continue the SVE treatability study to be performed at the Laundry area and Backyard Area. The Navy stated that the Technical Memorandum Work Plan for the treatability study will present the details of the treatment technology and definitions of success for demonstrating system effectiveness, and also serve as an approval benchmark for stakeholders prior to the Design Package issuance. The Technical Memorandum Work Plan was submitted in 2012. The SVE treatability study fieldwork re-started in August 2013 and was proposed to run a year. The SVE treatability study operated as proposed and results have been incorporated into a September 2017 comprehensive Final RI/FS which was submitted to the regulators in October 2017. The Navy plans to continue to collect annual groundwater samples from select wells to verify that attenuation is on-going and the plume is stable and risk is acceptable. In addition, quarterly indoor air and subslab samples are also continuing so long as there are off-site migration concerns.

In late 2016 the Navy added two indoor air sample locations in the St Elizabeth School Administration basement to the quarterly vapor intrusion schedule as a conservative indicator. In addition, the Navy is in the process of evaluating whether it is necessary to supplement the SVE

system to better mitigate contaminant migration on the St Elizabeth Church and School property. In 2018, two additional extraction wells were installed at the TSVM-1 hotspot along the fence line to better mitigate off-site concerns.

An expanded vapor intrusion investigation at the Administration building was proposed in a Final Abbreviated Work Plan dated December 2022. This expanded investigation includes installation and sampling of new soil vapor monitoring well locations and new subslab monitoring points. A more robust soil vapor and vapor intrusion monitoring network is necessary to fully evaluate the potential migration and impacts of contaminants under the Administration building at St. Elizabeth Church and School and to delineate the horizontal and vertical extent of contaminants in soil vapor. Quarterly soil vapor, indoor air, and subslab vapor sampling continues at select monitoring locations onsite and at St. Elizabeth Church and School.

Target completion dates for future actions are presented in the SMP Schedule in Appendix A.

D.2 DRMO MANANA STORAGE AREA

The DRMO Manana Storage Area is a 51-acre parcel that is part of the 108.7-acre Manana Storage Area located in Pearl City, Oahu, Hawaii (Figure 4-1). This site has also been designated a single-site OU and, as such, comprises the entire Manana Storage Area GSA. The facility consists of nine unpaved open storage areas of varying size and 14 warehouse buildings, each approximately 38,500 square feet. The DRMO facilities were constructed in the 1940s by FISC (formerly NSC) for general warehousing of World War II materials. Since 1973, portions of the DRMO facility have been used for temporary storage of both non-hazardous property and hazardous substances/wastes received from Pacific Rim military facilities. From 1973 to the present, the mission of DRMO has been to facilitate the reutilization of materials and offsite transfer or disposal of both hazardous and non-hazardous substances/wastes it receives.

In the IAS, NEESA concluded that no significant contamination existed at this site. However, inspections conducted by EPA Region IX between 1985 and 1987 noted isolated incidents of leaking drums within the warehouse structures; these releases were contained and cleaned during the inspections. In 1988 NEESA performed a PA, which recommended “no further action” at the site.

In May 1991, a site reconnaissance was conducted during which time reports, aerial photographs, and facility plans were reviewed and examined. A Site Inspection (SI) at the DRMO facility was then implemented in two phases conducted in October 1991 and November 1992. Biased sampling was conducted at locations of suspected contamination, and soil samples were collected from the ground surface to 6 feet below ground surface (bgs). The chemical analytical program was designed using information on materials storage practices and was customized for each

building or open storage area. Three hundred twenty four soil samples were recovered and analyzed for VOCs, semi-volatile organic compounds (SVOCs), petroleum hydrocarbons, fuel hydrocarbons, polychlorinated biphenyls (PCBs), formaldehyde, chlorinated herbicides, organochlorine pesticides, organophosphorous pesticides, carbamate pesticides, and metals.

A human health risk-based evaluation of SI data using Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) preliminary remediation goals (PRGs), onsite background data, and statistical analyses was conducted. Constituents of potential concern were defined as those above background levels (for inorganic analytes) and above PRG values. The identified constituents of concern were antimony, arsenic, beryllium, chromium, lead, and thallium. SI recommendations included performance of additional sampling at "hot spots" to define the extent of contamination, investigation of soil less than 6 inches bgs (i.e., surface soil), and characterization of soil greater than 6 feet bgs (i.e., subsurface soil). These recommendations were implemented during an RI conducted at the site.

RI planning documents for the DRMO Manana Storage Area were finalized in July 1994. These plans included grid-based sampling of surface soil (depths <0.5 feet), and both stratified random sampling and biased sampling of subsurface soil (depths up to 50 feet). Data were also obtained from existing offsite wells to evaluate the potential for contaminant transport through the unsaturated zone beneath the site. RI samples were analyzed for VOCs, chlorinated herbicides, and metals. The RI results were evaluated in a baseline HRA to identify locations of potentially significant impacts and to identify appropriate clean-up levels. On the basis of this evaluation, limited areas of arsenic-and-lead-contaminated near-surface soil were identified as posing potential risks to human health.

The Draft RI Report was submitted in July 1995 recommending a limited Removal Action to address arsenic-and-lead-impacted soil. This report was subsequently finalized in December 1995, recommending that the exact extent of the Removal Action be determined in the Final EE/CA Report. The Draft EE/CA Report was also submitted in July 1995, along with the RI Report. Based on comments received on the draft EE/CA Report, this document was finalized and submitted in January 1996. After negotiations with EPA and recalculations of risk, the final extent of the Removal Action was presented in the Final EE/CA Report, which recommended a limited Removal Action for arsenic-contaminated soil be conducted at 13 locations spread throughout six 5,000-square-foot exposure areas.

In accordance with preliminary recommendations, the draft design package was submitted in July 1995 (6 months before the EE/CA Report was finalized). The design documents were finalized in January 1996, along with the Final EE/CA Report, and the Removal Action was initiated in March 1996. Field work was completed in April 1996 in accordance with the property transfer deadline in May 1996. The Final Remediation Verification Report (RVR) and Draft Removal Action

Decision Document (RADD) were submitted in August 1996. As indicated in the Draft RADD, analytical results from verification samples collected during the Removal Action indicate that all impacted soil containing arsenic concentrations were excavated from the site. Overall risks to potential residential human populations posed by the remaining soil are within acceptable limits (i.e., excess cancer risk below 1E-04; Hazard Index at 1 or below). As a result, the Removal Action is considered to be complete.

On the basis of a telephone conversation between EPA and the Navy on January 11, 1996, it was agreed that a separate groundwater investigation would be conducted in the future to determine if there are any groundwater impacts. The understanding was that this future groundwater investigation need not be completed prior to the property transfer, which occurred on June 3, 1996. Final planning documents were submitted in October 1998 for a regional groundwater assessment covering the Manana Storage Area and Pearl City Junction sites.

Assessment field work began in November 2001 and was completed in February 2002. The second round (dry season) of groundwater sampling was completed in August 2002. Preliminary results indicate the contaminant of concern is not in the groundwater beneath the site. The draft Regional Groundwater Assessment report was submitted in May 2003. The report recommended no further action for the basal aquifer beneath the Manana Storage Area site and site monitoring wells be abandoned and sealed. There were no regulatory comments objecting to the draft report recommendations. The draft final Regional Groundwater Assessment report submitted in October 2003 included these same recommendations. Monitoring well abandonment was completed in June 2005.

In August 2005, a draft PP for No Further Action at this site and the Pearl City Junction site was submitted to the regulators for review. Per DOH comment on the draft PP, the PP should be prepared solely for this site. A draft PP for No Further Action for this site was submitted to the regulators for review in November 2005. The final PP was submitted in February 2006 for public comment. A Public Meeting presenting the PP was held in March 2006. In March 2006, the draft Record of Decision (ROD) for No Further Action at this site was submitted to the regulators for review. The draft final ROD was submitted in July 2006. In September 2006 the revised final ROD was submitted and signed by the Navy and EPA with DOH concurrence. There is no further action at this site with the signing of the final ROD.

D.3 FORD ISLAND

This SMP Group currently consists of two sites located within the Ford Island GSA as shown in Figure 4-1. These sites, referred to as the Ford Island Landfill and Ford Island Remedial Investigation, are briefly described below.

D.3.1 Ford Island Landfill

The Ford Island Landfill is located on the southwestern end of Ford Island (see Figure 4-1) within the Ford Island GSA. This site was used for burning and disposal of solid wastes from the 1930s to the 1980s. In general, the wastes in the landfill came from the former Naval Air Station on Ford Island and are made up of household, commercial, and industrial wastes, and construction debris. The landfill is 10 to 30 feet deep and overlies coralline deposits. Groundwater ranges in depth from 5 to 15 feet bgs. A 1989 investigation of surface water quality in Pearl Harbor, conducted by the Navy, found metals, petroleum hydrocarbons, and PCBs in the vicinity of the site. On the basis of these findings, an SI of the site was conducted in 1992. The SI revealed contaminant concentrations in the groundwater underlying and surrounding the landfill below levels considered to pose a significant threat to Pearl Harbor. However, contaminated soil, debris, and cavities located on/near the surface of the landfill were considered to pose a potential threat to people who may utilize portions of the landfill in the future.

In 1994, a non-time critical Removal Action was initiated to install a landfill containment system or cap. Capping, in conjunction with groundwater monitoring, is an EPA-approved presumptive remedy for landfills. The Draft EE/CA was prepared in March 1995 and recommended construction of a permeable soil cap. The EE/CA was finalized in July 1995 and work began on the Draft Design documents. The Draft Design was prepared in November 1995 and finalized in March 1996. Construction of the landfill containment system, which is comprised of a permeable soil cap, vegetative cover, surface drainage system, rip-rap shore protection, and groundwater monitoring wells, commenced on July 1996 and was completed in December 1996. A Final RVR was submitted in 1997, following construction of the landfill cap. A comprehensive Groundwater Monitoring Plan (GMP) and Operation and Maintenance Plan (O&M Plan) were prepared in September 1997 and April 1998 respectively. Following an initial 5 years of maintenance and monitoring, discontinuing the groundwater monitoring program was recommended. However, based on regulatory concerns on metals concentrations in the groundwater, two background monitoring wells and additional surface water sampling locations were incorporated into the groundwater monitoring program. An updated groundwater monitoring plan for the Ford Island Landfill was completed in March 2006. In 2008, a tidal study was performed to evaluate the effect of tidal influences on metals concentrations in the groundwater beneath the landfill. A Focused FS was initiated in 2009 to evaluate potential remedial alternatives, land use controls (LUCs), clean closure to unrestricted use, and no action. The Focused FS was finalized in May 2010, and the recommended LUCs as the final remedy for the site. A PP public meeting was held on September 14, 2010. The Record of Decision (ROD) for the Ford Island Landfill was signed in September 2011. A Remedial Action Work Plan (RAWP) for the specific implementation requirements for the LUCs was finalized in May 2012. The Long-Term Monitoring Plan for groundwater monitoring and cap maintenance was completed in 2013. This site was included in

the September 2014 installation Five-Year Review for the Pearl Harbor Naval Complex NPL. The Five-Year Review determined that LUCs are protective of human health and the environment. In July 2016 a Remedial Action Completion Report (RACR) was prepared to document that LUCs are fully implemented in accordance with the ROD and RAWP. This site was included in the second installation Five-Year Review, which was completed in September 2019. The Five Year Review confirmed that the LUCs remain protective. The current long-term monitoring program includes annual groundwater monitoring and landfill cap inspections.

D.3.2 Ford Island Remedial Investigation

In February 2003, a RI was completed for various potential release locations (PRLs) within the 450 acre Ford Island GSA. These PRLs were previously identified in the Site Summary Report (SSR) for the Ford Island GSA of October 1998. The PRLs identified throughout the Ford Island GSA included: the island-wide abandoned aviation gasoline (AVGAS) distribution system; 55 transformer sites; and eight hazardous substance sites. Potential contaminants of concern included PCBs, waste oil and petroleum compounds (e.g., polynuclear aromatic hydrocarbons [PAHs]), heavy metals, pesticides, herbicides, creosote, etc. The final RI/FS planning documents (WP, FSP, QAPjP, and HSP), were completed in June 2000. RI field work was completed in July 2000 and in-progress results were submitted in September 2000. The Draft RI Report was completed in January 2001. Following regulatory review, a Draft Final RI Report was completed in September 2002. The RI report recommended Removal Actions to remediate PCB-contaminated soil from 23 transformer sites, remove residual fuel and sludge from the AVGAS distribution pipeline system, and remove contaminated soil and sludge from five hazardous substance sites, which include the former Camel Refurbishing Area, Building 39 storm drain lines, Building 43 storm drain lines, Bldg 284, and the Hazardous Substance Storage Area. The 23 transformer sites are further discussed in Section D.25.

A time-critical removal action was completed in October 2001 on approximately 6,200 linear feet of the AVGAS distribution pipeline due to a planned housing development in the area. An RVR was completed for the time-critical AVGAS Removal Action in May 2002.

In May 2002, an AM was completed for the remaining, approximately 27,157 linear feet of the AVGAS pipeline. This AM was completed in accordance with the Hawaii State Contingency Plan. A non-time critical Removal Action for the remaining 27,157 linear feet of the AVGAS pipeline was completed in July 2004.

Based on the recommendations of the RI report, a draft EE/CA was prepared in December 2001 for the five hazardous substance sites recommended for further action. The EE/CA was finalized in February 2003, and an AM was completed in May 2003. Field work for the removal actions at

the hazardous substance sites commenced in July 2003. Removal actions for the hazardous substance sites were completed in June 2004.

Additional data collected in 2004 at the Building 80/302 site indicated that a RA was necessary.

A time-critical AM was signed in September 2005 for the first phase of a removal action at the Former Building 80/302 Site. The AM for the second phase of the time-critical removal action was signed in June 2006. The removal action, which involved excavation of localized areas of metals contaminated soil, construction of vegetative cover, and land-use controls was completed in July 2006.

A Time-Critical Removal Action Memorandum for the Building 284 Slope site signed in December 2005. The removal action included consolidation of metals contaminated soil and debris, and construction of a vegetative soil cover and shoreline protection. Field work was completed in September 2006.

Completion dates for documents pertaining to the Ford Island Removal Actions are listed in Appendix A. A Proposed Plan for LUCs as the final remedy at the Building 284 and Former Buildings 80 and 302 sites was completed in February 2008. A Proposed Plan for NFA at the Hazardous Substance Sites (Former Camel Refurbishing Area, Hazardous Substance Storage Area, Bldg 39 storm drain lines, Bldg 43 storm drain lines, and Building 217 storm drain lines) and 32 transformer sites on Ford Island was also completed in February 2008. The RODs for Building 284 and Former Buildings 80 and 302 sites; and the Hazardous Substance and 32 transformer sites were finalized in September 2009. A LUC Work Plan was prepared for Building 284 and Former Buildings 80 and 302, as the RAWP for implementation of LUCs for these sites. The draft final LUC Work Plan was prepared in December 2008, and was finalized in February 2011. Sign installation was completed in July 2013. This site was included in the September 2014 installation Five-Year Review for the Pearl Harbor Naval Complex NPL. The Five-Year Review determined that LUCs are protective of human health and the environment. In June 2016, a RACR was prepared to document LUCs are fully implemented in accordance with the ROD and LUC Work Plan. This site was included in the second installation Five-Year Review, which was completed in September 2019. The Five Year Review confirmed that the LUCs remain protective. The current long-term monitoring program includes annual groundwater monitoring at Building 284 and annual cap inspections and Building 284 and Former Buildings 80 and 302.

D.4 PWC TRANSFORMER SITES

The PWC Transformer Sites are located within various GSAs as shown in Figure 4-1. Nine transformer station sites, owned and operated by PWC, are included in this SMP group. Five of the sites are located within the Ford Island GSA; two sites are located within the Shipyard GSA;

one site is located within the Halawa-Main Gate GSA; and one site is located within the PWC Main Complex GSA. Previous environmental investigations identified these transformers as potential human health and/or environmental concerns on the basis of detection of PCBs in the soil and/or on the concrete pads surrounding the transformers.

Given the relatively low mobility of PCBs and the anticipated limited extent of contamination, it was determined that the Removal Action process would best address these sites. The Draft Removal Site Evaluation (RSE) planning documents for the combined sites were submitted in February 1995. Comments on the draft documents were incorporated, and the Final RSE planning documents were submitted in October 1995. The RSE was conducted between November and December 1995. Data analysis, validation, and evaluation were performed between January and March 1996. The EE/CA was conducted between February and June 1996, and the Draft EE/CA Report was submitted in June 1996. The EE/CA Report recommended on-island landfilling of soil containing PCB concentrations less than 50 mg/kg and either off-island landfilling or incineration of soil containing PCB concentrations greater than 50 mg/kg. Comments on the Draft EE/CA Report were received in September 1996. The results of the EE/CA and recommendations presented in the Draft EE/CA Report were presented during a RAB Meeting conducted in August 1996. The Final EE/CA Report was submitted in November 1996.

In 1997, the Navy partnered with the EPA Superfund Innovative Technology Evaluation (SITE) program to demonstrate/evaluate a treatment technology for extracting PCBs from concrete. The TechXtract technology was demonstrated at Transformer Vault TG-04. The evaluation concluded that TechXtract can reduce PCB surface concentrations to less than 10 micrograms per 100 square centimeters (ug/100 cm^2) from as high as 940 µg/100 cm^2. TechXtract was not able to reduce the PCB surface concentrations to less than 10 µg/100 cm^2 for subsurface PCB concentrations that were as high as 14,000 µg/g (1.4 percent) for the first two inches below the surface.

In 1997, the design to implement the removal action recommended in the EE/CA was finalized.

In 1998, the Navy made several changes to items that were previously agreed to, based on new information received and discussion with EPA. Cleanup goals were revised, the recommended alternative for the removal action was revised, and PCB treatment options were re-evaluated. Cleanup goals were revised to be consistent with widely accepted published TSCA, DOH, and EPA values. The revised goals are:

- Soil: 1 milligram per kilogram

- Concrete: 10 micrograms per 100 square centimeters

Because the on-island landfill had not received and was not expected to receive approval for accepting CERCLA wastes in accordance with 40 CFR 300.440, the recommendation in the

EE/CA for on-island landfilling of soil with PCB concentrations less than 50 mg/kg was no longer an option. Consequently, the Navy re-evaluated options using updated cost and technical information. This re-evaluation indicated the availability of reliable treatment technologies that could be more cost effective than costly off-island disposal. The Navy initiated partnering with EPA's Superfund Technical Assistance Response Team (START) and SITE programs to identify, screen, and evaluate potential treatment options for PCB-contaminated soil. These changes were summarized in fact sheets that the Navy distributed at the February 1998 and July 2000 Pearl Harbor (PH) RAB meetings.

In 1998, the Navy conducted a treatability study to evaluate two alternatives for the feasibility of treating PCB-contaminated soil to the cleanup goal of 1 mg/kg. The two vendors selected for evaluation were 1) Commodore Advance Sciences, Inc., which uses a solvated electron technology, and 2) Terra Therm Environmental Services, Inc., which uses a thermal desorption technology. Results of the treatability study indicated that both vendors may be able to treat PCB-contaminated soil to the treatment goal of 1 mg/kg. The final Treatability Study report for PCB Contaminated Soil at PHNC was completed in September 1999.

In 1999, the Navy conducted a demonstration of the solvated electron technology developed by Commodore Advance Sciences, Inc., in cooperation with the U.S. EPA SITE program. Although solvated electron technology was shown to reduce PCB concentrations in soil, the 1 mg/kg cleanup goal was not consistently met during the demonstration. In addition, the full scale treatment process would be limited to approximately 10 tons per day.

In 2000, the Navy conducted an EE/CA to identify and evaluate treatment and disposal alternatives for contaminated soil from the Naval Computer and Telecommunications Area Master Station Pacific (NCTAMS PAC), former Naval Air Station (NAS) Barbers Point, and PHNC. The draft EE/CA was completed in June 2000, and results of the EE/CA pertaining to PHNC were presented at the PH RAB meeting conducted in July 2000. The final EE/CA report was completed in September 2000. The final EE/CA recommended treatment by thermal desorption for all PCB-contaminated soil. The soil would be treated to 1 mg/kg PCB as total Aroclor, which would allow the treated soil to be available for unrestricted use. The final EE/CA also recommended that the contaminated soil from NCTAMS PAC, former NAS Barbers Point, and PHNC be consolidated at one location at the former NAS Barbers Point for the purpose of treatment.

The Navy began a removal action in November 2000 to excavate PCB-contaminated soil and clean PCB-contaminated concrete at the nine PHNC transformer sites. The excavated soil was transported directly to the planned treatment site on Navy-retained land at the former NAS Barbers Point, where it was stockpiled near soil from Barbers Point for the purpose of treatment. A fact sheet summarizing the planned removal action, including changes made to the 1996 EE/CA recommendations, was distributed for a 30-day public review period in August 2000. A Notice of

Availability for this fact sheet was advertised in the local newspaper on August 13, 2000. A draft Action Memorandum for the removal action at the nine PHNC transformer sites was completed in September 2000. The final Action Memorandum for the removal action was signed in October 2000. A draft Action Memorandum for the consolidation and treatment of the excavated soil from NCTAMS, the former NAS Barbers Point, and PHNC at Barbers Point was completed in September 2000. The final Action Memorandum for treatment of soil was signed in October 2000. A final Basis of Design Report for the Thermal Desorption Treatment Unit that would operate at the former NAS Barbers Point to treat contaminated soil from NCTAMS, the former NAS Barbers Point, and PHNC, was completed in August 2001. A revised Basis of Design Report was completed in 2003. Treatment operations commenced in 2003. This PCB treatment project is further discussed in Section D.25.

In April 2003 a draft RVR was prepared to document removal action activities completed to date. The RVR was finalized in a draft consolidated RVR, that addressed all transformer sites, which were involved in the PCB treatment project discussed in Section D.25.

Excavation of 23 transformers on Ford Island commenced in November 2003 and ended in August 2004. This cleanup effort had the excavated soils transported directly to the treatment facility at the former NAS Barbers Point. One of these transformers completed the excavation at a site started in the 2000 removal action. The soil from the removal action in 2000 and the 2003-2004 removal action were treated at a temporary thermal desorption facility during this period. This PCB treatment project is discussed in Section D.25. The PP and ROD documentation for these Ford Island transformers is discussed in Section D.3.2.

D.5 PHNC SHIPYARD, SUBSURFACE OIL

This SMP Group currently consists of four sites located within the Shipyard GSA as shown in Figure 4-1. These sites, referred to as Building No. 8, Oscar-2 (O-2) Pier, the Lower Tank Farm, and the LNAPL and PCBs on Groundwater are briefly described below. Per agreement with EPA and DOH in August 2008, these sites, including sites with petroleum commingled with PCBs, will be managed under the Hawaii State Contingency Plan (SCP), outside the scope of the Federal Facilities Agreement (FFA), except for the LNAPL and PCBs on Groundwater site.

D.5.1 Building No. 8

Building No. 8, formerly Power Plant No. 1 is located east of the harbor entrance to Dry Dock No. 1 and adjacent to Building No. 5 (see Figure 4-1) within the Shipyard GSA. A number of oil spills were reported to have occurred in the vicinity of Building No. 8 in the early 1980s. Specifically, leaks from a Navy Special Fuel Oil (NSFO) line pumped from Power Plant No. 2 are suspected to

have migrated into the storm sewer system around Building No. 8 and traveled alongside the large (b) (3) (B) .

Reports indicated that subsurface oil in the vicinity of Building No. 8 was seeping into the storm drain system and collecting in the building sumps. Investigations of possible sources of hydrocarbon contamination in the vicinity of Building No. 8 indicate that oil is present in the subsurface soil, although abandoned fuel lines in the area were confirmed to be empty. The source of subsurface oil, therefore, may have been previous leaks from the abandoned fuel lines or an oil spill that occurred in approximately 1983. Oil is presently found in the Building No. 8 sumps, in several of the storm drain manholes leading to and from Building No. 8, and in at least one (b) (3) (B) Building No. 4.

Incorporating comments received on the Draft EE/CA Report (submitted in May 1995), the Final EE/CA Report was submitted in September 1995 recommending modification to the NSY storm drain system and installation of an active extraction trench system to contain and extract the non-aqueous phase liquid portion of the subsurface NSFO. The Draft (100%) Removal Action design documents were submitted in March 1996. No comments were received from DOH or EPA on the Draft Design Package, and the Final Design Package was submitted in September 1996.

Construction of the active extraction trench system was completed in August 1997. Documentation of construction activities was submitted in the Remediation Verification Report in February 1998. Operation and maintenance/performance monitoring of the system is being conducted with quarterly reports provided routinely. As of December 2017, 42,905gallons of product have been recovered with the extraction system. Based on product characterization performed in 2006, the recovered product contains 2 ppm of PCBs. A response action memorandum to document the removal action as the final action for this site was completed and signed in November 2010.

In December of 2017, the product recovery system (PRS) was shut down due to the contractor's not having access to the site because of changing requirements for obtaining passes to the Shipyard Controlled Industrial Access area. The PRS has not been operated since and it is not planned to restart the system. The current condition of the system would require a significant upgrade for it to be restarted, and the original system was planned for a plume that only represents about 10% of the actual plume.

Though the site is within the area covered by the 1994 Federal Facilities Agreement (FFA) and fuel plume is known to contain PCBs, an agreement was made between Hawaii State Department of Health, the U.S. EPA, and the U.S. Navy in 2007 concerning the subsurface fuel sites that states that the subsurface fuel sites will not be subject to the terms of the 1994 FFA unless the source of the comingled PCBs becomes evident.

In July 2012, an optimization study to evaluate the spread of the plume as fuel has begun to show up in a saltwater extraction pit outside of what was presumed to be the Building 8 plume boundary. The study was to produce an environmental hazard management plan (EHMP). Fieldwork started in November 2013 and was completed in June of 2014. The EHMP was originally scheduled to be finalized in February 2015, but in March of 2015 there was a release of approximately 30 gallons of fuel into the adjacent harbor and indications are that the fuel came from the Building 8 Plume. The fuel released into the harbor also had an elevated level of PCBs (59-64 ppm) which is much higher than had been originally found in the subsurface fuel that had been collected by the product recovery system. Another investigation has subsequently been issued to address potential routes for the fuel to get from the plume to the harbor. Fieldwork started in early 2016 and is still underway at the time of this writing. Due to the level of PCBs found in the oil released, the RI is now being performed under CERCLA. The RI is also being expanded to include evaluation of storm drains and dissolved-phase PCBs in groundwater as a possible sources of PCBs in the harbor sediments.

D.5.2 Oscar-2 Pier

Black oil was noted on the rocks of the northwest shore off the O-2 Pier as shown in Figure 4-1. The oil appears to be old residual fuel oil similar to the oil seeping into Building No. 8; thus, the oil may be the result of subsurface discharges. The site is also adjacent to Power Plant No. 3, Building No. 177, which is no longer in service. No visible sheen was apparent during initial investigations of the site, but a light sheen sighting was reported later in the area. The oil has a tar-like viscosity and covers the rocks at inconsistent heights at the shoreline. Contamination appears to be isolated to a 30-yard section of shoreline adjacent to the O-2 Pier. In addition, two permanent oil extraction wells, installed to prevent seepage of subsurface oil to the harbor, are located near the site. The wells are monitored for oil on a monthly basis and pumped out by PWC as required.

A Removal Action was initiated to address the subsurface oil observed at this site. The RSE planning documents describing the characterization methodologies to be used at the site were finalized in August 1995 and submitted in September 1995. Field work associated with the RSE was initiated shortly after completion of the planning documents. Field work consisted of the installation of 12 monitoring wells and four piezometers; soil, groundwater, and product sampling; a tidal study; and aquifer tests. Field work was completed in October 1995, and a subsurface oil plume (NSFO) was identified on the western half of the site, along the shoreline.

The Draft EE/CA Report was submitted in February 1996. Based on the nature and extent of the plume, a passive trench recovery system was recommended for the site. Comments received from EPA and DOH were addressed, and the Final EE/CA was completed in May 1996. The Draft

Design Package was completed in August 1996. The design documents were finalized in September 1997.

Construction of the interceptor/collection trench with a seawall was completed in March 1998. Documentation of construction activities was submitted in the Remediation Verification Report in May 1998 and finalized in September 1998. Operation and maintenance/performance monitoring is being conducted with quarterly reports provided routinely. As of June 2015, 27,547 gallons of product have been recovered with the extraction system. Based on product characterization performed in 2006, the recovered product contains 2.3 ppm of PCBs. A response action memorandum to document the removal action as the final action for this site was completed and signed in November 2010.

An Optimization Review was completed to evaluate the effectiveness of the barrier wall and product recovery system at Oscar 2 Pier. The rate of recovery had been slowing and there is still a small amount of product leaking into the harbor that has to be contained with booms and pompoms. The field work began in early CY2014 and was completed by June 2015. An Environmental Management Hazard Plan was completed in 2019 and concluded that the product recovery system was not effective in preventing fuel from migrating past the barrier wall. The extraction wells will be monitored periodically and if there is significant buildup, the oil will be extracted via pumps.

Though the site is within the area covered by the 1994 Federal Facilities Agreement (FFA) and fuel plume is known to contain PCBs, an agreement was made between Hawaii State Department of Health, the U.S. EPA, and the U.S. Navy in 2007 concerning the subsurface fuel sites that states that the subsurface fuel sites will not be subject to the terms of the 1994 FFA unless the source of the comingled PCBs becomes evident.

In August of 2020, the rate of LNAPL that was leaking past the wall increased considerably. Because of this increase, boom and pompom maintenance was increased to 3-4 time per week. A more substantial boom was installed in late 2020 and has been working effectively to contain any releases. The rate of leakage has slowed down, and as of October 2021, the rate of the leaking returned to approximately the leaking rate before August 2020. A project had been programmed in 2018 to investigate the leakage and to recommend alternatives to address the leakage. The product recovery system has become relatively useless as replacement parts for the machinery is no longer available and recovery rates have slowed. An EHMP was developed and finalized in November 2019 recommending continued quarterly well gauging, boom and pompom maintenance as needed and the pumping of fuel from the recovery wells when more than one foot of product was present. As of September 2022, the rate of leakage has slowed considerably.

D.5.3 Lower Tank Farm

In addition to the two aforementioned sites, the Navy is conducting a regional subsurface oil investigation in the Shipyard area under the SCP. Draft planning documents for site characterization of subsurface fuel was completed in December 2002 and finalized in November 2003. A draft addendum to the planning documents was completed in June 2005 with the final completed in October 2005. Field work began in early 2006. The RI, completed in March 2008, recommended no further action for all areas except for the Lower Tank Farm, Building 8, and some UST locations. The RI recommends evaluation of the southern extent of the product plume on adjacent Air Force property followed by a remedial alternatives evaluation. The recommendation for Building 8 is to continue operation of the existing recovery system and continue monitoring of the product plume. Further evaluation under the UST program is recommended for locations with suspected USTs or UST releases. A work plan addendum to the RI for investigation on the adjacent Air Force Property was finalized in March 2009. Field work began in 2009 and was complete in October 2009. Results were documented in an Environmental Hazard Evaluation/Management Plan that was published in September 2010. The site investigation and monitoring objectives of the 2008 RI have been achieved; TPH has been shown to be immobile and recovery of additional subsurface fuel is impractical, as it is bound to the underlying soil and volcanic risk. Implementation of administrative boundaries and notices will serve at the final remedy for the sites. The institutional Controls for this site were developed and agreed upon with HDOH in the Environmental Hazard Evaluation/Management for Subsurface Fuel, Shipyard Geographic Study Area, Pearl Harbor Naval Complex, Oahu, Hawaii finalized in September 2010.

D.5.4 LNAPL and PCBs on Groundwater

This site is located in the Controlled Industrial Area (CIA) in the PHNSY between Dry Docks #2 and #3. A construction project was underway at the site when, in February 2015, petroleum-contaminated soil or groundwater contaminated with LNAPL and PCBs was discovered while excavating as part of the project. In 2016 a Remedial Investigation project was awarded to investigate the nature and extent of the contamination.

Initial field work was completed and the Draft RI Report was delivered in July 2017. Comment resolution with EPA and HDOH generated additional concerns as levels of PCBs were found at higher levels than expected and the site in now being investigated as a possible source for the PCB contamination in the harbor sediments. The RI has been modified to include data collection to address the possible migration of PCBs to the harbor. Issues with getting access badges to the Controlled Industrial Area (CIA) for the subcontractors have caused delays in the field schedule. A draft FS has been completed and has been distributed for comments.

D.6 PHNC NAVAL BASE (NAVBASE) SUBSURFACE OIL

The PHNC NAVBASE Subsurface Oil SMP Group is composed of numerous sites located throughout various commands (i.e., NAVSTA, SUBASE, and FISC) associated with potential or confirmed releases of petroleum hydrocarbons. This SMP Group is located within the more highly industrialized areas of the PHNC (see Figure 4-1) in the Halawa-Main Gate GSA. Throughout the history of this area extensive ship repair and shore side fuel storage, handling, and transfer activities have resulted in fuel spills or leaks being released to the subsurface. As a result of these releases, free hydrocarbons, ranging from lighter diesel fuel to viscous Bunker C, are present in the shallow soil and groundwater throughout much of the PHNC.

This SMP Group has been the subject of two phases of an RI devoted to subsurface fuel releases. Recommendations presented in the initial Draft RI report (Ogden 1994b) for further response actions to characterize and address contamination detected during the RI or suspected to be present, were initiated with the start of Phase II of this project. Planning documents to further characterize the site were finalized in December 1995 and submitted in January 1996. The bulk of field work dictated by these planning documents was conducted from December 1995 through April 1996 with IDW disposal tasks extending through July 1996.

The Draft RI Report for Phase II was submitted in October 1996. The Final RI Report was submitted in October 1997. The report recommended removal actions to remove free product from five remedial action areas (RAAs), monitoring of free product levels and monitoring of VOCs at three selected areas. Monitoring of free product levels in RAAs 1, 6 through 10, and monitoring for VOCs in RAAs 11 through 13 was performed for four quarters (Sep 97, Dec 97, Mar 98, and Jun 98). A report summarizing these findings was finalized in November 1998. Monitoring for VOCs in RAAs 11, 12 and 13 were performed annually in June 1999, May 2000, February 2001, June 2002 and December 2003. Annual groundwater data packages were prepared in August 1999, August 2000, April 2001, October 2002, and March 2004. A Technical Memorandum for the Groundwater Monitoring and Recommendations for RAAs 11, 12 and 13 was prepared in June 2004. A Revised Groundwater Sampling and Monitoring Report for the Halawa Main Gate GSA was prepared in June 2004. Annual groundwater at RAA 12 (MW 25) and RAA 13 (MW 43) was conducted in June 2005. The revised Technical Memorandum for RAA 12 and 13 of June 2006 recommends continue groundwater monitoring and conduct investigative activities at MW 25 and discontinue monitoring at MW 43. Draft RI Work Plan for RAA 11 and RAA 12 was prepared in April 2006. Additional status information on this site is provided in Table D-2. Future discussions of RI for RAA 11 and 12 will be under Halawa Main Gate GSA as the site will not be administered under the SCP as are most of the subsurface oil sites (see Section D.23.1).

Table D-2 summarizes the RAAs and the removal actions that have taken place. Brief descriptions of the PHNC NAVBASE Subsurface Oil SMP Group sites and the results of any previous site investigations are provided in the following sections.

TABLE D-2
SUMMARY OF REMEDIAL ACTION AREAS
SUBSURFACE OIL INVESTIGATION

REMEDIAL ACTION AREA NUMBER	DESCRIPTION	STATUS
1	Hotel Pier	Construction of a fuel extraction system was completed in July 2001. Operation & maintenance of the extraction system was discontinued in 2004. In June 2009, the Hawaii Department of Health (HDOH) approved a conditional no further action that with the implementation of administrative notices at RAA-1, with continued performance monitoring. Performance monitoring is ongoing and administrative notices will be implemented. The product recovery system was physically removed in 2006 and the extraction sumps were closed in accordance with HDOH guidance for closing monitoring wells. In March of 2020, fuel began leaking into the harbor from this site. The fuel was characterized as a relatively fresh JP-5 fuel (i.e., not from the original plume investigated in the 1990s). It was discovered that one of the defuel lines was leaking and that line was shut down and removed from the system. The rate of fuel leaking has since slowed down to almost nothing. An ocean boom has been installed around the leaking areas, and absorbents are monitored and changed out as needed. The current assumption is that the leak has been stopped and the seepage to the harbor will eventually cease. The site is currently being managed by the NAVFAC HI Compliance program.
2	NEX Gas Station, Magazine Loch Area, and Tank 48	NEX Gas Station: Construction of a fuel extraction system was completed in 1996. Operation and maintenance of the extraction system was discontinued in 2007. Magazine Loch: Construction of a fuel extraction system was completed in October 2002. Operation and maintenance of the extraction system was discontinued in 2006. Based on 2006 product characterization results, 6.9 ppm of PCBs were detected in the recovered product. In June 2009, the HDOH approved a conditional no further action that with the implementation of administrative notices at RAA-2, with continued performance monitoring. Performance monitoring is ongoing and administrative notices will be implemented. In 2007, Tank 48 in the UTF was found to be leaking and an investigation was undertaken to determine if the fuel release would have an impact on the existing RAA-2 Fuel Plume. (Tank 48 is located above the existing RAA-2 Plume). The study determined that the fuel released was not affecting movement of the larger RAA-2 plume, so the Tank 48 site was incorporated into the monitoring that is already in place. The EHE/MP was updated in 2014 to include considerations for the 2007 fuel release from Tank 48 as part of the RAA-2 Plume.
3	Millican Field-EPMU-6 Area (Quarry Loch)	Construction of a barrier collection trench and fuel extraction system was completed in August 2002. Operation and maintenance/performance monitoring began in 2002 and was discontinued in 2004. In June 2009, the HDOH approved a conditional no further action that with the implementation of administrative notices at RAA-3, with continued performance monitoring. The product recovery system was removed in 2012. Performance monitoring is ongoing and administrative notices will be implemented.
4	AUT-Middle Tank Farm Area	Investigations at Millican Field failed to conclusively link the AUT as a source. The effectiveness of the removal action alternative for Millican Field will be assessed prior to determining future action. Long-term monitoring will be performed for RAA-4 to monitor plume movement towards Quarry Loch. In June 2009, the HDOH approved a conditional no further action that with the implementation of administrative notices at RAA-4, with continued

		performance monitoring at 5-year intervals. Monitoring was last performed in CY2019. Performance monitoring is ongoing and administrative notices will be implemented.
5	Ward Field Area	In June 2009, the HDOH approved a conditional no further action that with the implementation of administrative notices at RAA-5. No further action is necessary at this site, except for implementation of administrative notices.
6	Former Salt Pans Area	Product level monitoring was discontinued as recommended in the 1999 annual groundwater and product level report.
7	Neches Avenue Area	Being addressed as part of the removal action at Hotel Pier, RAA-1.
8	Service Station Area	Product level monitoring was discontinued as recommended in the 1999 annual groundwater and product level report.
9	Pierce Street Area	In June 2009, the HDOH approved a conditional no further action that with the implementation of administrative notices at RAA-5. No further action is necessary at this site, except for implementation of administrative notices.
10	Gabrunas Field Area	This RAA is being dealt with as part of the Millican Field (Quarry Loch) removal action at RAA-3.
11, 12, 13	Monitoring Wells 13, 25, 43	Periodic monitoring at RAA 11 (MW 13) and RAA 13 (MW 43) has been discontinued. NFA ROD signed in 2013for RAA 11 and RAA 13 with EPA. Groundwater monitoring at RAA 12 looking at VOC contamination started in the 1990's and has been periodically done to the present day. Right now the Navy has agreed to do semi-annual groundwater sampling at RAA 12 until the ROD is signed. The RAA 12 site started with the assessment at MW25 and now includes approximately 21 wells.

Per agreement with EPA and DOH in August 2008, RAA 1 through RAA 10, including sites with petroleum commingled with PCBs, will be managed under the SCP, outside the scope of the Federal Facilities Agreement (FFA). Environmental Hazard Evaluation/Management Plans (EHE/MPs) were finalized for the RAA 1 through RAA 10 in May 2009. The EHE/MP was updated in March 2014 to include information gathered during study of the 2007 fuel release from AST Tank 48. Based on information provided in the updated EHE/MP, HDOH approved a conditional no further action with the implementation of administrative notices at RAA-1 through RAA-10. RAA-1, -2, -3, and -4 also require continued performance monitoring. The EHE/MP had been updated to include an additional area of subsurface fuel adjacent to Bldg. 229 within RAA-4 in September 2010.

D.6.1 Upper Tank Farm

The Upper Tank Farm was constructed in 1923 and originally consisted of 17 aboveground storage tanks (ASTs). The Upper Tank Farm is bordered to the east by Kamehameha Highway, to the west by North Road, and to the north by Adit-1. Three of the original tanks, used to store Navy Special Fuel Oil (NSFO), were removed in 1940, and another eight tanks were removed in 1952.

(b) (3) (B) [redacted]

(b) (3) (B) [redacted]

Each tank in the area is surrounded by a recessed and compacted 25 to 30 foot earth berm that has been lined with a geotextile liner. During the installation of the liner in the Upper Tank Farm in 1996, MW-5, located within the berm area of Tank No. 48, was destroyed by the Navy contractor and was later replaced.

As reported in the Draft Subsurface Oil RI Report (Ogden 1994b), significant amounts of LNAPL product were observed in several Upper Tank Farm monitoring wells. Analytical results of 14 soil samples collected at the Upper Tank Farm indicated that the soil around Tank Nos. 48 and 54 were impacted with TPH. Elevated concentrations of PAHs such as 2-methylnaphthalene, naphthalene, fluorene, and phenanthrene were also reported from the locations with the highest TPH levels. Aroclor 1260 was detected in two samples. Among the metals, only arsenic, lead, and zinc were detected at maximum concentrations outside the related background ranges. Toluene, PCE, and ethylbenzene were detected at low concentrations in soil, while reported concentrations of acetone, bis(2-ethylhexyl)phthalate, 2-butanone, carbon disulfide, and methylene chloride were considered to be laboratory contaminants. LNAPL product, up to 4.95 feet in thickness, was observed in monitoring wells at several tank locations (Tank Nos. 46, 47, 48, and 54).

The risk screening results indicated that the maximum detected levels of Aroclor 1260, arsenic, and beryllium exceeded soil PRGs. However, beryllium was detected at concentrations within its respective site-specific background range, and therefore, was considered representative of background rather than site-specific contamination. Results from groundwater sampling conducted in Phase II are presented in the Phase II RI Report.

The Phase II RI Report identified the Upper Tank Farm as part of RAA – 2, which includes the Magazine Loch Area and the NEX Gas Station. A fuel extraction system was installed in 1997 at the NEX Gas Station. Product levels in the Upper Tank Farm monitoring wells are recorded quarterly and reported in the product recovery system monitoring reports for the NEX Gas Station removal action.

An additional removal action was under taken at the Magazine Loch area to address the oil plume extending beyond the reaches of the NEX Gas Station product recovery system. Construction of a low-permeability barrier wall with an interceptor/collection trench and a passive product recovery system was completed in October 2002. Operation and maintenance activities were discontinued at Magazine Loch and NEX Gas Station in 2006 and 2007, respectively. EHE/MPs were finalized in May 2009 for RAA-1 through RAA-10. Based on the EHE/MP, in June 2009, the HDOH approved a conditional no further action with the implementation of administrative notices at the site and continued performance monitoring for RAA-2. The EHE/MP was updated in March 2014 to include information gathered during study of the 2007 fuel release from AST

Tank 48. Performance monitoring is ongoing at 6 month intervals and administrative notices will be implemented.

D.6.2 Former Upper Tank Farm

The Former Upper Tank Farm area is located adjacent to and immediately south of the Upper Tank Farm, north of Makalapa Gate Road, and west of Kamehameha Highway. The area represents the original locations of the 11 tanks removed from the Upper Tank Farm. Three of the tanks were removed in 1940, and another 8 in 1952. All the tanks of the Former Upper Tank Farm previously stored NSFO. The present area is occupied by Bachelor Enlisted Quarters (BEQ), the Medical/Dental Clinic, and the Day Care Center.

Analytical results of 27 soil samples collected at the Former Upper Tank Farm for the first phase of the subsurface fuel RI indicated that there was minimal impact to the soil and the groundwater. TPH was detected at levels typical of Naval bases (Ogden 1994b). In addition, no elevated concentrations of metals above the detected background ranges were observed. Several PAHs were detected at low concentrations at one soil boring location. Xylenes and ethylene dibromide (EDB) were detected once. Other VOCs such as acetone, 2-butanone, and methylene chloride were attributed to laboratory contamination. Sporadic occurrences of detectable but unmeasurable product have been detected in monitoring wells located in the vicinity of this site and approximately 1.5 feet of LNAPL product was observed in one monitoring well. Results from groundwater sampling of Phase I monitoring wells and additional soil borings, monitoring wells, Strataprobe® borings, and microwells installed during Phase II field activities are presented in the Phase II RI Report.

The Phase II RI Report identified three Remedial Action areas, RAA-13, RAA-10, and RAA-3 that impact the former Upper Tank Farm. RAA-13 was annually monitored at MW-43 for VOCs as requested by EPA to assist in work prioritization. Further characterization of the VOCs will be conducted as part of the follow-on work to the SSR for the Halawa-Main Gate area.

RAA-10 and RAA-3 are being addressed as part of the removal action at Quarry Loch. The removal action includes the installation of a collection/barrier trench and a product recovery system, consisting of eleven sumps, five located within the trench and six located along the storm drain system. Construction of this system was completed in August 2002. Operation and maintenance of the product recovery system was conducted from August 2002 to December 2004. Operation was discontinued for reasons including, no free product has been observed in collection sumps and free phase product plumes have not shown movement towards the recovery systems or Quarry Loch since monitoring began in July 2002. An EHE/MP was finalized in May 2009 for RAA-1 through RAA-10. Based on the EHE/MP, in June 2009, the HDOH approved a conditional no further action with the implementation of administrative notices at the site and continued

performance monitoring at Quarry Loch. The EHE/MP was updated in March 2014 but the update only involved RAA-2 and didn't affect this site. Performance monitoring is ongoing (every 5 years) and administrative notices will be implemented.

D.6.3 Past Sludge Disposal Area, Upper Tank Farm (IAS-21a)

The Upper Tank Farm Former Sludge Disposal Areas are located in the Upper Tank Farm, directly adjacent to Tank Nos. 47, 48, and 54. According to the IAS (NEESA 1983), tank-bottom sludges were buried in excavated holes within the bermed area of each tank from the 1920s through 1978. Approximately 406,000 gallons of sludge were disposed of at the Upper Tank Farm during this period.

Suspected sludge disposal areas at the Upper Tank Farm, were identified in the IAS performed by NEESA in 1983. Also described in the IAS was a site referred to as the "Canyon Disposal Area," which is located within the boundary of the Upper Tank Farm. It was concluded that the sludge disposal areas were not a threat to human health or to the environment because the tank sludge contained only small amounts of lead and are buried; therefore, a confirmation study was not recommended at that time.

However, an SI was conducted at the Upper Tank Farm to further investigate the sludge disposal areas (HLA 1990). During the SI, a total of 21 test pits were excavated. Sludge encountered in six of the seven excavations was generally described as a black, sticky substance that oozed from the walls of the test pits. TPH was detected in all samples except for the sample collected near Tank No. 55. Carbon chain lengths of the hydrocarbons detected ranged from C9 to C24, suggesting a diesel source. Concentrations of BTEX were also detected. It was concluded that petroleum-related contamination was present within bermed areas surrounding Tank Nos. 47, 48, 54, and 55. The report recommended that further investigation at the four tank locations be conducted to identify and characterize the vertical distribution of contaminants, assess the pathways of contaminant migration, and identify the potential human and environmental receptors of the contamination.

As reported in the Draft Subsurface Oil RI Report (Ogden 1994b), trench soil samples were collected at the three former sludge disposal areas down to a depth of 5 feet below ground surface (bgs), where the sludge was found. TPH was detected in five soil samples analyzed. The highest TPH concentrations were detected in samples collected in the location of the former sludge pit near Tank No. 48. In addition, noncarcinogenic PAHs such as 2-methylnaphthalene, naphthalene, and phenanthrene were detected at elevated concentrations in the soil. In one soil sample tested, Aroclor 1260 was detected at 2 mg/kg at a depth of 4.5 feet bgs. Certain metals, such as copper, lead, mercury, silver, and zinc, were also found at elevated concentrations above the background ranges. There were no VOCs detected in the soil. Results of occurrences of PRG exceedance at

the Upper Tank Farm Former Sludge Disposal Areas were similar to the Upper Tank Farm. The maximum concentrations of arsenic and beryllium were within the site-specific background ranges and were not considered site-specific contaminants.

With the installation of the geotextile lining in the Upper Tank Farm area, these sludge pits were excavated and no longer exist. Stockpiled soil from excavation activities associated with the installation of the lining were sampled and tested in September 1995. Results obtained indicated the presence of TPH levels ranging from 32 ppm to 1,194 ppm, and PCB concentrations ranging from 0.14 ppm to 48 ppm. Based on these results, permission was obtained from the Office of Solid Waste Management, Solid and Hazardous Waste Branch, Environmental Management Division of the State of Hawaii Department of Health to dispose of the 9,100 cubic yards of contaminated soil in the Municipal Solid Waste Landfill located at Waimanalo Gulch in 1996.

This area is geographically part of RAA-2 where performance monitoring is ongoing. Due to the offsite removal of contaminants, no further action is planned.

D.6.4 Upper Tank Farm Canyon Disposal Area (IAS-23, NSC-13)

The Canyon Disposal Area is located along the western boundary of the Upper Tank Farm parallel to North Road and adjoining Tank Nos. 46-48. The trench was originally constructed circa 1923 and contained six to eight pipelines. These pipelines were originally connected to the tanks and were disconnected in the 1950s. The trench was subsequently used for the disposal of sludge generated during cleaning of the Upper Tank Farm ASTs during the 1970s. The trench was gradually filled in through the 1970s and completely filled around 1980.

Forty-three soil samples were collected from 11 borings in the area as part of the PHNC RFI (Ogden 1992c). Chemical analyses detected low to moderate levels of TPH within the deeper accessible portions of the trench in the Canyon Disposal Area, whereas shallow fill soil were noted to be relatively free of petroleum contamination. Metal concentrations were considered comparable with other fill soil identified at other RFI site locations.

During Phase II field activities, one additional monitoring well was installed near the western fence line of the site in order to address potential impacts from fuels at the site. Results obtained from soil sampling conducted during the installation of this monitoring well are presented in the Draft Phase II RI Report. Because of the presence of approximately 2 feet of product in the well, a product sample was collected and submitted to the Navy Fuel Lab for analysis, no groundwater samples were obtained.

This area is geographically part of RAA-2 where performance monitoring is ongoing. This area was also impacted by the installation of a geotextile liner in the Upper Tank Farm. Excavation of soil in the area removed the contamination. Therefore, no further action is planned.

D.6.5 Middle Tank Farm Tanks

The Middle Tank Farm is located west of Kamehameha Highway, along Makalapa Gate and North Road. The tank farm originally consisted of ten aboveground fuel storage tanks (ASTs), and was used to store kerosene, Stoddard solvent, diesel fuel, JP-5, and NSFO. Five of the tanks (Tank Nos. 29, 30, 31, 32, and 33) were removed in 1968. (b) (3) (B) [redacted]

An SI was conducted in 1990 to investigate suspected sludge disposal locations within bermed areas of the five tanks currently present (HLA, 1990). During the investigation, 48 trenches were excavated in suspected sludge disposal locations, but no sludge was encountered.

Analytical data from 21 soil samples obtained at the Middle Tank Farm during the first phase of the subsurface fuel RI indicate that VOCs, such as acetone, 2-butanone, and methylene chloride, were detected at low levels and may be associated with laboratory contamination (Ogden 1994b). Xylenes, acetone, and TPH were detected in the samples collected in and around the tanks themselves. No elevated concentrations of metals were detected, except for cadmium. Two monitoring wells contained measurable LNAPL product. The risk screening results indicated that only beryllium concentrations exceeded its soil PRG. Beryllium was, however, detected within the site-specific background range, and was considered to be representative of background rather than site-specific conditions. Results obtained from groundwater sampling of Phase I wells and soil samples collected from newly advanced Strataprobe® borings are presented in the Phase II RI Report.

A portion of the Middle Tank Farm, including Tanks 36, 37, and 38, was identified in the Phase II RI Report as RAA-4. Additional data was gathered as part of the removal action at Quarry Loch. However, the data did not definitively link the Middle Tank Farm as a source to the Quarry Loch storm drain oil releases. An EHE/MP was finalized in May 2009 for RAA-1 through RAA-10. Based on the EHE/MP, in June 2009, the HDOH approved a conditional no further action with the implementation of administrative notices at the site and continued performance monitoring at Quarry Loch. The EHE/MP was updated in March 2014, but the update did not change the requirements for this site. Performance monitoring is ongoing (every 5 years) and administrative notices will be implemented.

D.6.6 Former Middle Tank Farm

The Former Middle Tank Farm Area previously occupied by Tank Nos. 29-33, is located east of the Middle Tank Farm and is presently occupied by a large parking lot, BEQ, an activity center, and a bowling alley.

Analytical data from eight soil samples collected for the first phase of a subsurface fuel RI indicated the presence of TPH at concentrations typical for Naval bases (Ogden 1994b). Xylenes were detected once, at a very low concentration. Other VOCs detected at low levels were associated with laboratory contamination. A hydrocarbon sheen was detected in the five monitoring wells in this area, but no measurable LNAPL product was observed in these monitoring wells. Only the maximum detected level of beryllium exceeded the soil PRG. Because beryllium was detected within the site-specific background range, it was not considered a site-related contaminant.

Results obtained from groundwater sampling of Phase I wells and soil and groundwater samples collected from newly advanced borings and wells, respectively, are presented in the Phase II RI Report.

D.6.7 Abandoned Underground Tank (IAS-24, NSC-14)

The abandoned underground tank (AUT) site is located between the Middle Tank Farm and the Former Middle Tank Farm. Available site plans indicate that the AUT had a capacity of 193,600 barrels (8,130,000 gallons). According to the IAS, the AUT was used to store slop oil and NSFO during the early 1940s through 1977, when it was abandoned (NEESA 1983). It is believed that a significant portion of the waste stored in the tank was generated during routine cleaning and maintenance of large ASTs located in the Upper, Middle, and Lower Tank Farms (Gammon 1991).

In 1977, NSC relinquished control of the AUT to PWC Pearl Harbor for demolition. The demolition procedure consisted of drilling holes through the bottom slab and side walls for drainage, and collapsing the top ten feet of the side walls into the main portion of the tank. It was reported by NEESA (1983) that the tank contained approximately 126,000 gallons of semi-solid slop oil at the time of demolition, and that the soil near the tank was saturated with oil. Following demolition, the tank was filled with soil and the site was regraded.

An SI was performed at the AUT site in 1989. Results of chemical analysis of samples collected during the investigation indicated the presence of significant levels of hydrocarbons in soil and groundwater beneath the site. Maximum product thicknesses of 2.4 and 0.3 inches were measured in two monitoring wells. Hydrocarbon chain lengths found were characteristic of a diesel fuel source (carbon chain lengths between C11-C24). Detectable concentrations of BTEX, and four of the eight EP Toxicity metals (arsenic, barium, selenium, and silver) were also detected in the soil samples. The SI concluded that, because petroleum-related contamination was detected in soil and groundwater at the site, further investigation should be conducted to characterize the nature and extent of contamination, assess the pathways of contamination migration, and identify potential human and environmental receptors (HLA 1990).

As reported in the Draft Subsurface Oil RI Report (Ogden 1994b), 33 soil gas samples (including duplicates) were collected from 31 locations in the AUT area. Only three target analytes were detected: 1,1,1-trichloroethane (TCA), tetrachloromethane, commonly referred to as carbon tetrachloride (CCl_4), and PCE. TCA and CCl_4 were also detected in an ambient air sample. Analytical data from 12 soil samples collected at the AUT indicated that subsurface soil was impacted with noncarcinogenic PAHs and TPH. For metals, the maximum detected levels of cadmium and chromium were slightly above the upper background values, but did not appear to be a result of any site-related contamination. Product (LNAPL) thickness was observed to range from 0.01 to 0.02 feet to nearly 7 feet in thickness in monitoring wells located within the vicinity of the AUT. The only chemical detected in soil at a concentration that exceeded the soil PRG at this site was beryllium. Because beryllium was found within its respective background range, it was not considered a site-related contaminant (Ogden 1994b). Results obtained from groundwater sampling of Phase I wells are presented in the Phase II RI Report.

The AUT is identified as part of RAA-4 in the Phase II RI Report. Additional data was gathered as part of the RSE at Quarry Loch. Electromagnetic offset logging was performed to characterize the petroleum hydrocarbons. A summary of data is presented in the EE/CA for Quarry Loch. Geophysical data substantiate the RI findings that there is low potential for hydrocarbons to migrate away from the site based on geologic and hydrogeologic characteristics. An EHE/MP was finalized in May 2009 for RAA-1 through RAA-10. Based on the EHE/MP, in June 2009, the HDOH approved a conditional no further action with the implementation of administrative notices at the site and continued performance monitoring at Quarry Loch. The EHE/MP was updated in March 2014, but the update did not change the requirements for this site. Performance monitoring is ongoing (every 5 years) and administrative notices will be implemented.

D.6.8 Valve Chamber No. 2

(b) (3) (B) [redacted] VC-1 and VC-2, and along Arizona Street could be possible sources of the fuel contamination observed in this area.

As reported in the Draft Subsurface Oil RI Report (Ogden 1994b), TPH was detected in soil at concentrations ranging from 26 to 1,000 mg/kg. Detected concentrations of acetone, carbon disulfide, methylene chloride, and bis(2-ethylhexyl)phthalate were attributed to laboratory contamination. Arsenic was detected at maximum concentrations exceeding its PRG. These maximum arsenic levels, however, were well within the site-specific background range; therefore, arsenic was not considered a site-related contaminant. Results obtained from groundwater

sampling of Phase I wells are presented in the Phase II RI Report. This area was not identified as an RAA in the Phase II RI report. Therefore, no further action is planned.

D.6.9 Valve Chamber No. 3

(b) (3) (B) [redacted] As reported in the Draft Subsurface Oil RI Report (Ogden 1994b), TPH was detected in soil at concentrations ranging from 42 to 3,800 mg/kg. Low concentrations of PCE and xylenes were also detected. Detected acetone and 2-butanone concentrations were assumed to be laboratory contaminants. Arsenic was detected at maximum concentrations exceeding its PRG. These arsenic levels, however, were well within the site-specific background range; therefore, arsenic was not considered a site-related contaminant. Results obtained from groundwater sampling of Phase I wells are presented in the Phase II RI Report. This site is adjacent to the RAA-1 at Hotel Pier where a removal action consisting of collection sumps with belt skimmers and storm drain cut-off walls was constructed in 2001. This area is the site where fresh JP-5 began leaking in 2020. Current conditions are described above in Table D-2.

D.6.10 Valve Chamber No. 4

(b) (3) (B) [redacted]

As reported in the Draft Subsurface Oil RI Report (Ogden 1994b), seven soil samples in the VC-4 area were collected and analyzed. Minimal concentrations of TPH were detected in the soil samples. There was no evidence of metal contamination. Except for xylenes detected at a concentration of 8 mg/kg; detected VOCs such as acetone, carbon disulfide, and 2-butanone were attributed to laboratory contamination. Low levels of PAHs were also detected in one boring at a 4.5-foot depth. Arsenic was detected at maximum concentrations exceeding its PRG. These maximum arsenic levels, however, were well within the site-specific background range; therefore, arsenic was not considered a site-related contaminant. In addition, the maximum concentration of benzo(a)pyrene (0.53 mg/kg) at VC-4 was slightly above its corresponding PRG of 0.39 mg/kg.

Results obtained from groundwater sampling of Phase I wells and soil samples collected from one newly advanced Strataprobe® boring are presented in the Phase II RI Report. The Phase II RI Report did not identify any RAA for this site. Therefore, further action is not planned.

D.6.11 Valve Chamber No. 7

(b) (3) (B) [redacted]

As reported in the Draft Subsurface Oil RI Report (Ogden 1994) TPH was detected at concentrations ranging from 12 mg/kg to 13,000 mg/kg. Elevated concentrations of PAHs were also found at the same locations as the high TPH levels. A maximum acetone concentration of 5.1 mg/kg was detected. LNAPL product was observed in one monitoring well at a thickness of 0.35 feet. Arsenic was detected at maximum concentrations exceeding its PRG. These maximum arsenic levels, however, were well within the site-specific background range; therefore, arsenic was not considered a site-related contaminant.

Results obtained from groundwater sampling of Phase I wells and soil and groundwater samples collected from newly advanced borings and wells are presented in the Phase II RI Report. This area is adjacent to RAA-2 where removal actions have been conducted at the NEX Gas Station and at Magazine Loch. An EHE/MP was finalized in May 2009 for RAA-1 through RAA-10. Based on the EHE/MP, in June 2009, the HDOH approved a conditional no further action with the implementation of administrative notices with continued performance monitoring at RAA-2. Performance monitoring is ongoing (every 6 months for 3 years) and administrative notices will be implemented at RAA-2.

D.6.12 Adit 1

The Adit 1 Area is located north of the Upper Tank Farm (b) (3) (B) [redacted] This area includes the former PWC Hazardous Waste Storage Facility (Building 530), which was also the location of the former NSC Drumming Facility, a recreational baseball field, the Government Printing Office (b) (3) (B) [redacted], former underground surge tanks, two existing ASTs, two former lubrication oil ASTs, (b) (3) (B) [redacted]. The Adit 1 area was included as an area of concern for the second phase of the Pearl Harbor Subsurface Oil RI.

Results obtained from groundwater sampling of Phase I monitoring wells along with soil and groundwater samples collected from additional soil and Strataprobe® borings, monitoring wells, and microwells installed during Phase II field activities are presented in the Phase II RI Report. The Phase II RI Report identified RAA-6 and RAA-11 for further action. After conducting product level monitoring from Sept 1997 to June 1998, negative results led to the discontinuation of monitoring at RAA-6. Levels of VOCs, however, have continued at RAA-11 and MW-13. Annual

groundwater sampling for VOCs was conducted in June 1999, May 2000, February 2001, June 2002, and December 2003. Annual groundwater sampling for VOCs will discontinue, as agreed with EPA in September 2004. Investigation to further delineate the VOC concentrations at MW 13 is recommended. The additional investigation/delineation of the VOC concentrations at MW 13 will be addressed under the RAA 11 and 12, under section D.23.1.

D.6.13 Waste Oil Reclamation Facility (formerly Fuel Reclamation Facility (IAS-20, NSC-[01-10])

(b) (3) (B) [redacted] Based on the results of the initial Subsurface Fuel RI Report (Ogden 1994b), low levels of TPH and PAHs, such as benzo(a)anthracene, chrysene, fluorene, 2-methylnaphthalene, and phenanthrene, were detected in soil samples. The only VOC detected was acetone (considered a laboratory contaminant). Observable, but not measurable, LNAPL product was detected in the monitoring well installed in this area. The only potential contaminant present in soil at a maximum concentration that exceeded the soil PRG at this site was beryllium. Because beryllium was found within its respective site-specific background range, it was not considered a site-related contaminant.

Results obtained from groundwater sampling of Phase I monitoring wells and soil and groundwater samples collected from additional Strataprobe® borings and monitoring wells installed during Phase II field activities are presented in the Phase II RI Report. This area is adjacent to RAA-2 where removal actions have been conducted at the NEX Gas Station and at Magazine Loch.

D.6.14 NEX Gas Station (formerly PWC Gas Station)

The PWC Gas Station Site (Building 1326), constructed in 1953, is an operating facility situated on North Road. The gas station is currently known as the NEX Gas Station. (b) (3) (B) [redacted] One of the unleaded gasoline USTs failed a precision tank tightness test conducted in 1988. This event lead to a subsurface investigation at the site, which consisted of drilling and sampling of soil borings and installation of three groundwater monitoring wells. The investigation indicated the presence of approximately 8 feet of LNAPL product.

Subsequent subsurface investigation consisting of drilling and sampling of soil borings, installation and sampling of monitoring wells, and hydraulic testing of the shallow water table aquifer present beneath the gas station area was conducted. The investigation concluded that components of diesel and gasoline fuels are widely distributed in soil and groundwater at the PWC

Gas Station (PRC 1990). The report recommended that additional investigations be performed to locate sources of contamination in the area and to further define the extent of contamination.

An RSE was performed at the PWC Gas Station in September 1992 to evaluate remediation schemes for extraction of LNAPL product from the shallow unconfined aquifer at the gas station. The RSE also consisted of a pilot-scale extraction test which involved pumping groundwater and skimming fuel product for a period of approximately 36 days. The results of the multi-phased investigation indicated that the pilot-scale extraction system was effective in recovering LNAPL from the water table aquifer at the PWC Gas Station. It is anticipated that this type of extraction system could be used in other areas of the PHNC, specifically in areas with shallow, unconfined, tidally-influenced aquifers of relatively permeable fill soil.

Analytical data from the first phase of the subsurface fuel RI (Ogden 1994b) suggests that the subsurface soil at the site has been impacted. Soil gas samples were collected from 13 locations at the PWC Gas Station site, and total volatile hydrocarbons (TVH), BTEX, and the chlorinated hydrocarbons TCE and PCE were detected. TPH was detected in five soil samples at a maximum concentration of 3,200 mg/kg. High levels of benzene, ethylbenzene, xylenes and noncarcinogenic PAHs, such as 2-methylnaphthalene, fluorene, and phenanthrene, were also detected. Other VOCs, such as acetone and 2-butanone, were detected at low levels but were considered to be laboratory contaminants. Chemicals present in soil at levels that exceeded the soil PRGs at this site included arsenic and benzene. Arsenic was present at a maximum level above its respective site-specific background range and was not considered as representative of background.

Results obtained from groundwater sampling of Phase I monitoring wells and soil samples collected from one additional Strataprobe® boring installed during Phase II field activities are presented in the Phase II RI Report. The Phase II RI Report identified this site as part of RAA-2.

A removal action was conducted in 1997 to install a groundwater drawdown/LNAPL removal system. Documentation of construction activities was submitted in the Remediation Verification Report in May 1997. Operation and maintenance/performance monitoring was conducted with quarterly reports provided routinely.

Because the product plume appeared to be beyond the influence of the fuel extraction system, additional investigation was performed and an EE/CA, AM, and design documents were completed for the Magazine Loch removal action. Construction of a low-permeability barrier wall with an interceptor/collection trench and a passive fuel oil recovery system was completed in October 2002. Operation and maintenance activities were discontinued at Magazine Loch and NEX Gas Station in 2006 and 2007, respectively. The product recovery systems at both sites have been removed. The barrier wall and collection sumps at Magazine Loch are still in place and the collection sumps are monitoring points for the semiannual monitoring of RAA-2. An EHE/MP

was finalized in May 2009 for RAA-1 through RAA-10. Based on the EHE/MP, in June 2009, the HDOH approved a conditional no further action with the implementation of administrative notices with continued performance monitoring at RAA-2. The EHE/MP was updated in March 2014 and additional wells were added to the monitoring program for RAA-2 based on the results of the study performed. The monitoring periods did not change and performance monitoring is ongoing at 6-month intervals and administrative notices are being implemented at RAA-2.

D.6.15 Gas Station

The Service Station Area is located west of North Road, the area includes the site of the former SUBASE Service Station, a portion of the former Upper Tank Farm, and the Diesel Purification Plant.

As reported in the Draft Subsurface Oil RI Report (Ogden 1994b), analytical data from subsurface samples collected in the vicinity of the former SUBASE Service Station indicated the presence of diesel, MOGAS, and lube oil. The soil gas analytical data indicated the presence of the chlorinated compounds PCE and TCE, possibly associated with degreasing.

Results obtained from groundwater sampling of Phase I monitoring wells along with soil and groundwater samples collected from additional soil and Strataprobe® borings and monitoring wells and microwells, respectively, installed during Phase II field activities are presented in the Phase II RI Report.

The Phase II RI Report identified RAA-8 for further monitoring. After a year of product level monitoring, negative results led to the recommendation to discontinue monitoring. A portion of this area is included as part of RAA-2. RAA-8 is being addressed as part of the removal action at Magazine Loch. Construction of a low-permeability barrier wall with an interceptor/collection trench and a passive fuel oil recovery system was completed in October 2002 at Magazine Loch. Operation and maintenance activities were discontinued at Magazine Loch and NEX Gas Station in 2006 and 2007, respectively. An EHE/MP was finalized in May 2009 for RAA-1 through RAA-10. The EHE/MP was updated in March 2014 and additional wells were added to the monitoring program for RAA-2 based on the results of the study performed. The monitoring periods did not change and performance monitoring is ongoing at 6-month intervals and administrative notices are being implemented at RAA-2.

D.6.16 Halawa Service Station

The Halawa Service Station is located south of and adjacent to Halawa Stream, along Arizona Street. During the time frame of the Draft RI Report (Ogden 1994b), the site consisted of a vacant concrete pump island and an elevated concrete pad. Vent pipes for one 5,000-gallon UST and one 8,000-gallon UST were visible immediately east of the concrete pad.

As reported in the Draft RI Report (Ogden 1994b), eight soil samples were collected and analyzed from this site. The results indicated low levels of TPH in the soil. No elevated concentrations of metals were detected in the soil. Noncarcinogenic PAHs, such as 2-methylnaphthalene, naphthalene, fluorene, phenanthrene, and pyrene were detected at low levels. PCE, TCE, 1,2-DCE were detected at concentrations ranging from a few mg/kg to less than 200 mg/kg. The VOCs acetone, 2-butanone, and carbon disulfide were detected at very low concentrations but were attributed to laboratory contamination. Sporadic occurrences of LNAPL product was detected in two monitoring wells. The only potential contaminant detected in soil at a maximum level that exceeded the soil PRG was arsenic, which was found within its respective background range and was not considered a site-related contaminant.

Results obtained from groundwater sampling of Phase I monitoring wells along with soil and groundwater samples collected from additional Strataprobe® borings and monitoring wells, respectively, installed during Phase II field activities are presented in the Phase II RI Report. In June 1996 the 5,000 and 8,000 gallon USTs were removed. The Phase II RI Report did not identify any RAAs in this area. Therefore, no further action is planned.

D.6.17 Building 60, Sludge Disposal Pit Diesel Purification Plant

The Former Diesel Purification Plant Area is located to the west of the Upper Tank Farm. It is bordered on the west by Magazine Loch and to the north by the PWC Gas Station. The Diesel Purification Plant was used to remove contamination (i.e., water, particulates) from diesel fuel. The area is covered by a mixture of concrete, asphalt, and landscaped grass and shrubs.

The Draft Subsurface Oil RI Report (Ogden 1994b) states that the area has been impacted by TPH. In addition, noncarcinogenic PAHs, such as naphthalene, 2-methylnaphthalene, dibenzofuran, fluorene, and phenanthrene, were detected at elevated concentrations at the same location and depth as the highest TPH levels. Detected acetone was attributed to laboratory contamination. Slightly elevated concentrations of metals were detected in one soil boring. Maximum detected levels of lead and mercury are outside the upper background ranges. Measurable LNAPL product (0.65 feet in thickness) has been observed in one well. Contaminants that were detected in soil at levels that exceeded the PRGs at this site included arsenic and beryllium. These analytes were present at levels within the site-specific background ranges, and are thus were not identified as site-related contaminants.

Results obtained from groundwater sampling of Phase I monitoring wells along with soil and groundwater samples collected from additional Strataprobe® borings and microwells, respectively, installed during Phase II field activities are presented in the Phase II RI Report. This area is part of the free product plume being addressed in RAA-2. Construction of a low-permeability barrier wall with an interceptor/collection trench and a passive fuel oil recovery

system was completed in October 2002 at Magazine Loch. The operation and maintenance of the product recovery system was conducted between March 2002 and April 2006. The product extraction system operation was discontinued because no significant product recovery was occurring. The product extraction system was removed in 2011 but the collection sumps are still in place and used as monitoring points for the semiannual monitoring. An EHE/MP was finalized in May 2009 for RAA-1 through RAA-10. The EHE/MP was updated in March 2014 and additional wells were added to the monitoring program for RAA-2 based on the results of the study performed. The monitoring periods did not change and performance monitoring is ongoing at 6-month intervals and administrative notices are being implemented at RAA-2.

D.6.18 Merry Point Old Diesel Purification Plant

The Merry Point Area is located west of the Middle Tank Farm (and Former Middle Tank Farm). This area includes the Merry Point Peninsula area (bounded to the west by Merry Loch, to the north by Quarry Loch, and to the south by North Road), the Former Merry Point Diesel Purification Plant, an existing lubrication oil storage facility, a former boiler and pump house building, and a portion of an area to the north of Quarry Loch.

Results obtained from groundwater sampling of Phase I monitoring wells along with soil and groundwater samples collected from additional soil and Strataprobe® borings, monitoring wells, and microwells installed during Phase II field activities are presented in the Phase II RI Report. This area was not identified as an RAA so no further action is planned.

D.6.19 Millican Field (Quarry Loch)

The Millican Field Area is bordered to the west by Quarry Loch, to the east by the Former Upper Tank Farm, and to the south by the Middle Tank Farm. The area includes Millican Field, a portion of the Middle Tank Farm, the Environmental Preventive Maintenance Unit No. 6 (EPMU-6), a portion of the Former Upper Tank Farm, and a portion of Gabrunas Field.

A subsurface investigation was conducted in 1989 (Geolabs-Hawaii 1989) to delineate the extent of petroleum contamination in the vicinity of Quarry Loch. LNAPL product was observed in a deep gray silty sand at or near the depth of the water table in 35 of 52 borings. Traces of LNAPL product were observed in 14 of the borings from the same lithologic unit, but no LNAPL product was observed in the overlying fill unit.

As reported in the RI Report (Ogden 1994b), seven soil samples collected at Millican Field did not show significant contamination. Detected TPH concentrations ranged from 45 to 1,300 mg/kg. Only one PAH, fluorene, was detected in the soil samples, at a low concentration of 0.15 mg/kg. Other compounds found at low concentrations were attributed to laboratory contamination. In addition, no LNAPL product was detected in the existing monitoring well located at this site. The

potential contaminants found in soil at levels that exceeded the PRGs at this site included arsenic and beryllium. These analytes were found at levels within their respective site-specific background ranges, however, and are not identified as site-related contaminants.

Results obtained from groundwater sampling of Phase I monitoring wells along with soil and groundwater samples collected from additional soil and Strataprobe® borings, monitoring wells, and microwells installed during Phase II field activities are presented in the Phase II RI Report. The RI report identified this area as RAA-3 and recommended that removal actions be taken to prevent migration of free product through the storm drain system into Pearl Harbor. Final planning documents for a removal action were submitted in October 1997. Field work consisted of a geophysical survey to delineate the plume, and direct push confirmation sampling, and sampling for engineering design data. An EE/CA, Action Memorandum, and design documents have been completed.

Millican Field is also where the EPA and Navy are in a partnership to demonstrate innovative technologies as part of the EPA Superfund Innovative Technology Evaluation (SITE) Program. Two product removal technologies, surfactant-enhanced and electro-heating, were tested, evaluated, and compared to two conventional technologies, belt-skimming and vacuum enhanced belt-skimming. The demonstration began in September 1998 and ended in August 1999. Aquifer testing was performed in June 2000 in support of the electroheating demonstration. These technologies were considered in the EE/CA as secondary technologies. The EE/CA was finalized in March 2000 and recommended extraction sumps along existing storm drain lines with a barrier trench. Construction of a collection/barrier trench and product recovery system with sumps both within the trench and along the storm drain system was completed in August 2002. Operation and maintenance of the product recovery system was conducted from August 2002 to December 2004. Operation was discontinued for reasons including, no free product has been observed in collection sumps and free phase product plumes have not shown movement towards the recovery systems or Quarry Loch since monitoring began in July 2002. An EHE/MP was finalized in May 2009 for RAA-1 through RAA-10. Based on the EHE/MP, in June 2009, the HDOH approved a conditional no further action with the implementation of administrative notices with continued performance monitoring at Quarry Loch. The passive product recovery approach using absorbent socks was discontinued in 2009 based on HDOH's conditional no further action. Performance monitoring is ongoing (every 5 years) and administrative notices are being implemented at Quarry Loch.

D.6.20 Fuel Corridor Pipelines (IAS-29)

As shown in Figure 4-1, the fuel corridor pipelines are located throughout the PHNC. Potential impacts from both inactive pipelines and historical spills from active pipelines will be addressed as part of this SMP group. The practice of in-place abandonment of inactive fuel pipelines was identified in the IAS (NEESA 1983). In the IAS, NEESA did not recommend further action for

the pipeline system; however, this recommendation was based only upon the potential for the inactive pipelines to contribute significant risk to potential receptors. Because previous investigations identified fuel of unknown origin beneath many areas around the PHNC, the fuel corridor system is being assessed under SMP Group 6 activities.

Results obtained from groundwater sampling of Phase I monitoring wells along with soil and groundwater samples collected from additional soil and Strataprobe® borings, monitoring wells, and microwells installed during Phase II field activities are presented in the Phase II RI Report. Product plumes have been isolated into remedial action areas in the Phase II RI Report and actions are being planned and undertaken within each RAA (see Table D-2).

D.6.21 Environmental Preventive Medicine Unit No. 6

The area located on the corner of Makalapa Gate Road and North Road presently occupied by the EPMU-6 facility has been a part of a major complex of aboveground and underground fuel storage tanks since 1923. The EPMU-6 property was formerly occupied by Pump Houses (PH) 91 and 91A and a 20-foot by 15-foot unlined oily waste pit.

A PA was conducted in February 1990 (ERCE 1990). Results of the PA indicated the need for further investigation at the site to assess the potential for hazardous substance release at or near the site, the types of contaminants released, the potential risk to receptors posed by identified contaminants, and potential contamination migration pathways.

An SI was conducted during November 1990 through February 1991 (ERCE 1991) which consisted of drilling and sampling nine shallow soil borings in the vicinity of the EPMU-6 facility and installation of four monitoring wells. Thick, viscous LNAPL product was observed during drilling and sampling activities in soil and groundwater underlying the EPMU-6 facility and neighboring Gabrunas Field. No product thickness measurements were possible due to the extremely viscous nature of the product. Elevated levels of TPH were detected in 18 of the 20 soil samples collected and measurable levels of TPH were present in six of nine borings. The PCB congener Aroclor 1260 was detected at concentrations near the analytical laboratory reporting limit. VOCs and SVOCs were also detected in soil samples collected from nearly every boring and in each of the four groundwater samples collected. Aroclor 1260 was detected in one groundwater sample and it's duplicate. A conclusion of the SI was that LNAPL product present in the shallow subsurface was apparently being transported by groundwater movement to the areas where oil seepage has been observed. The SI included the recommendation that further investigation at the EPMU-6 site be conducted under the subsurface oil RI.

As reported in the Draft Subsurface Oil RI Report (Ogden 1994b), analytical data from five soil samples collected at this site showed TPH levels typical of Naval bases. All detected pesticides,

such as 4,4'-DDE, endosulfan II, endosulfan sulfate, and endrin ketone were detected at low levels. Beryllium exceeded the soil PRG, but because this analyte was found within its respective site-specific background range, it was not considered a site-related contaminant.

Results obtained from groundwater sampling of Phase I monitoring wells along with soil and groundwater samples collected from additional Strataprobe® borings and microwells installed during Phase II field activities are presented in the Phase II RI Report. This report identified this area as part of RAA-3. An EE/CA, AM, and draft design documents have been prepared as part of removal action at Quarry Loch. Construction of a collection/barrier trench and product recovery system with sumps both within the trench and along the storm drain system was completed in August 2002. Operation and maintenance of the product recovery system was conducted from August 2002 to December 2004. Operation was discontinued for reasons including, no free product has been observed in collection sumps and free phase product plumes have not shown movement towards the recovery systems or Quarry Loch since monitoring began in July 2002. An EHE/MP was finalized in May 2009 for RAA-1 through RAA-10. Based on the EHE/MP, in June 2009, the HDOH approved a conditional no further action with the implementation of administrative notices with continued performance monitoring at Quarry Loch. The passive product recovery approach using absorbent socks was discontinued in 2009 based on HDOH's conditional no further action. Performance monitoring is ongoing (every 5 years) and administrative notices are being implemented at Quarry Loch.

D.6.22 Hotel Pier

Hotel Pier was identified as Remedial Action Area –1 (RAA-1) in the RI Report (Ogden 1997). The RI identified a subsurface product plume adjacent to the Hotel Pier and centered on Neosho Avenue crossing Oklahoma Street. The plume was estimated to be approximately 500 feet in length and 120 feet in width, with a thickness of 0.06 feet. The petroleum hydrocarbons present in the plume appear to be weathered diesel (naval distillate F-76) and residual oil. It is believed that the source of the plume may be from past product leakage at Valve Station 3 or subsurface product fuel lines centered on and parallel to Neosho Avenue. Continued monitoring of free product levels and a removal action were recommended in the Hotel Pier area.

Draft planning documents for a removal action were submitted in June 1998 and were finalized in October 1998. Field work for additional site characterization occurred from January to April 1999. An EE/CA was submitted in July 1999 and was finalized in November 1999. It recommended repairing the storm drainage system and installing collection sumps and skimming equipment for product removal. The design was completed in June 2000 and construction of the system was accomplished in 2001. Operation and maintenance of the product recovery system was conducted from July 2001 to September 2004. The product extraction system operation was discontinued because no significant product recovery was occurring. An EHE/MP was finalized in May 2009

for RAA-1 through RAA-10. Based on the EHE/MP, in June 2009, the HDOH approved a conditional no further action with the implementation of administrative notices with continued performance monitoring at RAA-1 (Hotel Pier). The passive product recovery approach using absorbent socks was discontinued in 2009 based on HDOH's conditional no further action. Performance monitoring is ongoing and because of the results of the monitoring, the frequency has been reduced to monitoring at 5-year intervals. Administrative notices are also being implemented at RAA-1 (Hotel Pier).

In March 2020, fuel was noted to be leaking from an area near an abandoned pipeline that terminated at the wall on the north end of the site that borders Halawa Stream. The fuel appears to be fresh diesel/jet fuel. An investigation identified a 6" defuel line as leaking. That line was taken out of service and, subsequently, the rate of leakage has slowed to almost nothing. An ocean boom was installed around the leak areas and booms and absorbents are in place to contain the leaking.

D.6.23 Pierce Street Area (RAA-9)

As a result of the Subsurface Fuel RI, an oil plume was identified in the vicinity of Pierce Street, predominantly located to the north of Quarry Loch in the former SUBASE area. Total petroleum hydrocarbon constituents in soil are in the diesel range with some lubrication oil range near the northwestern edge of the plume. Product monitoring between September 1997 and June 1998 resulted in the appearance of a highly viscous product in MW-106 during the last two quarters. Planning documents for a removal site evaluation was completed in October 2002 with field work completed in March 2003. A draft removal action report (RAR) was submitted in December 2003 and finalized in June 2004. The report recommended placement of oil-absorbent socks in wells where free product was observed since 1997 and collection of product thickness measurements in monitoring wells at RAA-9. Product thickness measurements were to continue for a period of one year after socks were no longer recovering free product. An EHE/MP was finalized in May 2009 for RAA-1 through RAA-10. Based on the EHE/MP, in June 2009, the HDOH approved a conditional no further action with the implementation of administrative notices at RAA-9. The passive product recovery approach using absorbent socks was discontinued in 2009 based on HDOH's conditional no further action. No further action is necessary at this site, except for implementation of administrative notices.

D.6.24 Ward Field (RAA-5)

A free product plume in the vicinity of Ward Field, to the southeast of Merry Loch, was identified in the Subsurface Fuel RI. The composition of the product plume varies from a mixture of lubrication oil and diesel to a mixture of diesel and kerosene. Planning documents for the removal site evaluation and field work were completed in 2005. The RAR was completed in 2006. The

report recommended product removal from monitoring MW111 followed by installation of absorbent socks with an estimated maintenance duration of one year. An EHE/MP was finalized in May 2009 for RAA-1 through RAA-10. Based on the EHE/MP, in June 2009, the HDOH approved a conditional no further action with the implementation of administrative notices at RAA-5 (Merry Loch). The passive product recovery approach using absorbent socks was discontinued in 2009 based on HDOH's conditional no further action. No further action is necessary at this site, except for implementation of administrative notices.

D.7 NAVAL SHIPYARD SITES

This SMP Group currently consists of five sites located within the Shipyard GSA as shown in Figure 4-1. These sites, referred to as the Building 394 Battery Acid Disposal Pit, Asbestos Contaminated Shoreline, Foundry Shop - Building No. 6, the Transportation Yard, and Oscar-1 Pier Shoreline are briefly described below. In addition, a draft final SSR, which identified additional potential release locations (PRLs) or sites within the Shipyard GSA (GSA) was completed in November 2001. (The draft SSR was completed in 1997. Based on regulatory comments, individual SSRs were prepared for each GSA.). The final SSR for the Shipyard GSA was completed in August 2003 based on regulatory comments received on the draft final. Comments on the final were addressed with EPA between 2004 and 2005. In March 2005, EPA provided a letter stating there were no further comments on the SSR. The revised final SSR was completed in April 2005. In June 2007, EPA provided a letter concurring with the Navy on sites recommended for NFA in the SSR.

A focused SI was performed at the former Building T25 and former Sump Underlying Plating Tanks at Building 67 sites, and the report (April 2005) recommended that further investigation is needed.

A follow-on SI was conducted for the former Building T25 site in 2011 and a Final Report submitted in December 2011. A final regulatory concurrence with a status of unconditional No Further Action for the site was received by the Navy on April 6, 2012.

D.7.1 Building 394 Battery Acid Disposal Pit Site

This site is located southwest of the intersection of Central Avenue and Port Royal Street (formerly called Seventh Street) immediately west of Building 394 (see Figure 4-1). This site consisted of an open-air "battery shop" facility used to clean, disassemble, and restore lead-sulfuric acid submarine batteries. Between 1960 and 1980, an estimated 60,000 gallons of spent battery acid fluid were discharged to an unlined settling pit in the western portion of the site. While the pit was in operation, lead residues from battery disassembly operations were reportedly also disposed in the pit.

Previous investigations at Building 394 include the IAS, and an SI conducted by Argonne National Laboratories (ANL) in 1990. In the IAS report, NEESA indicated that the "site is not a threat to human health or to the environment," and recommended against performing a confirmation study. However, in an effort to address renewed potential concerns about threats that the site may pose to human health and the environment, an Expanded SI (ESI) was conducted by ANL on behalf of the Navy. Lead was detected in every sample collected during the ESI, at concentrations ranging from 3.8 to 241,000 mg/kg.

In response to the results of the ESI, an RI was conducted that included collection of soil and groundwater samples and assessment of hydraulic aquifer characteristics. Lead was detected in 57 soil samples collected during the RI at concentrations ranging from 1.4 to 54,000 mg/kg. Lead was detected in only one groundwater sample at an estimated concentration of 7.7 µg/L. Chromium was also detected in an offsite monitoring well, but is believed to be associated with a former plating facility located northwest of Building 394.

A Removal Action was initiated to address lead contamination present at the Building 394 site. The Draft RSE planning documents were submitted in March 1995. Regulatory agency comments were received in September 1995 and the documents were finalized in October 1995. During this same period, a "time-critical" Removal Action to implement dust-control measures along with removal of the waste acid underground tank, two aboveground tanks, and associated piping was performed. The site was covered with plastic sheeting over which 3 to 6 inches of gravel was placed. This work was completed on October 6, 1995.

Following approval of the RSE planning documents, field work was initiated in April 1996 and was completed the next month. Surface soil and subsurface soil samples were collected and analyzed onsite by x-ray fluorescence methods for lead. In addition, 20 percent of these samples were analyzed by CLP methods for lead and 5 other metals (requested by the EPA based on the indictment and conviction of the laboratory used during the RI). On June 28, 1996, the Navy participated in a conference call with the EPA and the DOH to agree upon a cleanup goal for the site. The EPA requested that the Navy use an industrial-scenario model distributed by EPA Headquarters for use at all CERCLA sites nationally for assessing blood lead levels in adults, resulting in a cleanup goal of 2,000 mg/kg. This level was accepted for the Building 394 Removal Action and was used to assess the lateral and vertical extent of contamination.

The Draft EE/CA Report was submitted in October 1996 and a notice of availability for public comment was published in November 1996. The EE/CA Report was finalized in February 1997. Approximately 1,500 cubic yards of lead-impacted soil was to be addressed by a Removal Action. The EE/CA recommended an innovative technology, in situ electrokinetics, for the removal action alternative. The Navy worked with the U.S. EPA Superfund Innovative Technology Evaluation (SITE) Program for demonstration of this technology on site. During efforts to test and

demonstrate the in-situ electrokinetics system it was determined that the in-situ system could not get adequate hydraulic control. Therefore, the demonstration of the in-situ system would not be performed and a pilot scale ex-situ system was proposed (January 2001). The pilot scale test for the ex-situ system was evaluated by the Navy and SITE Program. The pilot scale test was completed in July 2002 and the draft evaluation report was completed in September 2002. The final evaluation report was completed in January 2004. It was determined at that the in-situ system would not be appropriate for the site.

An addendum to the EE/CA was planned for 2006 to evaluate alternate removal actions, of soil stabilization, and capping. Based on discussion with U. S. EPA in early 2007 the Remedial Action process would be more appropriate for this site instead of the Removal Action process. It was determined that the site needed to be delineated for the unrestricted land use scenario so that the remedial action alternatives could be adequately evaluated. Therefore, a RI addendum will be completed along with the FS.

In April 2008, a Draft WP for an Amended RI/FS was completed. This work plan discussed the additional surface and subsurface soil sampling required to properly delineate the lead-contaminated soil at the site. Plant tissue from plants in the area will also be analyzed to determine if uptake of the lead contamination is occurring at the site. The Final WP, Amended RI/FS for Building 394 was finalized in October 2008. Field work was performed and the results forwarded for review in the Draft Consolidated Data Package from the Amended RI/FS Final Work Plan (August 2009).

Based upon the results of the Final WP, a Time-Critical Removal Action (TCRA) was performed to cover select areas of soils with elevated lead concentrations with concrete. The Action Memorandum for the TCRA (endorsed by Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility) was completed in August 2009.

In 2010 discussions with the Navy and DOH, the EPA commented that previous site activities may have opened potential soil to groundwater pathways; and they requested collection of additional groundwater data to characterize the current condition of groundwater at the project site.

A Sample Work Plan Addendum focusing on the requested groundwater sampling was developed and a draft submitted in July 2010. Groundwater sampling was conducted in May 2011 with results showing no significant impact to groundwater underlying the site and confirming previous sampling results.

The groundwater results were made part of a RI/FS report finalized in June 2012. The RI/FS determined that lead-impacted soil occurs throughout the project site. The majority of lead-impacted subsurface soil is located in the central area of the western portion of the site, near the

former waste acid pit and tank area. Sample areas with elevated soil lead concentrations in the north portion of the site currently remain uncovered. Furthermore, the RI/FS confirmed that ground cover in the area outside of the fence to the south of the project site is limited to soil and gravel; therefore, the potential for exposure to impacted soil remains in this area. The RI/FS also determined that concentrations in groundwater are below the project action levels (PALs) and, therefore, no further action was proposed for groundwater.

The Final RI/FS recommended a Non-Time Critical Removal Action (NTCRA) consisting of an impermeable cover for the site in conjunction with Land Use Controls (LUCs) to be enacted upon completion of the NTCRA. The choice of NTCRA and LUCs as selected response action for the site was documented in an Action Memorandum (AM) finalized in January 2013.

The AM summarizes human and ecological risks, removal action objectives, ARARs, and a recommended removal action alternative for the site. The NTCRA cover was completed in a manner consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) on the basis of findings of potentially unacceptable human exposure and risk if the site is developed and used for recreational purposes.

Designs and specifications for the cover were prepared under a Performance Design Package (PDP) finalized in May 2013. Cover installation was initiated in March 2014 and completed in August 2014 with final Navy acceptance of the cover on August 27, 2014. The Final Architect/Engineer Inspection Report was finalized in October 2014 and the Final Removal Action Verification Report (RVR) documenting the cover installation was completed in April 2015.

The Final Proposed Plan (PP) was submitted on Ju1y 22, 2015. A public meeting for the PP was held on August 4, 2015 at the Aiea Elementary School Cafeteria. The public comment period for the PP was held between July 20, 2015 and August 18, 2015. The Draft Record of Decision (ROD) was submitted on December 16, 2015 and a Draft Final ROD was submitted on November 23, 2016.

A Final Work Plan for collection of additional lead soil samples in an unpaved area north of the site to evaluate/refine the proposed site LUC boundary was submitted in June 2020, and the sample collection was conducted in October 2020. Based on the October 2020 lead data, additional soil sampling will be required to evaluate the unpaved area. A Draft Work Plan Update for the collection of additional samples was submitted on December 13, 2021. The additional information will be incorporated into a technical memorandum and included as an appendix in the ROD.

D.7.2 Asbestos-Contaminated Shoreline

This site is located northwest of Dry Dock No. 3 and consists of an area approximately 800 feet long and 8 feet wide. The site is unpaved and partially vegetated. On November 15, 1993 NAVSHIPYD workers discovered an unknown quantity of asbestos containing material (ACM) buried beneath the shoreline's soil embankment. Immediately following this discovery, the area was cordoned off and sprayed with asbestos encapsulation material.

The exact origin of the ACM at the site is unknown and asbestos-related work is not currently performed in this area. Additionally, there was no information indicating the disposal of other hazardous wastes or chemicals at the site. In June 1995, a Site Evaluation was conducted. Surface soil and debris samples were collected and analyzed for asbestos contamination. The results indicated that asbestos contamination was not present in this area; therefore no further action is required. The Draft Site Evaluation Report documenting these results was submitted in February 1996 (Ogden 1996). Regulatory review comments on the draft report were addressed, and the Draft Final Site Evaluation Report was submitted in August 1996.

The Shipyard performed additional sampling and detected ACM at the site. A Letter Report was generated in September 1997 based on additional sampling. The Letter Report recommended that no action was necessary for the site in its present condition (i.e., covered with tarp). The tarp was installed only as a temporary measure. Also due to U.S. EPA Region IX comments to the Building 6 portion of the Final Site Evaluation Report, a revised report was submitted in July 1998. A non-time-critical removal action was planned for the Shoreline site. However, based on the site visit (September 1999) in preparation for the removal action, a time-critical removal action was determined to be the most efficient way to address this site. The time-critical removal action that involved removal of ACM and soil was completed in August 2000. An Action Memorandum generated to document this removal action was completed in April 2001. The Draft Remediation Verification Report for the removal action was completed in March 2001. The Final Remediation Verification Report was completed in August 2001. The PP was completed along with close coordination with regulators. A public meeting was held in June 2006 during the public review period for the PP.

The Draft Final ROD was completed in 2006. However, during regulatory review the U.S. EPA determined that there is no safe level for asbestos in soil. Therefore, the Draft Final ROD was revised to include construction of a concrete cap over areas of exposed surface soil and LUCs as the final remedy for the site. The Final ROD was signed in July 2010. A draft RAWP for construction of the concrete cap and implementation of LUCs was prepared in September 2010, and was finalized in July 2011. Construction of the concrete cap and installation of signs was completed in October 2011. A Remediation Verification Report to document the completed construction activity was finalized in February 2012. The RACR documented completion of the

remedial action was signed by the Navy in July 2012, and concurrence letters were received from U.S EPA and DOH in Aug 2012. This site was included in the December 2019 installation Five-Year Review for the Pearl Harbor Naval Complex NPL. The Five-Year Review determined that LUCs are protective of human health and the environment. This site will be included in the third installation Five-Year Review, which is planned for 2024.

D.7.3 Foundry Shop, Building No. 6

The Foundry Shop is located in Building No. 6, approximately 1,000 feet to the south of Pearl Harbor as shown in Figure 4-1. This site consists of an excavated area of approximately 2,100 square feet located inside Building No. 6 and a small, sparsely vegetated area of approximately 200 square feet immediately adjacent to the Foundry Shop on the south side of the building. During excavation work for the installation of a new furnace and centrifugal casting machine, contaminated soil was discovered. The excavated area within the shop contains molding sands used in metal casting, and it is believed that approximately 1 to 2 feet of soil overlie a concrete slab. The vegetated area is sparsely covered by grass. Surface sampling (0 to 10 inches bgs) and analysis of soil samples from the excavated and vegetated areas revealed elevated lead concentrations up to 10,000 mg/kg. Subsurface sampling below 10 inches was prevented by what may be a concrete slab.

The space above the excavated area once contained a furnace that was removed many years ago. This furnace may have released metals and other contaminants to the soil in the excavated area. Possible contaminants in the surface and subsurface soil include lead and other heavy metals, PAHs from use of coke in the furnace, petroleum hydrocarbons from use of hydraulic fluids and fuel oils, and PCBs from the presence of an electrical and a power generation area.

In June 1995, a Site Evaluation was conducted. Surface soil, soil boring, trenching, and sediment samples collected in this area revealed the presence of PCBs (Aroclors 1254 and 1260), PAHs, TPH (diesel and lubricant oil), and metals. On the basis of these results and the potential impact to human receptors, the Draft Site Evaluation Report, submitted in February 1996, notes that no further action is required in this area unless it is redeveloped for commercial or residential use. It was recommended that a deed restricting residential land use be instituted to assure that further evaluation of the area is instigated prior to rezoning the land (Ogden 1996). The Site Evaluation Report was finalized in August 1996 and then revised in July 1998 due to U.S. EPA Region IX comments. Based on the EPA comments the report was revised to recommend that areas associated with elevated levels of lead concentrations in soil be remediated.

Also of concern in this area is the elevated level of lead detected in the storm drain system sediment. Because of this finding, it was recommended that lead levels in storm water and sediment entering the harbor be monitored to evaluate the potential impact to offsite marine

receptors. Because a National Pollution Discharge Elimination System (NPDES) storm water permit application requiring storm water monitoring has been submitted for the entire Pearl Harbor Naval Shipyard (including the storm drain system around the Foundry Shop, Bldg. 6), no further action to address this issue is deemed necessary (Ogden 1996). Subsequent to the Final Site Evaluation Report, it was found that the catch basins were outside of the scope of the NPDES permit. Therefore, a time-critical removal action of sediments from two catch basins and paving of an area adjacent to one of the catch basins was performed in June 1998.

Field work for expanded SI was completed in October 2001. The expanded SI Report was scheduled to be final in Fall 2002. However, due to regulatory comments made to the final expanded SI Work and Sampling Plans, additional samples needed to be taken. The expanded SI Report was completed in May 2004.

Based on meeting discussions with the regulators an RI/FS was prepared in place of the expanded SI Report in order to recommend the appropriate remedial action.

The RI/FS Report was completed in November 2010. In 2011 the PP was completed and the ROD signed in 2012. In 2013 fieldwork started for a remedial action to fill openings in the floor where contaminated soil is exposed and for monitoring well decommissioning and posting of cautionary LUC signs. The fieldwork was temporarily stopped due to falling overhead window gratings. The remedial action started again in October 2013 and all remedial actions was completed in March 2014. The RVR was completed in 2014 and the RACR was completed in October 2015. LUCs are in place and periodic inspections are being conducted. This site will be included in the third installation Five-Year Review, which is planned for 2024.

D.7.4 Transportation Yard

The Transportation Yard is located on the south side of Central Avenue, between Lake Erie (formerly called Sixth) and Port Royal Street (formerly called Seventh Street) directly adjacent to the Building 394 Battery Acid Pit site, as shown in Figure 4-1. This site consists of a completely fenced 120,000-square-foot parking lot for large motor vehicles. The lot is almost entirely paved, with the exception of a narrow vegetated and gravel filled strip located along the southeastern perimeter of the lot. Before becoming a parking lot, this site was reportedly used as a storage yard for sludge tankers and as a tank staging area. A 1993 subsurface investigation of the adjacent Battery Acid Pit identified elevated concentrations of chromium contamination in the groundwater underlying the site. The localized direction of groundwater flow was calculated to be to the northwest, toward Building 394 from the direction of the Transportation Yard.

In June 1995, a Site Evaluation (SE) was conducted. Soil boring and monitoring well samples collected in this area revealed the presence of PAHs, TPH (diesel, kerosene, and lubricant oil),

metals and PCBs (Aroclor 1260) in subsurface soil and TPH and PAHs in groundwater. Chromium contamination of groundwater was not found to be a problem at the site. On the basis of these results and their potential impact to human receptors, the Draft SE Report, submitted in February 1996, noted that no further action is required in this area unless it is redeveloped for commercial or residential use. It was recommended that a deed restricting residential land use be instituted to assure that further evaluation of the area is investigated prior to rezoning the land (Ogden 1996). The SE Report was finalized in August 1996 and then revised in July 1998 due to U.S. EPA Region IX comments to another site also covered in the same report.

An RI was initiated in May 2011 to evaluate the nature and extent of outstanding COPCs (PCBs, lead, zinc, copper, and nickel in soil) in soil at the Transportation Yard. In addition, because previous risk assessments for this site either did not include a future residential scenario, or did not evaluate the cumulative risk to receptors from all COPCs at the site, data acquired during the RI was collected to further delineate these COPCs and evaluate the cumulative risk to human health from all COPCs detected at concentrations exceeding the PALs during historical and current investigations. To facilitate the evaluation of cumulative risk, additional groundwater sampling was also performed in response to regulator concerns to determine the current concentrations of PCBs, lead, zinc, copper, and nickel in groundwater. The RI WP was finalized in July 2012

Initial RI Fieldwork was performed in July 2012. Samples were collected from surface soil, subsurface soil, and groundwater. Additional step-out sampling was conducted in May 2013 to complete characterization of PCBs in soil in the southeast corner of the site. A Draft RI/FS report was submitted in October 2013. The Tier 2 Baseline Risk Human Health Risk Assessment (HHRA) completed as part of the RI showed risk levels represented by groundwater and soil conditions are below or within EPA target cancer risk range and non-cancer hazard index (HI) target risk level. However, the calculated cancer risk level for a hypothetical child resident is at the upper limit of the EPA target risk range. The potential blood lead level calculated by the HHRA for the hypothetical child resident is under the current regulatory blood lead level EPA risk target, but would exceed a lower risk target level currently under consideration by the EPA. While the HHRA results indicated risks are overall within or below current EPA target ranges and levels, risk management actions were recommended and evaluated as part of an FS as a conservative measure to address the potential regulatory issues. The FS considered a range of remedial technologies and alternatives and retained three alternatives for detailed evaluation against nine National Contingency Plan criteria and recommended the alternative of Land Use Controls. The final report was submitted in September 2014 and received concurrence on the conclusions and recommended remedial alternative by regulatory agencies.

The Final Proposed Plan (PP) was submitted on June 4, 2015. A public meeting for the PP was held on July 21, 2015 at the Aiea Public Library. The public comment period for the PP was held between June 29, 2015 and July 27, 2015. The Draft Record of Decision (ROD) was submitted on

December 16, 2015, a Draft Final ROD was submitted on November 14, 2016, and a Pre-Final ROD was submitted for review on July 25, 2019. Discussion with the regulatory agencies regarding target blood lead levels to cite in the Final ROD are ongoing.

D.7.5 O-1 Pier Shoreline Site

The site is located in an area between Lake Erie Street (formerly called Sixth Street) and Dry Dock No. 4. Former activities that occurred included sandblasting of boats in the water, indicating the potential for heavy metals contamination at the shoreline (Earth Tech 2003). Also located at this site was former Building 1420, a sandblast and paint facility demolished in 2003. Releases of paint-related contaminants, including lead may have occurred at this building. In addition, two SWMUs were identified within this area, which were recommended for further investigation for the presence of lead and heavy metals in soil.

The SI field work was completed in October 2005 and the final SI Report was completed in 2007. The report recommends no further investigation or remedial/removal action for soil and groundwater at this site. However, further characterization is recommended of area offshore and of hydrocarbon impacts in the south eastern portion of the site. These efforts will be undertaken by the Pearl Harbor Sediment Study and Subsurface Fuel Investigation, respectively.

In 2008, the U.S. EPA provided comments to the final SI Report, requesting the Navy to include risk calculations for the near surface exposure unit from the surface to a depth of two feet (currently evaluated to 12 feet). The Navy submitted risk calculations to address the U.S. EPA's comments. Based upon discussions between the Navy, U.S. EPA and HDOH in June 2009, the U.S. EPA indicated that no further work is necessary. It was agreed by all parties that the Navy would revise the final SI Report to include the most recent risk calculations and revise recommendations of the report to address the unrestricted use of the site.

A revised SI report was submitted in June 2011 recommending no further action. Concurrence letters confirming agreement with the recommendation were received from HDOH and EPA in September 2011.

D.7.6 Laboratory Annex, Building T25

Now demolished, this building was formerly used to test the integrity of welds from 1944 through the 1960s using a dye penetrant solution, which was carried in Stoddard solvent (kerosene-based cleaning solvent). According to an employee, large quantities of a dye penetrant solution in Stoddard solvent were disposed of by dumping it on the ground. No evidence of staining was noted during a January/February 2001 visual inspection, but it is possible that contaminants may be present in the environment at the site from the dye penetrant solution.

In 2004 a Focused SI (Earth Tech 2006) was performed and soil samples taken. Arsenic was detected above screening criteria and further evaluation was recommended to characterize the lateral and vertical extent.

An SI report was submitted in February 2012 recommending no further action for the site. Concurrence letters confirming agreement with the recommendation were received from HDOH and EPA in July 2012.

D.7.7 Mercury Handling Room, Building 451

This building contained the original mercury handling room for the Shipyard. Operations began in the 1960s and continued until it was demolished in 1980. The one-story wooden structure was situated on a concrete slab. Mercury metal and mercuric nitrate waste were stored in the room until disposal. The floor drain within the room was plugged to avoid releases to the drainage system, and floor was constructed of concrete.

In 2004, a Focused SI (Earth Tech 2006) was performed and soil samples taken. Mercury was detected below screening criteria and no further action was recommended. However, U.S. EPA Region IX comments to the report (February 2005), recommended further investigation of the drain lines adjacent to the building to be performed. The Navy's response to the comments from U.S. EPA Region IX comments provided clarification and the sampling rationale on how the sampling locations were determined. The response was accepted by U.S. EPA Region IX, therefore, no further action is required for this site.

D.7.8 Sump Underlying Plating Tanks, Building 67

SWMU SY-22 (Sump Underlying Plating Tanks) was investigated as part of SWMU Group 3.13 in the 1989 RFI Work Plan (Earth Tech 2003). The sump handled electroplating wastewater containing cyanide, copper, chromium, lead, nickel, silver, and zinc. The resin coating on the sump was replaced in 1988. The old resin coating was removed by hydroblasting. After the coating was removed, the concrete slab was inspected for cracks and none were observed. The sump integrity was determined to be good. No evidence or reports of releases from the sump were identified during the RFI; therefore, no further investigation was recommended. Although the records search, interviews, and VSIs conducted in support of the NSY SSR did not identify previously unidentified potential release locations at this building, the EPA disagreed with the finding of no further investigation in a letter dated 26 June 1989, and recommended testing the integrity of the sump.

Based on re-evaluation conducted in support of the NSY SSR (EarthTech 2003), this area was recommended for investigation as part of a focused SI, however, the integrity of the sump cannot

be re-tested since it has been filled with concrete. The June 2004 site reconnaissance concluded that groundwater and subsurface soil samples should be collected from the southeast side of the building to evaluation if chemicals from a sump underlying metal plating tanks were released to the environment.

In 2004 a Focused SI (Earth Tech 2006) was performed, groundwater and soil samples taken. No COPCs were detected in soil samples. Total copper (unfiltered) was the only COPC detected in groundwater above screening criteria, but was not detected in any filtered samples. The filtered groundwater samples are considered to be representative of the actual groundwater conditions. However, because the sample locations in the Focused SI were located a significant distance away from the building and former sump location, further investigation of the soil on the northwest side of Building 67 is recommended to evaluate if chemicals from the former sump migrated to the northwest of the building. Due to the presence of utilities surrounding the exterior Building 67, and active use of the building, the areas near the former sump and adjacent areas northwest of Building 67 are not accessible for sampling. The Focused SI groundwater and subsurface soil sample results do not indicate a release has occurred to the east side of the building. Exposure pathways to potential contamination adjacent to the former sump location are incomplete based on current site conditions and land use. Further evaluation of potential contamination near the former sump will be conducted when the area is accessible for sampling. EPA and DOH agreed to this approach during a January 27, 2010 project status meeting.

In May 2013, a geophysical survey was conducted for areas inside and adjacent to the former sump location at Building 67. The geophysical survey identified additional areas where samples could be collected near the former sump location. However, sampling areas inside Building 67 is not feasible because the noise and dust from drilling activities would adversely impact workers and the hydraulic equipment in the building. A Draft SI Work Plan worksheets proposing additional sampling outside Building 67 were prepared in September 2013 and a draft SI Work Plan was completed in February 2014. After preparation of the draft SI Work Plan, perfluorinated compounds (PFCs) were identified as an additional COPC because PFCs may have been used for mist suppression during plating operations. The final SI Work Plan incorporated PFCs as an additional COPC. The final SI Work Plan was completed in September 2015. Field investigation was completed in August 2017 and the final SI Report was completed in November 2020. A RI is tentatively scheduled to start in 2024.

D.7.9 Area North of Building 1754

The Area North of Building 1754 was initially investigated under the UST program. During the 1992 NS-4 tank removal, elevated concentrations of chlorobenzene, tetracholorethene (PCE), and vinyl chloride were detected in soil samples. UST NS-4 formerly stored diesel and was used to fuel a boiler. The 2002 SI confirmed groundwater contamination was also present. UST NS-4

formerly stored diesel and was used to fuel a boiler. The tank was thus a RCRA Subtitle I exempt tank and the site was turned over to the ERN Program for management. The contamination in the GW appears to be associated with the UST based upon similar contaminants found both in the tank sludge and the groundwater and surrounding soil, Thus far, two SIs have been done at the site to evaluate soil and groundwater. One SI was done in 2002 and another SI was done in 2011. The second SI Planning documents were completed in September 2011, and field activities were performed in October 2011. The 2011 SI results indicate that chlorinated VOCs (chlorobenzene, and vinyl chloride) are present above screening levels in the two monitoring wells located near the former UST NS-4 location. However, chlorinated VOCs were not detected in upgradient or downgradient groundwater or soil samples.

Two phases of an RI have been done so far to evaluate the extent of groundwater contamination. The first RI Work Plan was completed in October 2012. The first phase RI field sampling was conducted in November 2012. A Draft RI Work Plan Addendum (Phase II) was prepared in October 2013. Phase 2 was to delineate the vertical extent of contamination and had a well going down to 63.5 ft bgs. Based upon the current data the contamination so far appears to be localized at the former tank location; however, additional sampling is needed to better characterize and delineate the vertical extent of chlorinated VOCs in the groundwater due to the discovery of a confining layer at approximately 63.5 ft bgs. Soil gas also needs to be investigated for vapor intrusion potential at nearby buildings. Six shallow wells were decommissioned in February 2012 and a few new replacement wells will need to be installed. The groundwater has been sampled at this site from 1999 to the present. Not much additional delineation is planned for the shallow zone.

In 2014, five temporary well clusters were installed in the vicinity of the former UST NS-4 location to better define the vertical nature of the COVC groundwater plume. The results of the on-site sampling event indicated that all COPC concentrations were below project-specific screening criteria. However, another round of sampling in May 2014 indicated that PCE was detected a screening criteria exceedance. Based on these results, an additional Phase III and Phase IV are needed to more adequately characterize the nature and extent of CVOCs at the site in groundwater and soil vapor. The approach for the additional phases were presented to the regulators on January 28, 2015 and received concurrence on overall scope to be added to a RI work plan addendum.

A Draft RI Work Plan Addendum II (Phases III and IV) was submitted in March 2015 and comments were received from regulators in May 2015. The Final RI Work Plan Addendum II (Phases III and IV) was received in June 2015 following a meeting with the regulators to reconcile work plan comments. Field work for the additional phases began in July 2015 and is anticipated to continue into January 2016. Based on the July 2015 soil vapor sampling results, it was determined that additional vapor monitoring points were needed along Bldg. 1315 to evaluate potential vapor intrusion pathways. In a project update meeting on July 22, 2015, the regulators concurred with installing additional vapor monitoring points along Bldg. 1315 and adding two soil

vapor sampling rounds (wet and dry season). Semi-permanent soil vapor monitoring wells were installed and sampled in August 2015 for the dry season sampling event. There were a few CVOC concentration exceedances reported for the dry season sampling event; however, these exceedances were slightly above the project-specific criteria. The wet season sampling event is tentatively scheduled for December 2015 contingent on weather conditions.

A Draft Site Inspection Addendum was submitted in May 2016 and comments were received in August 2016. Based on comments received, a Final Site Inspection Addendum and a request for no further action for the site were submitted in August 2017. Concurrences on the no further action recommendation were received for the site in September 2017.

D.8 RED HILL OILY WASTE DISPOSAL PIT SITE

This site was constructed in the early 1940s and is located within the Red Hill GSA, approximately 7 miles to the northwest of downtown Honolulu as shown in Figure 4-1. From 1943 to 1948, an unlined pit located within the central portion of the site was used to "treat," via separation techniques, oily residue generated during periodic fuel-tank cleaning operations and oily waste generated by leaks and drips from the fuel piping systems associated with the Red Hill USTs. (b) (3) (B) Operation of the unlined pit ceased in 1948, when the soil beneath the pit was reportedly excavated to below the point of visible contamination. No disposal activities were reported to have been conducted at the site from 1948 until 1972, when a Stilling Basin, composed of a gunite and asphaltic-concrete liner, was installed in approximately the same location as the former unlined pit. From 1972 to 1987, the Stilling Basin was used to contain wastewater and bottom sludges from the Red Hill USTs.

In 1983, the Navy sampled the contents of the Stilling Basin as part of an effort to characterize oily sludges generated at Naval installations. The principal contributors to toxicity detected in these samples were PAHs, phenols, and heavy metals. A subsurface investigation was conducted in the vicinity of the Stilling Basin in 1986. Soil samples were collected from four borings to a maximum depth of 41 feet below ground surface. Analytical results indicated PAHs and other hydrocarbons were present in the soil surrounding the Stilling Basin. In addition, low levels of PAHs and other hydrocarbons were also detected in a shallow localized groundwater system underlying the Stilling Basin. Use of the Stilling Basin was discontinued in 1986 as a result of the findings of this initial subsurface investigation.

In 1991, the Navy initiated an RI focusing on the Stilling Basin contents, the Stilling Basin vicinity, and ten other areas of the site surrounding the Stilling Basin, to evaluate the nature and extent of soil and groundwater contamination; to quantify potential threats to human health and to the environment; and to identify actions necessary to minimize or eliminate these threats. During the

RI it was found that the contents of the Stilling Basin were contaminating the surrounding soil and had the potential to (b) (3) (B) . In addition, the Stilling Basin presented potential hazard to birds in the area. Groundwater samples collected during the RI from the shallow groundwater system located directly below the Stilling Basin were found to contain detectable amounts of VOCs, and SVOCs, including PAHs. Although this system is not a source of drinking water, the findings indicate the potential for contaminants associated with the Stilling Basin to migrate through the subsurface (b) (3) (B)

Fuel hydrocarbons were also detected in the shallow soil at nine of the ten outlying areas investigated. The remaining area was found to contain low concentrations of PCBs believed to be associated with a transformer that existed on the site in the late 1930s and early 1940s. Contamination in these outlying areas has been determined to be below health-based levels of concern for those exposed directly to the soil. However, some of these areas may need to be addressed further due to the potential impact that contaminants associated with them may have on (b) (3) (B)

On the basis of the results of the RI, a Removal Action was initiated to minimize immediate threats to human health and the environment posed by the Stilling Basin. Various alternatives were evaluated during the EE/CA and documented in the Draft EE/CA Report submitted in June 1994. Regulatory review comments on the Draft EE/CA Report were addressed, and the document was finalized in October 1994. The EE/CA recommended that the Stilling Basin and surrounding contaminated soil be removed. Design documents for the selected Removal Action alternative were finalized in August 1994. Construction activities were initiated in January 1995 and completed by August 1995. During the Removal Action, the contents and structure of the Stilling Basin, as well as the majority of grossly contaminated soil associated with them, was removed from the site. The soil was thermally treated on Oahu at a permitted treatment facility located in Campbell Industrial Park and returned to the site once it was confirmed that it had been remediated. The excavation was backfilled using the treated soil then capped with clean soil and a low permeability geosynthetic clay liner to help ensure that remnant contaminants in this area do not (b) (3) (B) The Draft RVR and RADD documenting these activities were submitted in March 1996. Regulatory review comments were addressed, and the Final RVR and RADD were submitted in October 1996.

The Removal Action has eliminated threats from direct contact with surface contaminants; however, contaminants may have migrated below the shallow, localized water system and may (b) (3) (B)

(b) (3) (B) A second phase of the RI was therefore initiated. The Revised Final RI planning documents of this phase of work were submitted in April 1997.

Phase II RI field investigation work began in March 1998 and was completed in July 1998. Results of the first round of groundwater sampling indicate that the (b) (3) (B) by the surface contaminants remediated by the removal action of the stilling basin. The second round of groundwater sampling was completed in September 1998.

The Draft Phase II RI report was submitted in January 1999. After an extended regulatory review period, a draft final Phase II RI report was submitted in September 1999. The report found that the (b) (3) (B) by the surface contaminants and recommended no further response action at the site. A revised draft final Phase II RI report was submitted in September 2000. Regulators did not concur with the report recommendations. Petroleum contamination and the definition of drinking water were the two major items of contention.

A partnering session with the regulators, their consultant, and the Navy's consultant was held in April 2001 to address these items of contention. The partnering session resulted in an agreement that although the EPA would no longer handle this site under CERCLA due to the petroleum exclusion clause, the petroleum contamination would be handled by DOH under the Hawaii Environmental Response Law (HERL) and the Navy would conduct their response actions under the State Contingency Plan (SCP) which is the state equivalent of the NCP and describes how HERL is implemented.

A draft work plan was submitted in October 2001 to address DOH concerns regarding proper characterization of TPH concentrations exceeding the DOH action level found at the AST area. A clarification meeting of the draft work plan was held in November 2001. A final work plan was submitted in June 2002. Field work was completed in August 2002. The discrepancies between field screening data and laboratory test data, alternatives were reviewed and it was determined that no further field work will be required to complete TPH characterization. The draft (b) (3) (B) AST Area Total Petroleum Hydrocarbon (TPH)-Diesel Characterization report was submitted in January 2003. The report concluded that the TPH-Diesel contamination is limited and there is little or no potential for contaminant transport and migration to groundwater. Accordingly, the report recommended a No Further Action status for the former AST Area and the overall Red Hill Oily Waste Disposal Facility. The DOH had no comments to the report.

As agreed upon for the Ewa Junction Fuel Drumming Facility Site, the Navy submitted a letter in December 2004 to DOH requesting a No Further Action (NFA) determination by DOH in accordance with criteria contained in the SCP. DOH provided NFA concurrence letter in April 2005. Abandonment of all the groundwater monitoring wells was accomplished in July 2006. A copy of the Well Abandonment Technical Memorandum of August 2006 was sent to the HEER

office in January 2007. In March 2005, a letter was sent to the EPA requesting concurrence that this site and the Ewa Junction site be de-listed from the PHNC National Priority List (NPL). In October 2005, EPA denied the request to de-list the site from the PHNC NPL and indicated that it would be addressed in the ROD for the entire PHNC.

Beginning in May 2016, the site was proactively re-investigated due to recent detections of TPH-Diesel and TPH-Oil at a deep basal groundwater monitoring well, OWDFMW01, which was retained and included as part of the Red Hill Bulk Fuel Storage Facility long-term groundwater monitoring program. Currently, the site continues under the petroleum exclusion clause, and is handled by DOH under the Hawaii Environmental Response Law (HERL) and the Navy is conducting their investigation under the State Contingency Plan (SCP) with coordination with the DOH HEER office. Recent detections of hydrocarbons at the only monitoring well remaining at the site suggests that the chemical signatures are uncharacteristic of petroleum hydrocarbons.

In February 2021, a work plan was reviewed by EPA and approved by DOH for an investigation to evaluate and address the detection of TPH-Diesel in groundwater samples collected from the soil remaining monitoring well at the site, OWDFMW01. The investigation of potential impacts to the basal aquifer at the site includes installation and sampling of new groundwater monitoring wells, limited soil sampling, and a synoptic water level study to support groundwater flow and fate and transport analyses. If the site continues under the petroleum exclusion clause as a petroleum-only site, the investigation results will be summarized in a Site Assessment Report; and a risk evaluation and proposed response actions (if needed) will be detailed in a Environmental Hazard Evaluation/Environmental Hazard Management Plan (EHE/EHMP) consistent with DOH guidance.

The target completion dates for future actions are presented in the SMP Schedule in Appendix A.

D.9 PEARL CITY PENINSULA

This SMP Group currently consists of three PHNC sites located within the Pearl City Peninsula GSA as shown in Figure 4-1. These sites include the Pearl City Peninsula Landfill, Pearl City Peninsula Burn Area, and the Pearl City Fuel Annex (PCFA). A draft final SSR, which identified additional potential release locations (PRLs) or sites within the Pearl City Peninsula GSA was completed in July 2001. (The draft SSR was completed in 1997. Based on regulatory review comments, individual SSRs are being prepared for each GSA.) A revised draft final SSR was completed for the Pearl City Peninsula GSA in January 2002. The SSR for the Pearl City Peninsula GSA was finalized in April 2003, based on regulatory comments received on the revised draft final. The draft SI Work Plan was prepared in October 2004 for the investigation of the areas recommended for further investigation by the SSR. The areas include the AVGAS/MOGAS pipeline and the area south of Building 992. The SI Work Plan was finalized in July 2005. The

draft Technical Addendum for Site Inspection (SI) Work Plan and Sampling and Analysis Plan for Pearl City Peninsula GSA was prepared in May 2006, then finalized in December 2006 Field work was conducted in 2007, and the Draft SI for the Pearl City Peninsula GSA was prepared in July 2007. In March 2008, the SI was finalized. The final SI recommended No Further Action is required for the abandoned AVGAS/MOGAS pipeline along Lehua Avenue to the Victor Docks. The Navy received a letter of concurrence for No Further Action with institutional control for the AVGAS/MOGAS pipe from the HDOH (this pipeline is only covered under the SCP). Further discussion on this site is provided in Section D.9.5. The open area south of Building 992 will require further evaluation of the PCB and PAH contamination detected in the SI. This open area south of Building 992 Area will be addressed as a separated site in an RI. Further discussion on this site is provided in Section D.9.4.

The final Focused SI Report for Various GSAs was completed in April 2005. The Focused SI evaluated the UST PCP1. A geographical survey was conducted during the field investigation, and a subsurface anomaly was identified. Two subsurface soil samples were collected adjacent to the anomaly at depths of 4 and 5.5 feet. During the sampling, no staining of the soil was observed. The Focused SI recommended no further action for UST PCP1.

A brief discussion on the status of each of the current sites is provided below.

D.9.1 Pearl City Peninsula Landfill

The Pearl City Peninsula Landfill is located within the Pearl City Peninsula GSA on the northeastern shore of Middle Loch (see Figure 4-1). This landfill was operated by PWC as an official sanitary landfill from 1965 until 1976. The site was also used unofficially for disposal of refuse from the mid-1940s. Waste disposal practices reportedly included burning, landfilling, and uncontrolled dumping. Patched areas of this site are currently capped with a 1-to-2-foot-thick layer of crushed basalt. Previous investigations indicated the presence of PCBs, SVOCs, TCE, and fuel products in the vicinity of a wash rack located in the southeastern portion of the site. Significant accumulations of these contaminants were observed in the drainage sumps. Deeper soil indicated burn dump operations had been conducted there. Analysis of soil and gas samples suggests no imminent health hazard. In order to evaluate the nature and extent of contamination, an RI was conducted between December 1991 and March 1995. Between July 1996 and March 1997, and RSE was conducted to supplement the information in the RI. Draft RSE planning documents were submitted in June 1996. Regulatory review comments were addressed, and the Draft Final planning documents were submitted in October 1996. Field work associated with the RSE began in 1996 and was completed in 1997. Results of the RSE were used to conduct the EE/CA. The draft EE/CA was completed in May 1997. The draft final EE/CA was completed in January 1998. A revised draft final EE/CA was completed in May 1998. The EE/CA recommended repair, inspection, and maintenance for the landfill cover, with long-term

monitoring for the berm; erosion control for the black sands area; long-term monitoring for Waiawa Unit; excavation of dioxin/furan impacted soil on City and County property; consolidation of contaminated soil on Navy property; and covering of contaminated soil on Navy property. In August 1998, additional comments on the EE/CA were received from EPA. In response to EPA comments, the Navy agreed to (1) include gas monitoring on the landfill perimeter as part of the monitoring program and (2) coordinate closely with EPA, FWS, and DOH to develop a long-term monitoring plan, additional ecological assessment at the Waiawa Unit, and evaluation of potential up-gradient or off-site contamination sources. A revised EE/CA was issued in October 1998. The October 1998 EE/CA recommendations were essentially the same as the May 1998 EE/CA recommendations.

The draft design for implementation of the removal action was completed in November 1997. The final design was completed in May 1998. The removal action planning was initiated in 1998.

In 1999, a second Action Memorandum (AM) was issued to document significant changes from the EE/CA. The AM proposed that the proposed removal action be designated as interim, since further ecological assessments at the Waiawa Unit, characterization, and long-term monitoring were planned after the interim removal action. The interim action included landfill cover repair, black sands area erosion control cover, soil cover at hot spot areas, a containment system at Waiawa Stream banks, and construction of a bridge for site access. The interim removal action was substantially completed, except for crack repairs, in February 2000. Crack repairs were completed in September 2000. A final RVR was completed in December 2000.

In 1999, additional ecological assessment for the Waiawa Unit was initiated. In February 2000, an abbreviated sampling and analysis plan (SAP) was completed to confirm that no imminent threat to human health or environment exists at the Waiawa Unit. This plan was prepared in response to a report of distressed vegetation and fish by FWS. This investigation was part of the on-going ecological assessment at the Waiawa Unit. In April 2000, the Waiawa Unit Sediment Sampling Report was completed. This report presented the results of the sampling and analysis effort conducted at the Waiawa Unit in response to reports of distressed vegetation and fish by FWS. The report concluded that there appeared to be no imminent threat to human health and environment as a result of a perceived contaminant release. The Waiawa Unit would continue to be monitored as part of an on-going ecological assessment and evaluation of the adjacent Pearl City Peninsula Landfill. In June 2000, a draft screening-level ecological risk assessment report for the Waiawa Unit was completed. The draft final screening-level risk assessment report was completed in April 2001. A draft baseline ecological risk assessment for the Waiawa Unit is in-progress. A draft Step 3a report for the ecological risk assessment of the Waiawa Unit was completed in December 2001.

A draft long-term monitoring plan for the landfill was completed in July 2001. A draft final long-term monitoring plan was completed in November 2001. Field work to implement the long-term monitoring plan was initiated in December 2001. Revision 1 of the long-term monitoring plan was prepared in June 2002, to incorporate regulatory comments received on the December 2001 plan. Revision 2 of the long-term monitoring plan was completed in October 2002, based on additional comments received on the long-term monitoring plan, Revision 1. The draft Addendum No. 3 to the long-term monitoring Plan was prepared in January 2005 to include the seep investigation. The final Addendum No. 3 to the LTM Plan was prepared in May 2005. The replacement pages for final Baseline Risk Assessment Work Plan for PCP Landfill, Burn Area and Waiawa Unit were prepared in Dec 2005. A draft Seep Study Report for Pearl City Peninsula Landfill was prepared in Dec 2005. The Second Semi-Annual (Mar 2005) (year 3)/Third annual LTM Report for PCP Landfill was prepared in February 2006. A draft Site Conceptual Model and Groundwater Modeling Report for PCP Landfill was prepared in May 2006. The First Semi-Annual (Sep 2005 Sampling) (Year 4) LTM Report for PCP Landfill was prepared in June 2006. The Second Semi-Annual (Year 4) LTM Report for PCP was submitted in December 2006. The First Semi-Annual (Year 5) LTM Report for the PCP, submitted in March 2007 was the last long term monitoring event scheduled for this site, since the field work for the Baseline Risk Assessment Work Plan is scheduled to start in 2008.

In an effort to streamline the risk assessments currently being performed at adjacent sites including the Waiawa Unit, Pearl City Peninsula Landfill, and the Pearl City Peninsula Burn Area Site, an integrated draft Step 3a evaluation was prepared in October 2002. Based on regulatory comments received on the draft Step 3a document, a draft Baseline Risk Assessment Work Plan (Step 3b/4) for the Waiawa Unit, Pearl City Peninsula Landfill, and the Pearl City Peninsula Burn Area Site was prepared in July 2003. The draft final was prepared in July 2004. The replacement pages for final Baseline Risk Assessment Work Plan for PCP Landfill, Burn Area and Waiawa Unit were prepared in Dec 2005. A revised Draft Work Plan Baseline Risk Assessment for the Pearl City Peninsula Landfill, Burn Area Site and Waiawa Unit was prepared in August 2007. This revised Work Plan was developed to take into account new information that has become available in the areas of exposure and toxicity assessment, and to fill data gaps that were previously identified by the regulatory agencies. Comments were addressed and the Revised Draft Final Baseline Risk Assessment Work Plan was completed in September 2008. The work plan will be implemented from 2008-2010. Field work conducted in 2008-2009 included surface soil, subsurface soil, plant and animal tissue, surface water and sediment sampling. The Draft RI report was prepared in July 2010, and the Draft Final RI was completed in April 2012. Review comments were addressed and the Final RI report was completed in October 2012. The Draft FS was prepared in August 2013 and the draft final FS will be prepared following discussion with the City and County of Honolulu (CCH). The RI confirmed the presence of contaminated ash from the landfill, on the adjacent CCH

property. Therefore, further discussion with the CCH is required to determine the appropriate remedial alternative.

A Draft Final FS was submitted in October 2015 and comments were received in January 2016. However, prior to beginning discussions with CCH on the proposed and selected remedial alternatives for the CCH parcel, it was determined that this portion of the site be recommended to be evaluated under the Formerly Used Defense Sites (FUDS) program. The CCH parcel was transferred to the FUDS program in 2021 for continued management of the Burn Disposal Area CCH exposure unit.

A Draft Work Plan is being developed to propose additional confirmation soil sampling for hexavalent chromium (Cr[VI]) at the Burn Area Site (BAS) exposure unit to determine if the proposed remedy selection for the BAS will need to be revised to include Cr(VI) as a chemical of concern. Review comments on the Draft and Draft Final FS from the EPA requested confirmation of the actual chromium valence form present with speciation measurements (trivalent chromium [Cr[III] and Cr [VI]). An initial response proposed additional sampling during the proposed plan/record of decision (PP/ROD) or remedial design stages to speciate total chromium into Cr(III) and Cr(VI) and confirm if chromium should be included as a chemical of concern. Because Cr(VI) is significantly more toxic than Cr(III), the areas requiring remedial action would be significantly increased if the assumption that all chromium is in the Cr(VI) valence state. Therefore, additional soil sampling for Cr(VI) is necessary to evaluate the concentration of Cr(VI) present on site prior to the finalization of the FS.

The target completion dates for future actions are presented in the SMP Schedule in Appendix A.

D.9.2 Pearl City Peninsula Burn Area

The Pearl City Peninsula Burn Area, formerly operated by PWC, is located due east of the Pearl City Peninsula Landfill within the Pearl City GSA. The NEESA IAS identified this site, which operated between 1945 and 1965. Because it may have received a variety of wastes generated at PHNC during that period, a RI was initiated.

The Draft RI project plans were submitted in December 1994. Comments on these documents were addressed, and the Draft Final project plans were submitted in January 1996. There has been no action on this project since Draft Final project plans were prepared. Because similar conditions to the adjacent Pearl City Peninsula Landfill are anticipated, the Navy has elected to proceed with an RSE. Planning for the RSE began in 1999.

A draft SAP for the RSE was completed in October 1999. The final SAP was completed in June 2000. The SAP was presented at the July 2000 Pearl Harbor RAB meeting. Field work to implement the RSE SAP began in July 2000 and was completed in September 2000. The draft

RSE report was completed in June 2001. The draft final RSE report was completed in October 2001.

In an effort to streamline the risk assessments currently being performed at adjacent sites including the Waiawa Unit, Pearl City Peninsula Landfill, and the Pearl City Peninsula Burn Area Site, an integrated draft Step 3a evaluation was prepared in October 2002. Based on regulatory comments received on the draft Step 3a document, a draft Baseline Risk Assessment Work Plan (Step 3b/4) for the Waiawa Unit, Pearl City Peninsula Landfill, and the Pearl City Peninsula Burn Area Site was prepared in July 2003. The draft final was prepared in July 2004. The replacement pages for final Baseline Risk Assessment Work Plan for PCP Landfill, Burn Area and Waiawa Unit were prepared in Dec 2005. As previously mentioned, this site has been combined with that of the Pearl City Peninsula Landfill, therefore for 2006 and later status on this site, refer to Pearl City Peninsula Landfill section (D.9.1).

D.9.3 Pearl City Fuel Annex

The PCFA is located directly east of the Pearl City Peninsula Burn Area within the Pearl City Peninsula GSA. The PCFA was operated by FISC until 2001, when it was closed down. Prior to 2006 this site consisted of five aboveground storage tanks (a sixth tank, a 1,000 barrel tank, is owned and operated by a commercial company, Tesoro (formerly BHP)), three main pump houses, a truck loading rack, and support pipelines and structures for the storage and pumping of bulk aviation fuels. In 2006 all structures, tanks and associated pipelines (above and below ground) have been leaned and demolished, with the exception of the Tesoro Aboveground Storage Tank (AST) and Buildings S-85 and S-99. Tesoro will be responsible for the cleaning and demolition of their AST and associated pipes and berms.

Facility records indicated that occasional tank/pipeline leaks and oil spills have occurred contaminating the subsurface soil with petroleum (fuel) products. The last major leak occurred in December 1980 releasing of approximately 10,000 gallons of JP-4 from a pipeline located in front of the tank farm directly to the west. A 2-foot diameter recovery well was installed near the tanks; however, no fuel was detected in the well. FISC employees decided the spill had dissipated and did not install a groundwater depression pump to recover the LNAPL product. Fuel has not been observed in the stream that borders the site to the west.

After heavy rains in March 1991, water entered the subsurface electrical junction boxes onsite and a subsurface switching station connected to the boxes by electrical cable conduits. As the water level dropped an explosion occurred. It appears that fuel (possibly gasoline) vapors from LNAPL product floating on the water table moved into the switching station via the conduits and was ignited, causing an explosion.

To address releases suspected to be associated with this site, a RSE was conducted in July 1995. The results of this initial investigation led to a second phase of study. The Draft RSE planning documents were submitted in November 1995 and finalized in March 1996. Field work on the second phase of the RSE was conducted in May and June 1996. The RSE Report was submitted in October 1996. The Draft Final RSE Report was submitted in May 1997. A Revised Final RSE Report was submitted in June 1997. The risk evaluation presented in the RSE indicates that lead in surface soil at the site may pose a human health risk to onsite workers. The RSE recommended an EE/CA to assess the remediation of surface soil hot spots.

A draft Pilot Study Work Plan was prepared in March 2005 for the implementation of the phytoextraction pilot study. The purpose of the pilot study was to assess the feasibility of using phytoextraction as a remedial alternative to treat lead, antimony and arsenic in surface soil. The final Pilot Study Work Plan was submitted in August 2005. The draft Sampling and Analysis Plan (SAP) for Pearl City Fuel Annex was prepared in November 2005 and finalized in March 2006. The Phytoextraction Treatability Study Report for Pearl City Fuel Annex was prepared in June 2006.

In September 2006, regulators expressed concern over the removal method and actions being pursued, therefore additional methods of remediation of the site are being considered. Regulators also expressed concern of this project being a Time-Critical Removal action therefore after further discussion; this site has been changed to a remedial action process. Thus in place of the previously planned EE/CA, a RI WP was completed in November 2009, the RI fieldwork was completed in January 2010, and the RI report was completed in February 2011 which recommended further action. Regulators agreed to revert back to the removal action route (EE/CA, AM, Removal Action, PP/ROD) to avoid the lost of expiring funds. The EE/CA was completed in June 2011 and recommended to place a clean soil cap. The AM and Removal Action WPs were completed also in June 2011 and fieldwork started in July 2011. The Removal Action is broken up into two phases, Phase I was completed in August 2011. A draft Removal Action WP (Phase II) was developed in November 2011; however, an aboveground storage tank (AST) and associated piping belonging to Tesoro needs to be demolished and removed. Agreement with Tesoro was reached to remove the AST and associated piping. Construction to remove the Tesoro AST and piping was completed in October 2015. The Navy finalized the Removal Action WP (Phase II) in September 2015 and installed a soil cover. However, wetland areas (west and north of fence areas) are not being addressed as part of Phase II due to funding constraints and anticipated coordination with the Army Corps of Engineers. The Navy will delineate the extent of the wetlands and take additional soil samples to reassess the risk in the wetland areas. The results will be documented in an amended RI and a FS will evaluate the residual risk of the entire site to determine if additional action is necessary to be protective. The Draft RI Addendum was submitted for review to the

regulators in September 2023. The target completion dates for future actions are presented in the SMP Schedule in Appendix A.

D.9.4 Open Area South of Building 992

An RI for the Open Area South of Building 992 will be initiated in Fall 2010. Draft RI Work Plan Worksheets were submitted for regulatory review in September 2010. The RI Work Plan was completed in 2011. The RI Field work was performed.

In June 2014 the RI Report was finalized and concluded that no further action for the Open Area near Building 992 Site is required at this time due to human health or ecological risk concerns. A Proposed Plan was finalized and public meeting held in February 2015, no comments received. In September 2016 the Record of Decision for no further action was signed.

D.9.5 Abandoned AVGAS/MOGAS Pipeline Pearl City Peninsula

In 2012 a construction project discovered stained soil in the area of an abandoned AVGAS/MOGAS pipeline located on Pearl City Peninsula. The field effort part of the Site Investigation to evaluate this abandoned AVGAS/MOGAS pipeline was conducted in June/July 2013 with a final report prepared in August 2014. Based on the final SI report, we are preparing an Environmental Hazard Management Plan (EHMP) to ensure that the contamination that is present in the subsurface soil and groundwater is properly managed in the future. This site is considered a petroleum hydrocarbon contaminated site, therefore the Hawaii State Contingency Plan along with Hawaii Department of Health guidance documents provide regulatory oversight. In April 2016 the EHMP was finalized. A Hawaii Department of Health letter was received in June 2016 granting, no further action with institutional controls subject to following the EHMP.

D.10 PHNC Storm Drains

The sites that currently comprise SMP Group 10 are part of the PHNC Storm Drain System, located throughout many of the GSAs within PHNC, as shown on Figure 4-1. The storm drain system was designed and constructed as a gravity-flow network in 1910. Capacity was expanded by constructing additional facilities up to World War II. The system consisted of as many as (b) (3) (B) [redacted], associated box culverts, and connecting feeder lines, all discharging to Pearl Harbor. Many point sources, including a number of SWMUs recommended for additional response actions, are connected to the system and are, therefore, included within this SMP Group.

Site investigations have revealed elevated concentrations of arsenic, chromium, nickel, copper and lead in the sediment within the storm drains. PCBs, TPH, and PAHs were also detected in the soil surrounding the storm drains. Removal Actions were contemplated to address the PHNC Storm

Drain System. The current Target Completion Dates for documents associated with this work are listed in Appendix A. The following sections provide brief descriptions of the PHNC storm drain sites and results of any site investigations that have occurred to date.

Subsequent discussions with U.S. EPA in early 2007 have resulted in following the Remedial Action process instead of the Removal Action process.

D.10.1 NAVSHIPYD Marine Machine Shop (SY-44)

This site adjoins NAVSHIPYD Building 215. (b) (3) (B) [redacted] Prior to 1976, effluent from the machine cleaning pad was directed to the storm drain. Previous investigations conducted as part of an RFI at the site detected hydrocarbon odors from storm drain sediment, TPH concentrations in excess of 1,000 mg/kg, and detectable levels of PAHs, including benzo(a)pyrene. It was recommended in the RFI Report that further sampling of the storm drain sediments be conducted and significant contaminated sediment be removed, treated, and/or disposed (Ogden 1992a).

Field work for an SI was completed in Fall 2003. Sediments in the adjacent catch basins, soil, and groundwater were sampled. The draft SI Report was completed then finalized in 2006. The only media of concern was the catch basin sediment contaminated with PCBs, VOCs, PAHs, and metals above screening criteria. A clean out of the catch basins and storm drain line sediment was scheduled for 2006. No further action will be proposed after removal of the sediments.

A time-critical removal action was completed in 2007 for the clean out of the catch basins and storm drain line adjacent (northwest) to Building 215. The draft RVR was completed in 2007. The Navy addressed EPA's comments to the draft RVR satisfactorily in March 2009 and obtained a No Further Action concurrence letter to properly closeout this site.

D.10.2 NAVSHIPYD Storm Drain System (SY-84)

This drainage system was used in the past for disposal of liquid industrial waste. Previous investigations conducted at the site under a 1992 RFI detected elevated concentrations of arsenic, chromium, nickel, copper, and lead in the sediment. PCBs, TPH, and PAHs were detected in the soil. It was recommended in the RFI Report that additional sampling be conducted to delineate areas of the storm drain containing significantly contaminated sediment and to remove, treat and/or dispose of the significantly contaminated sediment (Ogden 1992a).

An SI was initiated as a combined investigation of 17 sites with storm drain release scenarios identified by the RFI within the Pearl Harbor Naval Shipyard area. The 17 sites included several that had previously been designated as their own sites: NAVSHIPYD Building 4/4A (also

described in Section D.10.10, D.10.11, and D.10.13), Building 68 (also described in Section D.10.7), and Building 155 (also described in Section D.10.7).

The final SI Work Plan (and Sampling and Analysis Plan [SAP]) was completed in 2007. Field work was scheduled to begin in 2008; however, EPA had major comments to the final SI Work Plan. Draft Final Revised SI Work Plan was completed in January 2009 to address EPA and HDOH concerns and was finalized in January 2010. Field work was initiated in April 2010 and completed in July 2010. The Draft SI Report was submitted in January 2011.

The SI Report was finalized in October 2011. Based on screening of SI results, soil at 11 of the sites and groundwater at 12 of the sites exceeded project screening criteria. Sediment in the storm drain inlets at 14 sites exceeded project screening criteria. A recommendation was made for further action (e.g., additional investigation, further risk assessment, removal or remediation) for those media at those sites. The remaining sites were recommended for no further action.

The SI sites needing further evaluation were reclassified into seven areas of concern needing RI characterization for COPCs in soil, soil gas and groundwater. The RI planning documents were finalized in October 2012 and the RI sampling and fieldwork were completed in April 2013. Based on the RI sampling results and Baseline Human Health Risk Assessment (HHRA), the RI concluded that potential risk posed by groundwater and soil gas conditions at all seven RI areas of concern were within or below regulatory cancer risk target ranges and non-cancer Hazard Index Target Level and the RI recommended No Further Action to address these media. The RI reached the same conclusion and recommendation for soil at three of the seven RI areas of concern. The RI recommended further response action for soil at four of the seven RI Areas of Concern. A Draft RI report documenting these conclusions and recommendations was submitted in August 2013 and is currently undergoing regulatory review. A Feasibility Study has been awarded to evaluate remedial alternatives to address the soil issues documented in the RI report. Before the RI/FS can be completed a non-time critical removal action of inlet release site sediments and follow-on sampling will need to be completed. A Draft Final RI was completed in January 2017 and finalized in September 2017. The draft FS was completed January 2018, based on subsequent discussion with EPA on delineation of RI areas, further information may be needed. Navy is evaluating RI areas that will need more information or additional sampling to delineate the site boundaries. A Draft RI Addendum Work Plan is planned for Spring 2023.

The Navy discussed the SI results for sediment sampled at the storm drain sites with EPA and HDOH in March and April 2012, and reached concurrence with a decision to address those sediments separately from the RI investigation under a Non-time Critical Removal Action. The approach for the removal action was developed and documented in an Engineering Evaluation/Cost Analysis (EE/CA). The Draft EE/CA was submitted in October 2012 and the EE/CA was finalized in September 2013 after undergoing regulatory review. A Draft Action

Memorandum (AM) to document Navy adoption of the EE/CA approach was signed in December 2013. Removal Action planning documents were finalized in October 2014 and the Removal Action fieldwork began March 2015. Removal action fieldwork was completed in August 2016. The draft removal verification report (RVR) was completed in June 2017 and the final RVR completed in March 2018.

D.10.3 PWC Paint Storage Area (PWC-01)

The area consists of two sites used for paint supply storage and consolidation of paint wastes. One site is no longer in use. Both sites are located in the main PWC complex east of Makalapa Gate next to Paint Shop Building 35.

An initial investigation detected elevated concentrations of toluene, xylenes, lead, chromium, and beryllium above RCRA action levels for those compounds (KJC 1989). The concentrations were detected in soil samples collected near the old storage area. Borings and catch basin samples were collected as part of a subsequent RFI (Ogden 1992a). Concentrations of arsenic and beryllium above RCRA action levels detected in these samples, however, were attributed to high background concentrations characteristic in soil of Hawaiian volcanic origin (Ogden 1992a). Subsequent summary actions for this site are described under Section D.10.18, site SWMU-001.

D.10.4 Former NAVSHIPYD Industrial Waste Treatment Plant Collection Sump and Unloading Area (PWC-10, PWC-13)

The Former NAVSHIPYD Industrial Waste Treatment Plant (IWTP) began operations in 1974 and was designed to treat acid, alkali, cyanide and heavy metal waste. The former IWTP is located in NAVSHIPYD near the Lower Tank Farm. The collection sump itself was constructed in 1986 and collects wastewater for pretreatment prior to discharge to the PHNC Storm Drain System. The former IWTP waste unloading area is an unpaved area adjoining the former IWTP used for industrial waste material staging and storage operations.

Both site areas were sampled as part of an RFI investigation to determine if heavy metals or cyanide had been released as part of the activities for the former IWTP. Concentrations of antimony and arsenic were detected above RCRA action levels in samples obtained near the collection sump. In addition, lead was detected at elevated concentrations. The patterns of contamination were indicative of a release near the collection sump; further investigation was recommended to determine if the collection sump was a contaminant release source (Ogden 1992a).

Surface soil samples were collected in the waste unloading area and an adjoining waste soil pile. Detected concentrations of arsenic and beryllium and a single estimated concentration for antimony were above RCRA action levels. Onsite and background concentrations within the waste

unloading area samples were not significantly different for arsenic and beryllium and detected concentrations are probably indicative of background concentrations (Ogden 1992a). The RFI report recommended further sampling in the vicinity of the sample site containing the estimated antimony concentration. An SI was completed in 2005. Field work for a RSE was completed October 2006 at SWMU 10 and 13. After the completion of the RSE field work, further discussions with the regulators changed the process of this site from a removal action to a remedial action. Thus, the information gathered from the RSE field work was used to complete a RI/FS. The draft RI/FS was completed in Sept 2007. The draft RI/FS found that the contaminants of concern are the presence of elevated concentrations of arsenic, antimony and lead in the surface and near-surface soils. The remedial alternative action shown to be most appropriate is the removal and disposal of soil exceeding natural background levels and residential PRGs.

Based on further review of the site history as well as U.S. EPA comments on the draft RI/FS, it was indicated that wastewater associated with industrial processes and waste oils may have been transferred between vessels at the site. Thus, based on this additional information, PCBs (aroclors only), VOCs and SVOCs were determined to also be COPCs for the waste unloading and collection sump areas of the site. In order to address the comments, additional sampling is required. In January 2009, the RI WP and SAP (Technical Addendum No. 2) were submitted. The field work was also completed in 2009. Based on the findings gathered, the Revised Draft RI Report for the site will be submitted in November 2012. The Revised Draft RI Report was submitted on December 2012 and EPA instead of submitting their comments opted to have a telecon in March 2012 to discuss the changes that should be made in the report to address the issue with regards to the floating petroleum product in groundwater within the former IWTP area. The source of the petroleum contamination in the groundwater is the Lower Tank Farm (LTF) and the Proposed Revisions to the Draft Remedial Investigation Report was submitted to EPA in April 2013 for their concurrence. EPA responded with the letter dated 17 June 2013 asking to revised the draft RI to include assurance that the Subsurface fuel Environmental Hazard Management Plan will include the former IWTP in their land use control for the site. Navy submitted the revision response to EPA and EPA concurred on August 6, 2013. An overhaul of the report was made and it is part of the Draft/Final which includes all the revision that the EPA would like to be implemented. The Final RI report was submitted to EPA on December 18, 2013.

The draft Proposed Plan (PP) was submitted on February 21, 2014 and the final PP was completed on May 30, 2014. Public meeting presentation of the PP was held on Jul 9, 2014 at the Oahu Veterans Center. The open period for public comment ended on Jul 15, 2014. The Draft Final ROD was postponed due to EPA requesting that lead contamination be re-evaluated. Based on the EPA comments on the Draft ROD a targeted Tier-2 human health risk evaluation for the site will be conducted to evaluate potential blood lead levels.

In July, 2016 the former IWTP site was identified in a Navy-wide survey to identify sites where perfluoroalkyl and polyfluoroalkyl substances (PFASs) may have been historically used. Information gathered during the RI (Remedial Investigation) indicated that electroplating chemicals were one of the waste liquids previously treated at the site. Historically, during the electroplating process, PFASs, which include perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutane sulfonate (PFBS), were potentially used for mist suppression. There were no reported releases of waste liquids from the site; however, there was potential for unreported releases to the soil during transfer and storage of waste in unpaved areas. PFASs were not investigated as a site chemical of potential concern (COPC) during the RI stage and constitute a potential data gap.

In October 2018 a Final Tier I sampling and analysis plan (SAP) was completed for investigating potential PFASs contamination at the site. PFASs SI sampling indicated PFOS in groundwater at a concentration of 525 ng/L. The concentration of PFOS exceeded its screening criterion of 400 ng/L. Based on the SI sampling results, additional groundwater sampling will be conducted in an RI Addendum. The Draft RI Addendum WP was submitted for review on October 13, 2020 and a Final RI Addendum WP was submitted on July 16, 2021. Groundwater monitoring well installation and sampling associated with the RI Addendum was completed in July/August 2021. Based on evaluation of the 2021 groundwater data, additional delineation of PFASs in groundwater is required. An RI Addendum WP update will be prepared to include additional step-out monitoring wells. The sampling data will be evaluated in an RI Addendum Report.

D.10.5 NAVSTA Spent Battery Storage Yard (NAS-04)

This site is a former battery storage yard adjoining building 472, located on the Kuahua Peninsula near Magazine Loch. The yard stored empty battery casings from 1942 to 1987. Battery washing and acid neutralization occurred in the northeast corner of building 472, while effluent drained into the storm drain. Currently, effluent is rerouted to the sanitary sewer.

Lead concentrations between 251 to 2,490 mg/kg were detected in the sediment samples collected from the site as part of an RFI. Lead was also detected in the groundwater and soil, although not at elevated concentrations. It was recommended that an evaluation of the cost for additional sampling be compared against the complete removal of sediment in the trunk line before further action is taken (Ogden 1992a).

Potential discharges to this PHNC storm drain system are being evaluated with other sites with similar storm drain scenarios under a combined Halawa Main Gate Storm Site Investigation that also includes other issues at NAVSTA Building 472 described in Section D.10.17, Building 660 (Section D.10.8), NAVSTA Building 449 (Section D.10.14), and Buildings 651 and 674 (Section D.10.17).

This site is being addressed under the combined Halawa-Main gate storm drain study described Section D.23.2.

D.10.6 General Engineering Service Yard - Hose Drain Area (SB-26)

The site adjoins Building 1320 on the Kuahua Peninsula near the inland end of Magazine Loch. The site was used to clean hoses for dockside filtration and flushing of contamination from ships. Cleaned hoses were formerly laid on a small hillside to drain or laid in the service yard adjacent to Building 1320 to dry. Hoses are now drained using compressed air and the effluent is collected in 55-gallon drums. Wastes managed include hydraulic oils and sulfamic acid.

Previous investigations detected elevated levels of arsenic in soil samples collected from the site. It was recommended in the RFI Report that data evaluation and background soil sampling, if necessary, be conducted to assess the potential for arsenic impacts (Ogden 1992a). In accordance with the 2003 SSR for the Halawa-Main Gate GSA, none of the arsenic concentrations exceeded the PRG of 44 mg/kg for arsenic in soils for an industrial area. Therefore, no further action is recommended for this site.

D.10.7 NAVSHIPYD Building 68 (IAS-13)

Building 68 is an electrical repair shop located in the northeast section of NAVSHIPYD, bounded to the north by Buildings 179, 1609, and 296; to the west by Building 72; and to the south and east by the Controlled Industrial Access (CIA) area. From approximately 1950 to 1979, the shop serviced electrical transformers containing PCB-dielectric fluid. During this period, PCB-containing dielectric fluid was reportedly disposed in catch basins located adjacent to Building 68. During the period 1950 to 1979, approximately 50 to 55 gallons of PCB-containing transformer fluid were discharged to these catch basins per year. The total quantity of PCB-containing fluid discharged to Pearl Harbor from Building 68 transformer repair operations is unknown; discharges between 1950 and 1965 have been estimated at 800 gallons.

The 1983 IAS of Building 68 concluded that PCBs may have reached sediments in Pearl Harbor through the storm drain system and that PCBs may have contaminated soil adjacent to the catch basins and storm drains. The IAS did not consider the site a threat to human health or the environment, however, and recommended against performance of a confirmation study at Building 68 (NEESA 1983a).

In 1990, an Expanded SI conducted at Building 68 involved the collection of catch basin sediment samples and soil borings adjacent to two catch basins. Laboratory analytical data revealed PCB concentrations in catch basin sediments ranging from of 21 mg/kg to 1,130 mg/kg. One soil boring sample contained PCBs, at a concentration of 0.38 mg/kg (Argonne National Laboratories (ANL) 1992).

In 1992, an RI at Building 68 included collection of catch basin sediments, soil samples, groundwater samples, and marine sediment samples, which were analyzed for VOCs and PCBs. Evaluation of these data revealed that VOCs were below ARAR and TBC action levels in all media sampled; PCBs were below action levels in all media except catch basin sediments. Recommendations included removal of sediments from Building 68 catch basins to address identification and remediation of the source of detected PCBs (Ogden 1994a).

In 1995, a "time-critical" Removal Action at a catch basin where elevated levels of PCB-contaminated sediment were detected as part of the RI sampling effort was done. Sediments were removed and a coating was applied to the interior surface of the catch basin.

In 1996, catch basin sediments, soil, and groundwater were resampled at the direction of EPA because the analytical laboratory used for the initial RI sampling effort was convicted of laboratory fraud.

In 1997, the Final RI Report that included the resampling results was completed. The RI Report recommended removal of accumulated sediment in catch basins, taking wipe samples of catch basin walls to determine source and transport of contaminated sediment in the storm drain system. It also recommended, if necessary, performing an EE/CA to recommend the best remedial alternative.

A "time-critical" removal action was also performed at two catch basins where elevated levels of PCB-contaminated sediment were detected. As part of this removal action, a concrete bottom was installed in one of the catch basins, which did not have a bottom.

Further investigation of the site has been included as part of a Shipyard-wide Storm Drain Study described in Section D.10.2.

D.10.8 Machine, Plating, and Flex Hose Shops (SB-12 and-13)

Waste oils and plating wastes were once disposed of in two storm drains associated with Building 660. One storm drain discharges into Quarry Loch and the second to the west between Quarry Loch and Magazine Loch. Elevated concentrations of barium and lead have been found in previous investigations. Current practices restrict the disposal of industrial waste into storm drains. The RFI Report recommended that the cost of additional sampling be compared with the cost of complete removal of sediment in the trunk line before further action is taken (Ogden 1992a).

Potential discharges to this PHNC storm drain system are being evaluated with other sites with similar storm drain scenarios under a combined Halawa Main Gate Storm Site Investigation that also includes NAVSTA Building 449 (Section D.10.14), NAVSTA Building 472 (Section D.10.17), and Buildings 651 and 674 (Section D.10.17).

This site is being addressed under the Halawa-Main gate storm drain study described in Section D.23.2.

D.10.9 NAVSHIPYD Building 155, Former Sandblast Area (New SWMU 07)

The site is a small former sandblasting structure attached to Boiler Shop Building 155 in NAVSHIPYD. The sandblasting operations were conducted from 1972 through 1983. The RCRA Facility Assessment (PACNAVFACENGCOM 1990) judged the potential for release as very low and recommended no further investigation for this site. However, the impact of wastewater that entered the PHNC Storm Drain System is being investigated as part of the RI for NAVSHIPYD Storm Drain System (SY-84) described in Section D.10.2.

D.10.10 NAVSHIPYD Building 4, Concrete Pad and Drain (New SWMU 09)

Pipe cleaning operations at NAVSHIPYD Building 4/4A were conducted from 1928 through 1971, and pipefitting operations were conducted from 1940 through 1984. Chemical cleaning tanks were removed from the site in 1975. The RCRA Facility Assessment found that pipe shop waste may have entered the PHNC storm drain system outside the building. The impact to the PHNC Storm Drain System is being investigated as part of the RI for NAVSHIPYD Storm Drain System (SY-84) (refer to Section D.10.2). Buildings 4/4A were demolished in 2001.

D.10.11 NAVSHIPYD Building 4/4A Capped Storm Drains (New SWMU 10)

The site is an active refrigeration shop area located in NAVSHIPYD Building 4/4A. The refrigeration shop was started in the 1970s and the RCRA Facility Assessment (PACNAVFACENGCOM 1990) identified the possibility that liquid freon, oils, and shop rinse water have been released into the shop floor drain, which is connected to the PHNC storm drain system. The impact to the PHNC Storm Drain System is being investigated as part of the RI for NAVSHIPYD Storm Drain System (SY-84) described in Section D.10.2. Buildings 4/4A were demolished in 2001.

D.10.12 NAVSHIPYD Building 4/4A Pipe and Copper Shop Floor (New SWMU 15)

Pipe cleaning operations at PHNC Building 4/4A were conducted from 1928 through 1971, and pipefitting operations were conducted from 1940 through 1984. The chemical cleaning tanks were removed from the site in 1975. This building is connected to the same PHNC drain as the Building 4 concrete pad and drain, another SMP Group 10 site (listed above). This site was initially recommended for no further investigation in the RCRA facility assessment (PACNAVFACENGCOM 1990). However, it was later recommended for further action on the basis of its potential impact on the PHNC storm drain system and receiving waters. The impact to

the PHNC Storm Drain System is being investigated as part of the RI for NAVSHIPYD Storm Drain System (SY-84) described in Section D.10.2. Buildings 4/4A were demolished in 2001.

D.10.13 NAVSHIPYD Building 4/4A Former Boiler Shop Storm Drain (New SWMU 17)

Building 4 has had a history of various activities, including a paint shop, pipefitting, pipe cleaning, and bicycle repair. Past operations may have caused the release of oils and acid wastes into the PHNC storm drain system (PACNAVFACENGCOM 1990). The impact to the PHNC Storm Drain System is being investigated as part of the RI for NAVSHIPYD Storm Drain System (SY-84) described in Section D.10.2. Buildings 4/4A were demolished in 2001.

D.10.14 FISC Building 449 Battery Charging Area Floor Drain (New SWMU 20)

This site, located in Building 449 of FISC, was used as a vehicle maintenance shop. Until the 1970s, part of the building was used for washing old batteries. Wastes generated by these activities may have been released into the PHNC storm drain system. Potential discharges to this PHNC storm drain system is being evaluated with other sites with similar storm drain scenarios under a combined Halawa Main Gate Storm Site Investigation that also includes NAVSTA Building 472 (Section D.10.17), Building 660 (Section D.10.8) and Buildings 651 and 674 (Section D.10.17).

This site is being addressed under the Halawa-Main gate storm drain study described in Section D.23.2

D.10.15 PWC Building 43 Electrical Shop Floor Drain (New SWMU 22)

The site is located in the PWC Building 43 electrical shop. The electrical shop operations included washing of electrical parts until the 1980s and the use of solvents or varnish. The 2002 Site Summary Report for the Public Works Center Main Complex GSA stated that, ‘wastes may have been released to the PHNC storm drain system via the electrical shop central drain.’ Additional field verification was done in June 2009 to show that the floor drain in the building is not connected to the storm drain system and that there was no reason to pursue further investigation of the site. An NFA letter from U.S. EPA was received in February 2010 for the site.

D.10.16 Former Battery Acid Tanks and Pit (New SWMU 29)

The site is a former battery shop over which buildings 651 and 674 were built in approximately 1975. No records are available for the actual operations and any potential releases to the ground. Potential discharges to these PHNC storm drain systems are being evaluated with other sites with similar storm drain scenarios under a combined Halawa Main Gate Storm Site Investigation that also includes NAVSTA Building 449 (Section D.10.14), Building 472 (Section D.10.17), and Building 660 (Section D.10.8).

The current status of the combined Halawa Main Gate Storm Drain investigation is described in Section D.23.2.

D.10.17 NAVSTA Building 472 Drum Storage (New SWMU 34)

The site has been used since the 1940s to store drummed solvents and oily wastes derived from activities of the adjoining NAVSTA Building 472. The site itself is unpaved and the drums are stored upon pallets for regular collection and disposal by the Navy PWC. Potential discharges to this PHNC storm drain system is being evaluated with other sites with similar storm drain scenarios under a combined Halawa Main Gate Storm Site Investigation that also includes NAVSTA Building 449 (Section D.10.14), Building 660 (Section D.10.8) and Buildings 651 and 674 (Section D.10.17).

The current status of the combined Halawa Main Gate Storm Drain investigation is described in Section D.23.2.

D.10.18 PWC Building 35 Paint Shop (SWMU 001)

The site is approximately 8,000 square-foot area northeast of Building 35 and a 900 square foot paint storage area. The site itself is paved except for less than 0.20 acres. The area was formerly used for outside storage of paint, solvents, and waste.

A follow-up RI soil investigation was done in late 2009 to better define the site contamination. The 2009 work was documented in a draft RI report which was distributed in June 2010 and was finalized in October 2011. The PP was completed in July 2012 and the no further action ROD was completed in November 2013.

D.11 MAKALAPA PESTICIDE RINSATE PIT

The Makalapa Pesticide Rinsate Pit is located within the PWC Main Complex GSA as shown in Figure 4-1. Between 1974 and 1978 the site was used daily to wash pesticide and herbicide application equipment. The pit is currently backfilled with fill materials. Site investigations have revealed significant levels of pesticides, PCBs and other contaminants within and surrounding this site. A Draft RI report was submitted in September 1993. Regulatory agency review comments on the Draft RI Report were received in March 1995, and the Draft Final RI Report was submitted in May 1995. Follow-up sampling and analysis have been recommended to evaluate the source and distribution of the chlorinated pesticides identified at the site. The additional sampling was conducted in May 2005. The draft EE/CA was submitted for regulatory review in October 2006. Due to regulatory comments the site has switched from the Removal Action process to the Remedial Action process, and therefore, the draft EE/CA was changed to a RI/FS. The draft final RI/FS was submitted for regulatory review in August 2007. The RI/FS was finalized in April

2008. A public meeting was held on September 23, 2008 for the proposed plan. The ROD was signed on Sept. 29, 2010. The remedial action was completed in December 2014. The draft ESD which describes the change of the TCG of 1 mg/kg for PCBs to site specific risk based cleanup levels was submitted in July 2015. The revised draft ESD was submitted for review in September 2015. The draft ESD was presented to the RAB on July 14, 2015. The final ESD was signed February 2106. The final RVR/RACR was completed July 2016. NFA concurrence letters for unrestricted use from both EPA and Hawaii State DOH were received August 2016. The site has been closed out.

D.12 EWA JUNCTION FUEL DRUMMING FACILITY

This site comprises the Ewa Junction GSA and is located in the southern portion of Oahu, approximately 8 miles west of downtown Honolulu and about 250 feet north of the Middle Loch of Pearl Harbor as shown in Figure 4-1. The site was constructed in 1943 as a fuel drumming and transportation terminal. It is currently inactive. Significant structures at the site consisted of two USTs and several pump houses along with concrete slabs used for drum storage. According to a 1972 Navy report, vandals activated a fuel pump associated with UST S-26, allowing approximately 315,000 gallons of motor gasoline (MOGAS) to be released on to the surrounding ground surface in March of 1971. The release created a pool of fuel about 1 to 2 feet deep and approximately 150 feet in diameter that was discovered the next day. Immediately following discovery of the spill, Navy personnel pumped the MOGAS that had pooled at the surface back into UST S-26. The volume of product recovered during the pumping was approximately 32,000 gallons, or 10 to 15 percent of the total volume of MOGAS spilled. The remaining fuel either evaporated or seeped into the ground.

An investigation of the site was initiated immediately following the spill. MOGAS was found floating on the shallow groundwater table. Several large (2-foot) diameter wells were installed to recover the MOGAS. An interceptor trench was later installed along the southern boundary of the site to increase MOGAS recovery and prevent southward movement of the MOGAS. The recovery wells and interceptor trench were operated for about a year. More than 100,000 gallons, or approximately 32 percent of the amount of MOGAS spilled, was collected. All together as much as 45 percent of the MOGAS has been recovered.

Additional investigations were conducted in 1974-1975 and in 1988-1990 to further assess the extent of soil and groundwater contamination associated with the MOGAS release. MOGAS was detected in soil and groundwater samples obtained from beneath the site. However, the presence of MOGAS floating on the water table was observed to have diminished markedly during the latter investigation, and was detected in only one area. As a result of these investigations, it was recommended that further work be conducted to characterize the nature and extent of MOGAS.

In 1991, the Navy initiated an RI to evaluate the nature and extent of soil and groundwater contamination; to quantify potential threats to human health and the environment; and, if necessary, to identify actions necessary to minimize or eliminate these threats. Surface and subsurface soil samples collected during the RI were found to contain detectable concentrations of compounds commonly associated with MOGAS. All concentrations of these compounds were found to be below guidelines recommended by the DOH and EPA. A series of groundwater samples collected over a 2-year period from the shallow groundwater system located directly below the site (referred to as the caprock water-bearing zone) were found to contain VOCs and SVOCs (i.e., MOGAS components) at concentrations exceeding the DOH and EPA recommended guidelines. None of these contaminants were detected in groundwater samples collected from a series of artesian wells located to the south of the site that supply water from the deeper basal aquifer to adjacent watercress farms. No MOGAS was detected floating on top of the shallow groundwater beneath the site during the same two year period that the groundwater samples were collected.

Water from the caprock is not currently being used for human consumption in the vicinity of the site. In addition, caprock groundwater in this area is not considered a viable source of potable water because of the low hydraulic conductivity associated with the water-bearing zone and the relatively high concentrations of total dissolved solids (TDS). Data gathered during the RI indicates an overall decrease in the concentrations of fuel components over time. This may be attributed, in part, to biological breakdown of the MOGAS by bacteria and fungi present in the subsurface underlying the site.

The Draft RI Report was completed and submitted in August 1995. Regulatory review comments (received in January 1996) were addressed, and the Draft Final RI Report was submitted in April 1996. EPA and DOH accepted the RI Report as final in May 1996. As indicated in the report, fate and transport calculations performed in support of the RI suggest no potential for future offsite migration of contaminants dissolved in the caprock water from the vicinity of the MOGAS source. However, it is uncertain whether contaminants related to the 1971 spill could have migrated offsite in the past. As a result, the RI Report recommended that additional groundwater monitoring wells be installed to the south of the site within the caprock water-bearing zone. Installation of these wells will help to close the identified data gaps related to defining the limits of contamination. It was further recommended that long-term monitoring of all the onsite and offsite (i.e., existing and proposed) monitoring wells be conducted. In response to these recommendations, a second phase of the RI was initiated. The Draft Final RI project plans were submitted in October 1996. Regulators accepted the Draft Final RI project plans in December 1996. Due to comments received from the Navy's QC/QA consultant in January 1997, the Final SAP was revised. The Draft Revised SAP was submitted in April 1998. The Draft Final Revised SAP was submitted in July 1998.

The field investigation was substantially completed in July 1998 with the completion of four off-site groundwater monitoring wells. The first round of groundwater sampling was also completed at that time and was considered the "dry" period sampling. The second round of groundwater sampling was to occur during the "wet" period, which was not determined due to the unusually dry weather conditions. The "wet" period did not materialize. Per conference call with regulators in April 1999, a second round of groundwater sampling was performed at that time.

The Draft Phase II RI Report was submitted in November 1999. The report found contaminants related to the 1971 spill remained on site and had not migrated offsite. Since the contaminants are undergoing biodegradation, natural attenuation is occurring at the site. The report recommended that no further response action is required at the site. Regulatory comments were received in September 2000. The regulators did not concur with the report recommendations and submitted their comments with a substantial portion (25 pages) focused on the ecological risk assessment. A draft final Phase II RI report was submitted in November 2000 addressing their comments but did not change the recommendations. The regulators continued not to concur with the report recommendations. The duration of groundwater monitoring and the definition of drinking water were the two major items of contention.

A partnering session with the regulators, their consultant, and the Navy's consultant was held in April 2001 to address these items of contention. The partnering session resulted in an agreement that although the EPA would no longer handle this site under CERCLA due to the petroleum exclusion clause, the petroleum contamination would be handled by DOH under the Hawaii Environmental Response Law (HERL) and the Navy would conduct their response actions under the State Contingency Plan (SCP) which is the state equivalent of the NCP and describes how HERL is implemented.

After a meeting with DOH in July 2001, it was agreed that the Navy would submit a letter to DOH requesting a No Further Action (NFA) determination in accordance with criteria contained in the SCP. The NFA letter to DOH was submitted in October 2001. DOH provided an NFA concurrence letter in March 2002. All groundwater monitoring wells were properly abandoned in July 2002. In March 2005, a letter was sent to the EPA requesting concurrence that this site and the Pearl City Junction site be de-listed from the PHNC NPL. In October 2005, EPA denied the request to de-list the site from the PHNC NPL and indicated that it would be addressed in the ROD for the entire PHNC.

D.13 FLETRAGRU FIRE FIGHTING TRAINING AREA

The Fleet Training Group (FLETRAGRU) Fire Fighting Training Area is located within the Richardson GSA. Gasoline, diesel fuel, waste oil, and paints were reported to have been ignited and used for firefighting training purposes at this site from 1940 until 1976. After each training

exercise, spent water and ignited materials were washed into pits and drains; from these locations the training wastes were reported to have been released to Aiea Bay (i.e., the East Loch of Pearl Harbor). Catch basins, oil-water separators, and pipelines located at the site all discharged directly into Aiea Bay. Site investigations indicated elevated levels of VOCs in soil gas and minor amounts of VOCs and PAHs in the soil. TPH was also detected in soil and groundwater beneath the site. On the basis of these findings, a Removal Action is proposed for this area to address detected contaminant hotspots.

Final planning documents (Work Plan and SAP) for a RSE at the Fire Fighting Training Area were completed in April 2005. A Final Work Plan and SAP Technical Addendum was completed in August 2005. Fieldwork began in December 2005 and was completed in February 2006. The RSE was completed in October 2006 and the results indicated that in addition to TPH, dioxin and lead found in the near-surface soil could potentially pose a human health and ecological risk. The RSE recommended as a conservative measure the removal of soil from two near-surface areas to reduce the risk to human health to within EPA target cancer risk range and below the target non-cancer risk threshold and to reduce risk to site ecological receptors. Draft EE/CA submitted in January 2007 for public review and comment. EE/CA was finalized in August 2007 to include recommendations to removal dioxin, lead, TPH, PCBs, and PAHs. The Removal Action to remove these contaminants was completed in September 2007.

Draft RVR submitted in November 2007 to regulators for review. RVR confirmed that the Removal Action removed COCs from site. In response to EPA Region IX comment on the draft RVR regarding dioxin in groundwater, a round of groundwater sampling and analysis (unfiltered and filtered) for dioxin was performed. The results of sampling analysis incorporated into the final RVR which was submitted August 2008.

To address the residual petroleum contamination at the site, a draft Work (Sampling and Analysis) Plan for long-term monitoring and petroleum removal was submitted in April 2008 to regulators for review. A final Work (Sampling and Analysis) Plan was submitted in November 2009. The Work (Sampling and Analysis) Plan was revised in March 2010.

A draft Proposed Plan presenting the proposed final remedy for both the CERCLA COCs and the residual petroleum contamination at the site was submitted in October 2008. The final Proposed Plan was submitted for public review and comment in April 2009. A Public Meeting for the Proposed Plan was held in May 2009. The Draft ROD was submitted to the regulators in June 2009. The ROD was signed on Sept. 29, 2010. The target completion dates for documents associated with the Record of Decision are presented in Appendix A. Long-term monitoring was conducted at the site in accordance to Work (Sampling and Analysis) Plan mentioned in the above paragraph to address the residual petroleum contamination at the site. The petroleum contamination was addressed separately with DOH. A No Further Action determination for

petroleum was provided by DOH in April 2012. This site was identified as an Area of Interest (AOI) for PFAS as an emerging contaminant. Further details are provided in Sections D.26 and D.26.1.

D.14 MAKALAPA CRATER

This SMP Group comprises the Makalapa Crater GSA and is located to the south of Halawa Stream as shown in Figure 4-1.

Prior to the 1940s, Makalapa Crater was a depression containing a small lake. It was used for disposal of dredge spoils and other Navy wastes, until the lake was eventually drained and filled. Results from previous environmental investigations of the site indicate elevated levels of TPH and selected metals in soil samples collected from within the crater. A draft final SSR, identified additional potential release locations (PRLs) or sites within Makalapa Crater GSA, was completed in August 2001 (The draft SSR was completed in 1997). The SSR for the Makalapa Crater GSA was finalized in November 2002.

Based on the recommendations from previous investigations, further investigation is necessary, and therefore an SI is planned. The SI will cover the Makalapa Landfill Area, which will further include the Former Pesticide Rinsate, Makalapa Early Disposal Area and the Makalapa Clean Fill Area. Preparation of the draft SI planning document (worksheets) was initiated in 2009. During review of the draft SI Work Plan worksheets, EPA raised concerns for the presence of discarded munitions and explosives of concern (MEC) and munitions constituents (MC). In July 2010, a Draft PA was prepared to evaluate the potential presence of MEC and/or MC based on a review of available historical records. The PA was finalized in May 2011 and recommended further evaluation of potential concerns for MEC and MC in a 3.7 acre area of the northwest end of the former crater. The Draft RI Work Plan was prepared in March 2012, and the Draft Final RI Work Plan was completed in August 2012. The RI Work Plan was finalized in December 2013 and field sampling was conducted from February through May 2013. Based on the preliminary sample results, additional delineation was recommended for two soil gas samples. Additional step out samples were collected for elevated methane in one soil gas sample at the Navy Hale Keiki School (NHKS) parking lot, and TCE in soil gas at the Former Navy Child Development Center (CDC) parking lot. The additional delineation sampling was performed in December 2014 – January 2015. Results were incorporated into the Draft RI Report for the Makalapa Crater GSA, which was completed in June 2015. The Draft Final RI Report was completed in April 2016, and the Final RI was completed in November 2016. The Final RI recommended additional sampling to evaluate the nature and extent of contamination in the area northeast of sample location BW-41. A RI addendum Work Plan was finalized in March 2017, however, field work was delayed due to a construction project laydown area that was located near the planned sampling locations. Field work was rescheduled and completed in March 2020. The Draft RI Addendum report was prepared

in December 2020 and regulatory reviews were completed in November 2022. The Final RI Addendum and Draft FS are planned for 2025.

In January 2014, the Navy was informed of lead, mercury, and dioxin subsurface contamination and munitions-related debris at the Radford High School (RHS) track, which is located along the northeast side of the former Makalapa Crater. The RHS is on former Navy property that was transferred to the CCH in 1962, and is still owned by the CCH. The subsurface contamination and debris was found during a State of Hawaii Department of Education (DOE) construction project to replace the cinder track with an all-weather rubber track. Prior to DOE's discovery, the RHS track area was thought to only be associated with the Early Disposal Area and historical pumping of dredge material into the crater in the 1930's and 1940's. Based on visual inspection of the subsurface debris at the RHS track, the contamination in this area is more likely associated historical disposal activities and a former Makalapa Salvage Yard area on the northeast side of the former crater, which was documented in the PA. In August 2014, the Navy initiated field work for a time-critical removal action (TCRA) to remove contaminated soil and munitions-related debris to a depth of at least one foot below DOE's required construction depth for the new track. Because DOE also expanded the scope of the track renovation, to include a new sprinkler system for the football field, the TCRA also included excavation of the football field to a depth of at least one foot below the field surface and irrigation line trenches. The TCRA also included investigation and sampling of former Navy property adjacent to the RHS track, which includes the entire RHS athletic complex (baseball field, practice field, and softball field) and the neighboring Makalapa Elementary School (MES) playground. TCRA field activities were performed from August 2014 to March 2015. In April 2016 the Navy completed final site restoration of the football field, which was scheduled after DOE's contractor installed new drainage and irrigation lines as part of the track renovation project. All TCRA work, including sampling results, are documented separately from the Makalapa Crater GSA RI in a Removal Verification Report. The Draft RVR was completed in August 2016, and the final RVR was completed in May 2017. The U.S. Army Corps of Engineers completed a Finding and Determination of Eligibility in August 2015 and Inventory Project Report in September 2015. Future investigation and response actions for the former Navy property at RHS and MES will be managed by the U.S. Army Corps of Engineers Formerly Used Defense Sites Program.

D.15 PEARL HARBOR REGIONAL SEDIMENT STUDY

This site comprises the Pearl Harbor GSA and is located in the south-central region of the island of Oahu, Hawaii as shown in Figure 4-1. The site is a large complex estuary comprised of approximately 5,000 acres of surface water area and 36 miles of lineal shoreline. It encompasses the entrance channel to the estuary, West Loch, Middle Loch, East Loch, and Southeast Loch. West and Middle Lochs are separated by the Waipio Peninsula, and Middle and East Lochs are separated by the Pearl City Peninsula. Ford Island is located in the middle of the site. Naval

operations conducted adjacent to the site have been multi-faceted and have included fuel storage, handling, transfer, and recycling facilities as well as operation, maintenance, and support facilities and military landfills. Past waste handling and disposal methods, although acceptable at the time, may have caused unexpected long-term problems at some locations through release of toxic and hazardous substances into soil and groundwater at sites surrounding the estuary as well as into the estuary itself. Construction of a sewage treatment plant in 1970 and an industrial wastewater treatment plant in 1974 have helped to reduce further discharges; however, significant concentrations of contaminants may still be present in the harbor sediments. To address potential concerns related to this site, a RI was implemented.

The Draft RI/FS planning documents were submitted in September 1995. Regulatory review comments on the draft documents were addressed, and the Draft Final RI/FS planning documents were submitted in February 1996. The Final RI/FS planning documents were submitted in August 1996, once additional comments in the Draft Final documents were addressed.

Field sampling activities, which included collection of 219 sediment samples and 15 tissue samples from designated locations throughout the harbor, were conducted between July and November 1996. Several in-progress technical review meetings between the Navy, regulatory agencies, and natural resource trustees were held to discuss the preliminary findings and methodologies to be used in the human health and ecological risk assessments. During an in-progress meeting, held in July 1998, human health concerns regarding consumption of fish and shellfish from Pearl Harbor were discussed with EPA Region IX and the State DOH. Based on the available data and conservative human health risk assumptions, it was determined that a harbor-wide fish/shellfish advisory was warranted. On August 27, 1998, the State DOH issued a public health advisory warning against the consumption of all fish and shellfish in Pearl Harbor. The correlation between identified areas of contaminated sediments, elevated tissue samples, food web models, and ecological and human health risks had yet to be determined.

Based on a technical in-progress meeting held in October 1999 at EPA Region IX, the Draft RI/FS Report included a full baseline ecological risk assessment (BERA) in strict accordance with EPA's 8-step method. A series of SMDP deliverables, technical data submittals, and meetings were planned to complete a BERA (i.e., through EPA Step 7 – Risk Characterization). A technical meeting between the Navy, regulatory agencies, and natural resource trustees was held in May 2000 to discuss Step 3 of EPA's 8-Step Method. A revised Step 3a document was completed in October 2000. Based on subsequent comments and meetings, a final revised Step 3a document was completed in March 2001. A draft Step 3b/4 SMDP document for the ecological risk assessment was completed in October 2001. A revised Step 3b/4 document incorporating U.S. EPA Region IX comments was completed in June 2002. Proposed ecotoxicity reference values were submitted in April 2002 as Appendix A to the Step 3b/4 document. The Baseline Ecological Risk Assessment was completed in March 2005. The draft and draft final RI reports were

completed in October 2005 and October 2006, respectively. The RI report recommends areas requiring further consideration in the FS as a result of ecological and human health risk and background evaluations. A revised RI was completed in April 2007. A draft work plan for data collection to support FS development was completed in December 2006. In May 2007, EPA issued a letter to the Navy stating that they intended to invoke formal dispute resolution if EPA cannot reach agreement with the Navy through informal consultation. EPA requested that the Navy not continue with the development of Feasibility Study documentation.

To address these concerns, the Navy agreed to discontinue development of the FS work plan, and instead collect additional data for characterization in a Remedial Investigation Addendum. A Remedial Investigation Addendum Work Plan was completed in March 2009 and samples for additional data characterization were collected in March and April 2009. A draft final Remedial Investigation addendum report was completed in November 2010. In the RI Addendum report, the Navy recommended NFA for Pearl Harbor Sediment Decision Units (DUs) that met the NFA decision criteria established in the RI Addendum Work Plan (2009): DU W-1 (all of West Loch), DU M-1 (all of Middle Loch), DU E-1 (most of East Loch), and DU N-1 (most of the Navigation Channel). In December 2010 comments on the Draft Final RI Addendum report, the EPA indicated that they would approve of the RI Addendum conclusions and recommendations if the RI Addendum report is revised to recommend monitoring instead of NFA for these DUs. The Navy and the EPA have agreed that the RI Addendum report will be revised to recommend No Active Remediation (NAR) for the DUs previously recommended for NFA, and that the Final RI Addendum and FS reports will recommend monitoring for these DUs to support CERCLA five-year reviews.

This plan, which has been agreed upon by EPA and DOH, summarizes the Navy's position on the rationale, objectives, and scope of monitoring for NAR DUs, including sampling and analysis of sediments and bottom fish tissues to monitor COPC concentrations in the harbor sediments and biota. This plan is not intended to address post-remediation monitoring for the DUs recommended for further consideration to evaluate active remediation (e.g., dredging, capping, and monitored natural recovery) in the FS phase of the Pearl Harbor Sediment project. A final FS Work Plan was completed in February 2012. FS field activities were completed in August 2012 and the final FS report was submitted in June 2015.

A treatability study work plan focused on under pier areas and capping using activated carbon was finalized, along with the treatability study design, in April 2014. The field work commenced in November 2014 and will continue for the next four years. The baseline, 6-month, and 18-month sampling has occurred. The final sampling event for the 42-month post placement performance monitoring occurred in November 2018. The final Treatability Study Report was submitted in March 2020.

The Proposed Plan presented to the public in February of 2016 detailed information on the development, comparative analysis, and selection of the preferred remedies for the site. Additional sampling related to the remedial design was completed in April 2017 as presented in the Basis of Design Tier II Work Plan that was submitted in January 2017. The objectives of the sampling event was to provide data and information needed to complete the Basis of Design document for selected remedies. This sampling also provided data for harbor-wide baseline fish tissue concentration in addition to the 1996 and 2009 data. The Navy used this latest data to update remedy implementation areas and revise the overall cost of the selected remedial alternatives.

The final Record of Decision was signed by the Navy, EPA, and DOH on September 26, 2018. The project is currently in the design phase and the final Basis of Design was submitted in March 2019. The 100% design package was completed in October 2019.

The remedial action work detailed by the design is currently underway in the harbor. The plans describing how the remediation construction tasks will be performed and what site-specific conditions may affect, contribute to, or influence any remedial activities were submitted to stakeholders in draft/draft final/final in April, July, and October 2020 respectively. The plans explain how each task during remediation construction is implemented and details how the contractor plans to comply with the design, specifications, and permits for the remediation tasks. The plans also include various elements of how environmental monitoring will be implemented and detail any necessary controls to protect the natural environment. Amendments to these plans detailing additional work to the remedial schedule have been submitted as final in May 2022 and October 2023. Additional amendments to these plans will be submitted as future phases of work are implemented. The Interim Remedial Action Completion Report documents all the work done under each phase of work. This document is being finalized and will also be updated as phases of work are completed.

The Long-Term Monitoring Work Plan presents the proposed sampling and analysis program as part of the long-term monitoring (LTM) program at the Pearl Harbor Sediment site within Joint Base Pearl Harbor-Hickam on Oahu, Hawaii. The objective of the LTM program is to evaluate the performance of selected remedial actions and measure progress toward achievement of the remedial action objectives within the six decision units (DUs) identified for remediation at the site. This work plan also documents the sampling and analysis program for the four DUs recommended for No Active Remediation (NAR) as outlined in the December 2012 Navy position paper titled Post-Remediation Monitoring Plan to Support CERCLA Five-Year Reviews for Decision Units Recommended for No Active Remediation. The purpose of the sampling and analysis program for the NAR DUs is to confirm that sediments within these DUs continue to pose no unacceptable risk to human health and the environment.

The completion dates for the RI Addendum Report, FS Report, Proposed Plan, Record of Decision, Design Package, Remedial Action Work Plan, Environmental Monitoring and Management Plan, Interim Remedial Action Completion Report, Long-Term Monitoring Work Plan, and other documents associated with this project are listed in Appendix A.

D.16 DRMR PEARL CITY JUNCTION

The Defense Reutilization and Marketing Region (DRMR) Pearl City Junction Site comprises the Pearl City Junction GSA, as shown in Figure 4-1. This site was used as a temporary storage area for miscellaneous DOD property from 1944 to 1984. From 1962 to 1984, an unpaved area at the site was reportedly used for storage of deteriorated and leaking materials, including transformers containing PCB-contaminated dielectric fluid. As the result of an SI conducted by the Navy in 1990, PCBs and the pesticide Dieldrin were identified as contaminants of concern in two different areas of the site.

To address identified site contamination, two separate Removal Actions were conducted. The results of the SI and the subsequent Removal Action verification sampling revealed that the PCB and Dieldrin contamination was restricted to the surface and near surface soil

The City and County of Honolulu offered to sell the property to a private party in July 1997. The prospective buyer conducted an Environmental Site Assessment (ESA) at the site to verify the effectiveness of the Navy's previous removal actions at the site. The ESA found an area of PCB contaminated soil that was above the site cleanup goal. The ESA was submitted in September 1997.

A removal action was conducted at the PCB contaminated soil area to remove soil above the site cleanup goal. This cleanup action was completed in April 1998. The removal action is documented in the RVR. A Draft RADD, which summarizes the findings and includes the RVR as an enclosure, was submitted in September 1998. RVR and RADD have been finalized and were submitted in November 1999.

In 1996, the Navy and EPA agreed that a separate groundwater investigation would be conducted after the property was transferred to the State of Hawaii/City and County of Honolulu. Final planning documents were submitted in October 1998 for a regional groundwater assessment covering the Manana Storage Area and Pearl City Junction.

Assessment field work began in November 2001 and was completed in February 2002. The second round (dry season) of groundwater sampling was completed in August 2002. Preliminary results indicate the contaminant of concern is not in the groundwater beneath the site. The draft Regional Groundwater Assessment report was submitted in May 2003. The report recommended no further

action for the primary contaminants of potential concern, dieldrin and PCBs the Pearl City Junction site. However, report also recommends characterization of fuel-related impacts in soil and groundwater at the site. There were no regulatory comments objecting to the draft report recommendations. The DOH, however, has requested the Navy provide written verification that the Air Force will be addressing the fuel-related impacts in soil and groundwater at the site under their Installation Restoration program. The Air Force has written directly to the DOH confirming that they will address fuel-related impacts at the site under their Installation Restoration program. The draft final Regional Groundwater Assessment report submitted in October 2003 included the above recommendations and indicated that the Air Force will address fuel-related contamination under their IR program.

In August 2005, a draft PP for No Further Action at this site and the Manana Storage Area site was submitted to the regulators for review. Per DOH comment on the draft PP, the PP should be prepared solely for this site since LUCs are required for only this site. Due to LUCs requirements, a draft Focused Feasibility Study was prepared for this site and submitted in May 2006 to the regulators for review. Focused Feasibility Study was finalized in February 2007. EPA made comments on the final Focused Feasibility Study primarily regarding the LUC response action, history, Air Force role in cleanup of petroleum, ARARs. A revised final Focused Feasibility Study was submitted in April 2008.

A draft Proposed Plan was submitted in June 2008 to the regulators for review. Draft response to regulators' comments was submitted in August 2008. DOH indicated that their comments were adequately addressed. EPA requested that the Baseline Risk Assessment (BRA) be provided for reference in reviewing site specific cleanup goals. Upon completion of the review of the BRA, EPA indicated that their comments were adequately addressed. The final Proposed Plan was submitted for public review and comment in February 2009. A Public Meeting for the Proposed Plan was held in March 2009. The Draft ROD was submitted to the regulators in May 2009. The ROD was signed on Sept. 29, 2010. However, the land is no longer held by the Navy and the current land owners were not a signatory to the ROD. Five-year reviews were completed in 2014 and 2019.

D.17 WAIPIO PENINSULA

An SSR for the Waipio Peninsula GSA was completed in October 1999. Per the FFA, the document was finalized in November 1999. However, comments were received from EPA in April 2000, thus the document was revised in August 2000. The SSR identified five pad-mounted transformers that require further evaluation of potential PCB releases.

An SI was conducted to investigate the presence of contamination at the pad-mounted transformers, which were identified in the SSR for the Waipio Peninsula GSA. The SI Work Plans

were completed in January 2003 and field work was conducted in January to February 2003. The final SI report was completed in June 2004. Three transformers found to have PCB soil contamination were remediated by the Thermal Desorption project discussed in D.25.

D.17.1 Herbicide/Pesticide Mixing Area (Oahu Sugar Company)

Until 2022 the Navy was in negotiations with EPA and a potentially responsible party (PRP) regarding the OSC site. Although a PRP had been identified, the Navy budgeted some funding to investigate and cleanup the OSC site in the out years (FY25 and out) in the event that the PRP dissolves. The Navy sampled near shore sediment in Walker Bay as a result of hot spot discovered as part of the PRP's soil sampling. The Navy found that one of the two sediment samples exceeded the Pearl Harbor Sediment action level for dioxin. The Navy is performing an RI/FS to delineate the extent of contamination in the near shore sediment. A Draft RI Work Plan for Sediment Adjacent to the OSC site was prepared in May 2017, the Draft Final Work Plan was completed in July 2018, the Final Work Plan was completed in February 2019, and a Draft RI/FS for sediment was prepared in January 2021.

In February 2022 the District Court for the District of Hawaii issued a consent decree with the PRP. The settlement resolved the Navy's claims for CERCLA response costs. Future schedule and actions for the site will be managed by the Navy. The Navy initiated RI planning efforts for the terrestrial areas of the site in 2024. Target completion dates for future actions are listed in Appendix A.

D.17.2 Confined Disposal Area Contaminated Soil

The Navy finalized the Remedial Investigation Work Plans for the Confined Disposal Area Contaminated Soil site (which is adjacent to the Combined Disposal Facility (CDF)) in May 2010 and completed the draft RI in August 2011. A Technical Memorandum II evaluated sample results from Phase II and proposed additional step-out sample locations. All data were evaluated in a revised draft RI in April 2013 that concludes that further action is required for the site. The Navy finalized the RI in February 2015, completed the draft final FS in July 2016, and completed PP Public Meeting on June 2017. Due to changes in regulatory standards for PAHs, the Navy revised the cleanup approach to include a TCRA to excavate and dispose of lead and thallium contaminated soil offsite. The Removal Verification Report documenting the completed TCRA is currently under regulatory review. The Target completion dates for future actions are presented in the SMP Schedule in Appendix A.

D.17.3 Sandblast Grit Disposal Areas

The Navy discovered two non-contiguous sandblast grit disposal areas of unknown origin on Waipio Peninsula along the Middle Loch shoreline; one is located off the Waipio Peninsula Access

Road (middle of peninsula), and the other is located at the southern portion of the peninsula near the Confined Disposal Facility (CDF), that had sandblast grit scattered at surface. Samples were taken of the grit itself and soil beneath the grit near the CDA. The results show that the grit had elevated levels of lead (569 ppm) and considered hazardous (TCLP of 26 ppm for lead). The results for soil beneath the grit had elevated levels of lead (526 ppm) and arsenic (370 ppm). The TCLP result for soil was determined not to be hazardous. The sandblast grit along the un-named roadway was scattered at surface and comingled with soil in a small berm approx. 3 ft. high and 40 ft. long. The results show that the grit had elevated levels of lead (649 ppm) and arsenic (226) and is considered non-hazardous. The results for soil beneath the grit had elevated levels of lead (418 ppm) and arsenic (221 ppm). A time critical removal action (TCRA) was completed in 2012 to remove the hazardous grit and contaminated soil. An Action Memorandum (AM) was submitted in January 2012 to document the primary decision for the TCRA. A Removal Verification Report (RVR) was finalized in December 2012, describing the TCRA activities completed, documenting the post-TCRA conditions, and recommended further action due to exceedances of lead and arsenic concentrations. The RI will evaluate the nature and extent of contamination, and the potential risk to human health and the environment. A draft RI work plan was submitted January 2013 and discussions about laboratory procedures held up the progress forward. The work plan was finalized in April 2014 and fieldwork started in May 2014. A draft RI was submitted in June 2015, which indicated step-out sampling is necessary to delineate the site. The RI report was put on hold and a work plan addendum was finalized in April 2017 and fieldwork started in July 2017. During the 2017 fieldwork additional sandblast grit was found in the subsurface at one of the disposal areas and a second step-out was planned to further delineate the site. Additional RI addendum work plans and field work step-outs were completed in 2018, 2019 and 2021, and RI human health and ecological risk assessment efforts are ongoing.

D.18 WEST LOCH

A draft final SSR for the West Loch GSA was completed in August 2001. (The draft SSR was completed in 1997. Based on regulatory comments, individual SSRs were prepared for each GSA.) A final SSR was completed for the West Loch GSA in March 2002. The final SSR for the West Loch GSA was amended on July 2003 based on regulatory comments received on the final.

An SI was conducted to investigate the presence of contamination at the various sites, which were identified in the SSR for the West Loch GSA. The SI Work Plans were completed in January 2002 and field work accomplished January to February 2003. The draft SI was prepared in May 2003 with recommendations for further evaluation of transformer locations, former vehicle maintenance areas, and former fuel storage facilities. The final SI report was completed in June 2004.

D.18.1 Iroquois Point and Puuloa Housing Areas

A draft Site Investigation report for Iroquois Point and Puuloa Housing areas was completed in May 2001. A draft final Site Investigation Report was competed in August 2004. The draft Site Investigation report recommended a Removal Action for transformer I-4. The Site Investigation Report was finalized in August 2004. The interim removal action at this site was part of the consolidated thermal desorption project to treat PCB contaminated soil that is described in Section D.25.

D.18.2 Auxiliary Power Facility, Building 49

Building 49 was used to house an auxiliary generator and transformer. Prior to 1977, transformers were filled with dielectric fluid containing PCBs. Past maintenance practice of the transformer was reported to include periodic sampling of the oil to test its dielectric properties. The sample of oil was then disposed of on the ground adjacent to the building housing the transformer. In November 1998, surface soil samples taken adjacent to the building indicated that there were elevated levels of PCB present.

A removal action was initiated to determine the extent of contamination and excavate and dispose of the PCB contaminated soil. An Action Memorandum which documents the removal action decision was finalized in July 1999. To implement the removal action activities, a Final Work Plan was completed in July 1999.

Pre-excavation concrete wipe sampling and analysis conducted in July 1999 did not indicate PCB contamination greater than the established cleanup level. Therefore, no further concrete remediation activities were implemented.

Removal of the PCB contaminated soil at the front of Building 49 was completed in August 1999. Removal of the PCB contaminated soil associated with the drain pit at the back of Building 49 was completed in June 2000, including removal off the drain pit and associated piping. However, during the removal of the sediment from the drain pit's dry well, a half-inch layer of oil on the groundwater was revealed.

A monitoring well was installed at the former drain pit location in August 2000. The well was bailed dry during development and a week later revealed an oil sheen. Further monitoring of the well did not indicate an oil sheen. Groundwater sample results did not indicate groundwater has been impacted. Based on the findings, no further response is required. The draft RVR was completed in January 2002. The final RVR was completed in May 2003 and amended in December 2003 & March 2006.

In March 2006, a draft Proposed Plan for No Further Action at this site was submitted to the regulators for review. Based on regulator comments, the Proposed Plan was finalized in June 2006. The Draft Record of Decision was submitted June 2006 & with regulator concurrence the Record of Decision, it was finalized on September 2006.

D.18.3 Munitions Response Program (MRP) sites

The West Loch Burning Pit, Electrical Component Disposal Area, and Injection Well site were added to the Munitions Response Program for further investigation in 2004. A draft final PA was prepared in February, 2007 and the final PA in September, 2007. The draft SI work plan was submitted January 22, 2008 and the final SI work plan was submitted on February 11, 2009. The SI field work was completed in May 2009 and the final SI report was completed in May 2011. Further study is recommended for the Electrical Component Disposal Area and West Loch Burning Pit. Closure of the injection well was performed in accordance with DOH requirements; after which No Further Action was recommended for that site. The Target completion dates for future actions are presented in the SMP Schedule in Appendix A.

D.18.3.1 Electrical Component Disposal Area (MRP site)

The Electrical Component Disposal Area (ECDA) has been investigated separately from the West Loch Burning Pit. The 2011 final SI report identified items categorized as Material Potentially Presenting an Explosive Hazard (MPPEH) or Munitions and Explosives of Concern (MEC) Discarded Military Munitions (DMM), in which all except one item was verified by the Explosive Ordnance Disposal (EOD) Detachment as not containing explosives. An RI was recommended for further action/munitions response to determine the extent of MEC removal or MC contamination. A draft RI work plan was submitted in October 2012. The draft work plan was revised and a draft final was submitted in January 2013. Due to the internal Navy process of acquiring an Explosives Safety Submission for approval to safely work in the field, the work plan could not be finalized until December 2013. Fieldwork was delayed due to coordination for 3rd Party QA with other MRP sites, but began in March 2015 and during fieldwork metal debris was found near the outer edges of the site boundary. The metal debris observed was similar to ones found within the ECDA site which indicated step-out sampling was necessary. A field change request established two separate step-out areas for MEC survey of 6.4 acres and 4.9 acres and sampling in areas where debris piles are found. Step-out fieldwork began in September 2016 and found exceedances in all contaminants of potential concern (COPC). The COPC exceedances were not much higher than the EALs except for PCB, arsenic, and antimony, which is what the step-out investigation focused on to delineate the site contamination. The step-out investigation also included sampling for cadmium, cobalt, and iron as agreed upon with the regulators. In 2018, additional debris was observed east of the boundary which was similar to what was previously seen within the boundary. After discussions with the regulators, the MEC investigation boundary

was expanded to approximately 42.7 acres, excluding the 1.7-acre Burn Pit site. Further step-out investigation in 2019 included delineation of PCBs and cobalt on the southern part of the site, but still included evaluation of all contaminants previously sampled in the last sampling event. The draft RI was submitted for regulatory review in September 2021, recommending an FS to identify alternatives for the 26.7 acre area presenting potential MEC/MPPEH hazard and contamination that poses a potentially unacceptable risk to human health.

D.18.3.2 West Loch Burning Pit (MRP site)

The West Loch Burning Pit has been investigated separately from the Electrical Component Disposal Area. The 2011 final SI report concluded that no Munitions and Explosives of Concern (MEC) or Munitions Debris (MD) were located within the boundaries of the site, but an RI was recommended to determine character and extent of dioxins and metals contamination in surface soil. The RI will evaluate the nature and extent of contamination, and the potential risk to human health and the environment. The RI work plan was finalized in July 2015 and fieldwork started in August 2015. Initial fieldwork determined step-out sampling was necessary and a plan to increase the investigation area to 1.2 acres was established. Step-out fieldwork began in November 2016 and found exceedances in 2 Decision Units (DUs) and further step-out fieldwork was planned to laterally delineate the site. This increased the investigation area to 1.7 acres and further sampling of surface and shallow subsurface soil was evaluated in 2018. Additional rounds of step-out sampling occurred in 2019, 2021, and 2023. The Draft RI was submitted for regulatory review in October 2024, recommending an FS to identify alternatives because the identified contamination poses a potentially unacceptable risk to human health and ecological receptors.

D.18.4 4th Street Coral Pit Landfill

The 4th Street Coral Pit Landfill was known to have been excavated as a source of coral for use as road construction materials in the 1930s. During World War II, the coral pit was used as a waste disposal site for solvent cans, paint sledges, paint cans, empty transformers, acid-filled automotive batteries and dunnage. In the mid-1970s the site was partially backfilled with coral rock by the Army Corps of Engineers. Subsequent to covering the former landfill, scrap metal disposal was permitted at the Site, although unauthorized disposal of other material continued.

An SI was conducted in 1989. The RI WP was completed in 2009 and field work was conducted in 2010. The final RI report was completed in August 2011. The FS was finalized in February 2012. The PP was completed in August 2012 and the ROD was completed in October 2014. The RACR was completed in October 2015. LUC signs are in place, the monitoring wells have been decommissioned and periodic inspections are conducted. This site was included in the second installation Five-Year Review, which was completed in September 2019. The Five Year Review confirmed that the LUCs remain protective.

D.18.5 West Loch Otto Fuel Waste Storage Area

The West Loch Otto Fuel Waste Storage Area is situated in the northeast portion of the West Loch Annex (b) (3) (B)). The West Loch Otto Fuel Waste Storage Area stored solid waste (b) (3) (B) designated for incineration from the early 1970s to 1981.

A SI was completed in 1990. Cyanide was detected in one of two shallow soil samples, at a concentration of 1.8 milligrams per kilogram (mg/kg); exceeding the California designated level for cyanide in soil to protect marine waters (1 mg/kg). The SI also detected PGDN in the groundwater from one monitoring well at a concentration of 0.26 milligrams per liter. In 2002, an SSR was prepared to present the results of a site summary evaluation (SSE) of the West Loch geographic study area (GSA). A reevaluation of the site performed as part of the SSE indicated that further investigation was required to confirm the presence of PGDN, and (if present) evaluate the extent of PGDN contamination in groundwater at the site. As a follow up to the SI an RI will be conducted. The final RI/FS WP was completed in June 2012. The draft RI report was completed in June 2012 and draft final RI in July 2013. The Navy is finalized the RI which concludes that there is acceptable risk and recommends no further action at the site. The Proposed Plan was completed and presented at a public meeting in June 2014. The draft ROD was completed in December 2014, the draft final ROD was competed in October 2015 and the final ROD recommending NFA was signed in September 2016. This completes all actions for this site.

D.18.6 Vehicle Maintenance Facilities

The West Loch Vehicle Maintenance Facilities are composed of six former vehicle maintenance locations: (1) Building 58 – Auto Hobby Shop, (2) Building S417 – Automotive Grease Rack, (3) Former Building Q422 – Oil Waste Dry Well, (4) Building 436 – Battery Charging Station, (5) former Building 48 – Transportation Garage, (6) former Building 461 - Vehicle Wash Rack. The site is located in the northern portion of Navy Munitions Command East Asia Division Detachment Pearl Harbor (NMC EAD DET PH), Naval Station Pearl Harbor West Loch Annex.

Prior activities at these sites included the storage and use of motor oils and fuels, waste oils, waste solvents, anti-freeze, paint, and other associated wastes. The RI/FS WP was finalized in December 2011. After completion of the initial field work, two of the locations, Building 436 and Former Building Q 422, had underground injection wells that contained residual material that require additional investigation. The investigation is underway and the draft final RI report was distributed for comments in August 2014 and finalized on 11/25/14. The proposed plan was presented in a public meeting on August 19, 2015. The final ROD is currently being produced and should be available for signature by October 2016. Building 58 was not included in the investigation because

the site is unsafe to work around due to the unsafe condition of the building. Demolition of Building 58 is not expected in the near future.

D.19 BISHOP POINT

The draft final SSR for the Bishop Point GSA was completed in August 2000. A second draft-final SSR for the Bishop Point GSA was completed in June 2001, which was accepted as final by EPA and DOH in August to September 2001. The SSR identified 6 pad-mounted transformers that require further evaluation of potential PCB releases. An abandoned UST (UST BP1) was also identified for further evaluation of potential petroleum releases. (The draft SSR was completed in 1997. Based on regulatory comments, individual SSRs were prepared for each GSA.)

A focused SI was performed at the abandoned UST (UST BP1) site and the report (April 2005) recommended that further investigation is needed. The UST is to be addressed under the UST program.

The main SI objective was to evaluate lead concentrations in subsurface soil in the Area Near the Former UST BP-1, including the location where an elevated concentration of lead was detected during the 2004 Focused SI (Figure 1, location BP1-BS01, 4,910 mg/kg at 6.5 feet bgs). In addition, the SI was to evaluate a geophysical anomaly (Anomaly 1) that was detected during the 2004 Focused SI (Earth Tech 2006).

The geophysical survey of this SI was done in May 2012. Anomaly 1 was again identified along with a second anomaly (Anomaly 2). As a result, the number of soil borings was increased from that proposed in the final work plan. Anomaly 1 was determined to be approximately 8 feet wide by 11 feet in length and 0.5 feet bgs (immediately below the concrete slab). Anomaly 2 was determined to be approximately 8 feet wide by 14 feet in length and 0.5 feet bgs, with a second feature about 4 feet below Anomaly 2 that may be a metal object about 4 feet wide. None of the anomalies was interpreted to be a metal UST. The geophysical surveyor recommended that two borings per anomaly be advanced to help identify the edges and shape of the anomalies.

Boring locations were selected using a judgmental sampling design to provide data for evaluating the lateral and vertical extent of contamination at the site, and the potential for vertical migration of the contaminant and impact to groundwater. Four soil borings were placed within both anomaly footprint areas and five soil borings were located upgradient, cross-gradient, and downgradient of the anomalies.

Soil boring activities were conducted on 06 June 2012 utilizing direct push technology to collect subsurface soil samples. Soil samples were collected in acetate liners from three approximate depth intervals: 0.5 to 5 feet bgs; 4 to 8 feet bgs; 8 to 12 feet bgs. Groundwater was encountered

at approximately 12 feet bgs, therefore, borings were advanced to a maximum depth of 12 feet bgs.

All subsurface soil samples were shipped to an off-site laboratory, Agriculture and Priority Pollutants Laboratories, Inc. for analysis. The soil samples were prepared according to the laboratory's incremental sampling SOP, where soil samples were spread out onto drying trays lined with aluminum foil. As the samples were drying, laboratory personnel observed that six of the soil samples were reacting with the aluminum foil, with apparent oxidation and development of holes in the foil. The laboratory personnel reported this observation and recorded a pH ≤ 2 using pH litmus test strips on the wet portions of the subject samples. These six acidic samples were all collected at 8 to 12 feet bgs.

Subsurface soil analytical results were compared to the project screening level, based on the DOH Tier 1 direct-exposure EAL of 200 mg/kg for a site with unrestricted land use, where groundwater beneath the site is not considered a drinking water resource, and the site is less than 150 meters from surface water (DOH 2011). Lead was detected in all subsurface soil samples collected at the site with concentrations ranging from 30.8 mg/kg to 11,200 mg/kg (Table 1), and all samples exceeded the project screening level except for a single sample in boring B3 (30.8 mg/kg at 0.5 to 4 feet bgs).

EPA and HDOH agreed that a letter report on this SI finding would be sufficient and the investigation would move to an RI.

The Site Inspection Letter Report Area Near Former UST BP-1 was finalized in March 2013. Also in March 2013, a project was awarded to conduct a Remedial Investigation, Feasibility Study, Proposed Plan, and Record of Decision. The first four worksheets were produced and finalized. These worksheets were: Worksheet 10, Conceptual Site Model, Worksheet 11, Project Quality Objectives/Systematic Planning Process Statements, Worksheet 15, Reference Limits and Evaluations Tables, Worksheet 17, Sampling Design and Rationale. Following approval of the first four worksheets, we prepared and finalized the work plan in February 2014.

In order to achieve RI objectives stated in the February 2014 Final Work Plan, the field investigation was conducted using a two phased approach. Phase I was conducted in March/April 2014. Trenching operations did not identify an Underground Storage Tank in the area, the anomalies identified during a geophysical survey turned out to be debris composed of compacted and heavily corroded/deteriorated scrap metal and fragment of glass, porcelain, and ceramic tile. In addition, Phase I sampling results indicated that COPCs were not fully delineated and additional sampling will be required. It was decided to perform the Phase II sampling for RCRA metals and dioxins/furans as a result of evaluating the preliminary analytical results from the Phase I sampling

and after discussion with the regulatory agencies on September 4, 2014. The additional sampling was completed in November 2014 and an FS was recommended. The Final FS was submitted in August 2016 recommending LUCs with a potential asphalt cover if additional surface soil sampling deems it necessary. A PP and public meeting was held and presented in April 2017. The draft ROD was submitted to the regulators in July 2017 for review. Discussion with the regulatory agencies regarding target blood lead levels to cite in the ROD are ongoing.

The six transformers (BP-1, BP-2, Former S25, Former S27, Former S31, and Former S43) that were identified for further evaluation in the Bishop Point SSR, were addressed in the SI for Various Transformer Sites, Pearl Harbor Naval Complex, Oahu, Hawaii of January 2003. Based on the results of the SI, no further action was recommended for transformers BP-1, Former S25, Former S27, Former S31, and Former S43. Further evaluation of the outdoor soil is required for transformer BP-2. An additional transformer (BP-I) was not identified during the SSR, and requires further evaluation. Transformers BP-2 and BP-I will be addressed with other Pearl Harbor Naval Complex transformers requiring further action. Further details are provided in Section D.25.

D.20 NAVAL HOUSING

The draft final SSR for the Naval Housing GSA was submitted in September 2001. (The draft SSR was completed in 1997. Based on regulatory comments, individual SSRs were prepared for each GSA.) The revised final SSR was completed in March 2002. The final SSR for the Naval Housing GSA was amended on December 2002 based on regulatory comments received on the final.

Draft planning documents (Work Plan and SAP) for an SI at the Housing GSA sites identified in the SSR were submitted in June 2004. Final planning documents incorporating review comments from EPA, DOH and others on the draft was completed in October 2004. In April 2006, the Navy proposed a phased approach for the SI due funding constraints. A draft Abbreviated Work Plan for a Focused SI was submitted in June 2006 for regulators review. In September 2006, a meeting was held with regulators to discuss Navy's response to regulators comments on the draft Abbreviated Work Plan. The field work for the Focused SI was completed in November 2006. The draft Focused SI report was submitted for regulatory review in March 2007. The Focused SI report incorporating regulatory comments was finalized in August 2007. The Focused SI report recommended three sites for further investigation. Based on the results of the Focused SI, the, the Navy performed an Extended SI on these three sites, as well as for two sites that a previous investigation recommended for further investigation.

Draft Work Plan for an Extended SI was submitted in June 2008 for regulators review. Regulators provided comments on the draft. Draft response to comments sent to regulators in August 2008. EPA and DOH indicated that their comments were properly addressed. Final Extended SI Work

Plan submitted in September 2008. Field work for Extended SI was completed in September 2008. Draft Extended SI report was submitted in August 2009 for regulators review. The EPA provided review comments in October 2009. Response to regulators' comments on draft Extended SI report was submitted in June 2010. Phone conference held in July 2010 with EPA and DOH to discuss their comments on the response to comments. Extended SI report was revised to clearly show the lines of evidence to support the NFA recommendation. The final Extended SI report was submitted in May 2011. A letter to EPA and DOH requesting their concurrence on the Focused SI and Extended SI reports NFA recommendation was sent in November 2011. EPA concurrence letter was received in November 2011. DOH concurrence letter was received in February 2012.

D.21 NAVAL SEA SYSTEMS COMMAND INACTIVE SHIPS ON-SITE MAINTENANCE OFFICE (NISMO)

The Naval Sea Systems Command Inactive Ships On-Site Maintenance Office (NISMO) was formerly known as Naval Inactive Ship Maintenance Facility (NISMF). A draft final SSR for the NISMO GSA was completed in July 2001. (The draft SSR was completed in 1997. Based on regulatory comments, individual SSRs were prepared for each GSA.) A final SSR was completed for the NISMO GSA in November 2001. The final SSR for the NISMO GSA was amended on October 2002 based on regulatory comments received on the final.

The Comprehensive Monitoring and Product Recovery Report, FISC JP-5 Pipeline Release, NISMO, Oahu, Hawaii of March 2008 was submitted to State of Hawaii DOH for closeout request. An NFA concurrence letter was received from HDOH on January 7, 2010 for this non-CERCLA site.

D.22 PWC COMPOUND

The draft final Site Summary Report (SSR) for the Public Works Center (PWC) Main Complex Geographic Study Area (GSA) was completed in August 2001. (The draft SSR was completed in 1997. Based on regulatory comments, individual SSRs were prepared for each GSA.) The final SSR was completed for the PWC Main Complex GSA in March 2002. The SSR for the PWC Main Complex GSA was amended in December 2002, based on regulatory comments received on the final. A final Focused SI Report for Various GSAs was completed in April 2005. The Focused SI evaluated Buildings 38, 40, X20, X21, X24, X29, and Wash Rack X6. The report recommended NFA for Building 40. The report also recommended NFA for Buildings 38, X20 and X29 contingent upon confirmation of the background metals. The report also recommended NFA for Building X21 based on an incomplete pathway. However, if the future use of Building X21 changes, further evaluation for the soil beneath the foundation is recommended.

For Building X24, the tar spill will be addressed under a housekeeping cleanup action. The foundation of building X-24 will be examined to determine if a released has occurred. Wash Rack X-6 is still in operation and will be addressed under the Environmental Compliance program. For Building X24 RI effort was initiated in mid-2016 and the draft work plan was anticipated for January 2017. Based on subsequent discussion in December 2016 with EPA and HDOH it was agreed that an SI will be conducted instead of the RI. The Final SI Work Plan was completed in August 2017 and fieldwork completed in October 2017. The final SI report was completed in May 2019. The RI fieldwork was completed in July 2020 and the final RI report was completed in April 2021.

D.23 HALAWA-MAIN GATE

Based on regulatory comments to a Pearl Harbor Naval Complex SSR, individual SSRs were prepared for each GSA. The SSR for the Halawa-Main Gate GSA was amended on March 2003 based on regulatory comments received on the final.

A final Focused SI Report for Various GSAs was completed in April 2005. The Focused SI Report evaluated aboveground storage tank (AST) 1649, Buildings 427, 449, 450 and 644. AST 1649 was identified for further investigation in the Halawa Main Gate SSR, however, it was not included in the Focused SI because the AST is still active. A site visual inspection was conducted in April 2009, and there was no indication of a spill or contamination that would require additional investigation. Additionally, interviews with operators of the facility were conducted and old records were reviewed and there was no information or knowledge of a spill or contamination from AST 1649. Therefore, based on these findings, no further action will be conducted for AST 1649.

The Focused SI Report recommended no further action for Building 427 and further evaluation for Building 449, 450 and 644. Further evaluation was recommended for: Building 449 to characterize the extent of lead in the sediment and soil around the floor drain in the battery storage area and corresponding drain line system; Building 450 to characterize the extent of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene in surface soil; and Building 644 to characterize the lateral extent of arsenic, lead, TPH-LRO, and benzo(a)pyrene beneath the steel plates and the plywood adjacent to the steel plates, and near the concrete patches on the south side of the building.

In 2008 the draft SI WP for the Building 450, Surface Disposal Area was completed. The final SI WP and field work was completed in 2009. The SI report was finalized in July 2010, and no further action is recommended for the site. In-progress draft SI WP worksheets for the Building 644 submitted to regulators in August 2009 for review and comment. The responses to EPA comments were discussed in September 2009.

In 2009 the SI WP for Building 644 was initiated. The final SI of October 2011 recommended No Further Action. EPA and DOH provided concurrence letters to NFA for the site in 2012.

D.23.1 RAA 11, 12, AND 13

Remedial Action Areas (RAA) 11, 12, and 13 were initially a part of the RAA for the Subsurface Oil Investigation (see Section D.6). After multiple groundwater monitoring events, free product was not detected in the groundwater at this location, however VOCs were detected above screening levels. Therefore, in order to address the VOC contamination, RAAs 11, 12, and 13 were not included in the Subsurface Oil Investigation and was treated as a separate site.

The Draft RI WP for RAA 11 and 12 was prepared in April 2006, and finalized in October 2006. The draft Remedial Investigation Work Plan Addendum was completed in April 2007, and the final Addendum completed in August 2007.

From 2007-2008, the field work of the Work Plan Addendum was completed, and after looking over the sampling results, it was noted that further sampling was necessary to further delineate the contamination in groundwater and to ensure additional data for the risk assessment was gathered.

In 2008 and 2009 the fieldwork for the Remedial Investigation Work Plan Addendum No. 2 was completed. Based on the results of the fieldwork based on WP Addendum No. 2, the regulators requested additional sampling at the RAA 12 location for TCE delineation.

In August 2010, the draft Remedial Investigation Work Plan Addendum No. 3 was distributed. The Work Plan Addendum was completed in 2011 and fieldwork started in September 2011 to further delineate TCE in groundwater. Because of the complex site conditions, additional assessment was necessary to delineate the TCE. Based upon discussions with the regulators, the Remedial Investigation (RI) summary report for RAA 11 and 13 was produced separately from RAA 12 in 2011. The RAA 11/13 PP was done in late 2011 and a public meeting was done November 1, 2011 and the NFA ROD for RAA 11 and 13 was completed in June 2013.

In 2013 air samples were collected to evaluate for vapor intrusion at two buildings (416 and 1682). EPA requested at least two rounds of sampling so a second sampling event was done in November 2013 during which time an additional four buildings were evaluated (434, 418, 444, 451K) for vapor intrusion. Quarterly groundwater monitoring have been completed to verify the groundwater plume is stable. A technical memorandum summarizing the latest groundwater investigation results was distributed in late 2013. The comprehensive RI/FS for RAA-12 was completed in October 2015 and the PP started. Interim sampling is on-going; although not required; however, the sampling is being done to verify conditions are acceptable. The Navy believes site specific screening levels should be used for the site; however, the EPA believes more conservative vapor intrusion screening levels (VISLs) should be used. The PP and ROD for RAA-

12 are currently on hold. A "DOD One Number" is expected within the next year that will most likely be a compromise for all work in DOD building work areas.

D.23.2 Storm Drains - Buildings 449, 472, 651, 660, and 674

Several previous environmental investigations have been performed for the HMG GSA, including an Initial Assessment Study, several Resource Conservation and Recovery Act (RCRA) Facility Assessments, a Site Summary Evaluation, and a Focused Site Inspection (SI). The investigations focused on activities associated with current and former buildings of the HMG GSA. Storm drain sites at several buildings (449, 472, 651, 660, and 674) were identified as of concern and were consolidated under one RI.

The purpose of the Phase 1 RI was to evaluate if any of the five RI sites represent potential sources for historical releases of contaminants of potential concern (COPCs) to the subject storm drain catch basins or to subsurface soil around select, individual storm drain inlets (SDIs). The RI fieldwork was conducted from February through April 2011. Conclusions and recommendations reached by the Phase 1 RI results are summarized as follows:

- No contaminant exceedances were detected in soil and no residual storm drain sediment was found at Building 674. The site was recommended for NFA

- Detected contaminant concentrations in soil indicated the need for further characterization of soil, storm drain sediments, and groundwater at the other sites.

Due to the low sample frequency, the vertical and horizontal extent of impacts to soils were not completely characterized during the Phase 1 RI. Further investigation of soil impacts was recommended under a Phase 2 of the RI. The Phase 2 RI SAP was finalized in July 2012. Phase 2 fieldwork was completed in October 2012.

The Navy discussed the Phase 1 and 2 RI results showing elevated contaminant levels detected in storm drain sediments sampled at three of the sites (Buildings 449, 472, and 660) with EPA and HDOH in March 2013, and reached concurrence with a decision to address those sediments separately from the RI/FS under a Non-time Critical Removal Action. The approach for the removal action was developed and documented in the Engineering Evaluation/Cost Analysis (EE/CA). The EE/CA was finalized in April 2014. The Removal Action fieldwork to address the sediments was initiated in March 2015 and the Removal Action was completed in December 2015. The draft removal verification report was completed in October 2016 and finalized in February 2018.

The combined Phase 1 and 2 sampling results showed widespread anomalous occurrences of lead in soil at Building 449, and a decision to undertake additional soil sampling was recommended by

the Navy. Concurrence with the recommendation was reached during discussions with regulators in early 2013. A Draft Phase 2a Work Plan addendum was submitted in August 2013 and was finalized in December 2013. The Building 449 follow-on fieldwork was completed in December 2013. An in-progress version of the RI Report and Feasibility Study was submitted by the contractor to the Navy in September 2014 and a Draft RI/FS report was submitted for regulatory review in October 2014. After completion of the storm drain sediment removal action the Draft Final RI/FS Report was submitted for regulatory review. During this review period the Navy proposed, and the regulators agreed to additional soil sampling to better delineate the site boundary. The draft Addendum #2 RI Work Plan completed in July 2018 and finalized in October 2019. Fieldwork conducted and completed December 2019. Revised Draft Final RI/FS was completed and submitted for regulatory review in August 2021.

A draft RI/FS report based on the combined Phase 1 and Phase 2 soil and groundwater data was submitted in September 2013 for the four other sites. Based on the combined Phase 1 and 2 RI sampling results and Baseline Human Health Risk Assessment (HHRA), the RI concluded that potential risk posed by groundwater at all sites were within or below regulatory cancer risk target ranges and non-cancer Hazard Index Target Level and the RI recommended No Further Action for groundwater. The RI reached the same conclusion and recommendation for soil at Building 472 and Building 674. Based in the reevaluation of site specific conditions and scenarios the human health risk was recalculated and the RI reached the conclusion and recommendation of No Further Action for soil Building 660. The RI recommended further response action for soil at Building 651. The FS evaluated a wide range of remedial alternatives and retained four alternatives for detailed evaluation against National Contingency Plan criteria. The FS evaluation resulted in selection of capping with land use controls as the selected alternative. The draft final RI/FS report comments from regulators are being addressed. Based on subsequent discussion with EPA on delineation of RI areas, further information and site delineation may be needed. A Draft RI Addendum Work Plan was completed in January 2023.

D.24 RICHARDSON

A draft final SSR for the Richardson GSA was completed in September 2001. (The draft SSR was completed in 1997. Based on regulatory comments, individual SSRs were prepared for each GSA.) The final SSR was completed in April 2002. The final SSR for the Richardson GSA was amended on December 2002 based on regulatory comments received on the final.

The amended final SSR identified seven major areas within the Richardson GSA that contained a total of 53 facilities recommended for further action. These areas are as follows: Transformer R-4, AST-593, Building 593, Inactive Fuel and Diesel Oil Pipelines, Former Rainbow Bay Marina Fueling Lines, Fire Fighting Training Area, and Substation G (b) (3) (B) .

Transformer R-4 was addressed by the Various Transformer Site SI completed in January 2003. No further action is recommended for this site.

AST 593 was addressed by the Phase II EBS completed in August 2002. No further action recommended.

Former Building 593, Storage Maintenance Shop site was addressed by the Supplemental RI completed in March 2003. No further action recommended.

Inactive Fuel and Diesel Oil Pipelines site was addressed by the Non-Time Critical Removal Action RVR of February 2005. Removal action removed COCs from site.

A final Focused SI Report for Various GSAs was completed in April 2005. The focused SI found no COPC concentrations above their screening criteria at the Former Rainbow Marina Fuel Pipeline site. No further action is recommended for this site.

Final planning documents (Work Plan and Sampling & Analysis Plan) for a RSE at the Fire Fighting Training Area were completed in April 2005. A Final Work Plan and SAP Technical Addendum was completed in August 2005. Field work began in December 2005 and completed in February 2006. The RSE was completed in October 2006 and the results indicated that, in addition to TPH, dioxin and lead found in the near-surface soil could potentially pose a human health and ecological risk. As a conservative measure, the RSE recommended the removal of soil from two near-surface areas to reduce the risk to human health to within EPA target cancer risk range and below the target non-cancer risk threshold and to reduce risk to site ecological receptors. The draft EE/CA was submitted in January 2007 for public review and comment. The EE/CA was finalized in August 2007 and included recommendations to removal dioxin, lead, TPH, PCBs, and PAHs. The Removal Action to remove these contaminants was completed in September 2007.

The Draft RVR was submitted in November 2007 to regulators for review. RVR confirmed that the Removal Action removed COCs from site. In response to EPA Region IX comment on the draft RVR regarding dioxin in groundwater, a round of groundwater sampling and analysis (unfiltered and filtered) for dioxin was performed. The results of sampling analysis were incorporated into the final RVR which was submitted August 2008.

To address the residual petroleum contamination at the site, a draft Work (Sampling and Analysis) Plan for long-term monitoring and petroleum removal was submitted in April 2008 to regulators for review. A final Work (Sampling and Analysis) Plan was submitted in November 2009. The Work (Sampling and Analysis) Plan was revised in March 2010.

A draft Proposed Plan presenting the proposed final remedy for both the CERCLA COCs and the residual petroleum contamination at the site was submitted in October 2008. The final Proposed Plan was submitted for public review and comment in April 2009. A Public Meeting for the Proposed Plan was held in May 2009. The Draft ROD was submitted to the regulators in June 2009. The ROD was signed on Sept. 29, 2010. The target completion dates for documents associated with the Record of Decision are presented in Appendix A. Long-term monitoring was conducted at the site in accordance to Work (Sampling and Analysis) Plan mentioned in the above paragraph to address the residual petroleum contamination at the site. The petroleum contamination was addressed separately with DOH.

Draft planning documents (Work Plan and Sampling & Analysis Plan) for an SI at Substation G (Building S-6) Former Electrical Switching Station was submitted to the regulators for review in June 2006. The planning documents were finalized in December 2006. The field work for the SI was completed in January 2007. A Draft SI report submitted to the regulators for review in August 2007. Regulators provided comments on the draft. Draft responses to comments were sent to regulators in April 2008. DOH and EPA accepted the response to comments. In response to EPA's comment regarding additional sampling around Building S-6 for PCB, a Technical Addendum was prepared for this additional sampling. The submittal of the final SI report was postponed until the additional sampling results could be incorporated. Additional sampling was completed in June 2009. The in-progress draft final SI report was completed in February 2010. The report required revisions to update references to the Pearl Harbor sediment draft RI addendum report and incorporate adjacent site information regarding the high concentration of PCBs found on the surface soil. The final SI report was submitted to the regulators in April 2011. The report recommended that the site be further evaluated since there is a potential for PCB contamination to spread to Pearl Harbor. The site has been included in the NAVFAC HI Site 49 Various Transformers II Remedial Investigation which has been planned to incorporate various transformer sites.

D.25 VARIOUS TRANSFORMER SITES

A draft SI Work Plan for the Various Transformer Sites on Oahu was completed in August 2001. Transformer sites are located in the Bishop Point, Halawa-Main Gate, Makalapa Crater, Naval Housing, PWC Main Complex, Richardson, Shipyard, Waipio Peninsula, and West Loch GSAs, which are based on the findings of the various SSR for each of the GSAs. In addition, transformers are located in the outlying areas including NCTAMS PAC Wahiawa, NRTF Lualualei and NAVMAG PH Lualualei Branch.

A final Work Plan was completed in October 2001 and field sampling work accomplished in November-December 2001. The draft SI Various Transformer Sites NCTAMS was completed in

May 2002 and the final SI Report on December 2002. The draft SI PHNC was completed in June 2002 and the final SI Report on January 2003.

Various transformer sites on Ford Island identified in Section D.3.2, transformer I-4 at Iroqouis Point identified in Section D.18.2, and some of the sites identified in the draft SI Various Transformer Sites PHNC as requiring further evaluation or action were added to a project to thermally treat contaminated soil. Section D.4 makes note of the EE/CA (September 2000) and Action Memorandum (October 2000), which recommends treatment of PCB-contaminated soil by thermal desorption and the consolidation of contaminated soil at one location at the former NAS Barbers Point for the purpose of this treatment. The soil was treated to 1 mg/kg PCB as total Aroclor, which would allow the treated soil to be available for unrestricted use. An addendum to the Action Memorandum was done in 2002 to add the Group B sites (Ford Island and Iroquois Point transformers) to the treatment project. An Attachment 2 was added to the Action Memorandum addendum to include Group C sites (SI of Various Transformer Sites PHNC) in the treatment project in 2003.

The final Basis of Design for the Thermal Desorption Treatment Unit, referred to in Section D.4, for the NCTAMS, the former NAS Barbers Point, and PHNC was amended to include the Ford Island transformer sites discussed in Section D.3.2, I-4 discussed in Section 18.2, and some of the transformer sites recommended for further action in the draft SI Various Transformers Sites PHNC. The Ford Island sites and I-4 were sampled to delineate the area of contamination in January 2002. The data was incorporated into the amended design. The PHNC sites from the draft SI underwent delineation efforts in early 2003. The data was subsequently incorporated into another amendment to the treatment projects design in 2003.

The stockpiled soil and soil from 46 transformers within the PHNC (this includes the 23 transformer discussed in Section D.3.2) were treated at a temporary thermal desorption treatment facility from November 2003 to August 2004. All except three of the sites were remediated to 1 ppm PCBs. Structural obstacles prevented the three sites from reaching the 1 ppm goal. Institutional controls or land-use controls will be placed on these sites where 1 ppm PCB cleanup could not be achieved during the treatment period. A draft RVR was completed in December 2005 which documented the excavation and treatment of soils from sites excavated during the treatment period. A draft consolidated RVR was prepared to bring together various RVRs from the removal actions that fed to the treatment project.

In July 2006, Proposed Plans were prepared for transformers addressed in the 2004 thermal desorption project. Draft RODs and a draft Land Use Control Work Plan were prepared in 2007. The RVR for the thermal desorption project was completed in 2007. The NFA ROD for 45 transformer sites was finalized in September 2007. The LUC ROD for transformers TD-10, K-14, and W-4/W-5 was finalized in September 2010. A RAWP for implementation of LUCs was

finalized in 2011. Five transformers (TF-06, TF-08, TF-10, TG-04, and M-14) that were previously included in the LUC ROD, were removed based on recommendations in an April 2010 Risk Assessment Technical Memorandum. The Technical Memorandum recommended no further action for these five transformers. A revised PP and ROD will be prepared for the five transformers. The schedule for the PP and ROD will be tracked with other transformers sites that are currently in the RI phase (discussed below).

Sites that were recommended for further evaluation or action in the January 2003 SI, but were not addressed in the thermal desorption treatment project will be addressed in separate projects. An Addendum to the January 2003 SI Report for various transformer sites within the PHNC was completed in November 2006. This addendum addressed regulatory comments received on the 2003 SI report, and also provided updates to the status of transformers that were cleaned up in the 2004 thermal desorption project. Regulatory comments were received on the November 2006 SI Addendum. These comments were addressed in a SI Addendum, Revision 1 of August 2009.

In 2008, a time-critical removal action was completed for the transformer F-20/F-20A site, located at the Pearl Harbor NSY. During the SI (2001-2003) and additional delineation sampling (2003), PCBs were detected in soil above the site screening criterion of 1 mg/kg. The site was previously covered with pavement of gravel, however there were some areas of exposed surface soil where the gravel had been disturbed. A time-critical removal action was conducted to construct an asphalt cover over areas of exposed soil, to mitigate risks to onsite workers. Transformer F-20/F-20A, as well as other transformers that were not addressed in the thermal desorption project, will be further evaluated in an RI/FS.

An RI is currently being performed for 61 transformers that require further action. The draft RI Work Plan was completed in March 2011. The Draft Final RI Work plan was prepared in September 2011, and was finalized in January 2012. Field work was performed from April to August 2012. The Draft RI report was completed in December 2012. Prior to preparing the Draft Final RI, the Navy performed additional actions are two transformer sites: F-12 and J-13, as described below. The Draft Final RI was completed in March 2016, and the RI was finalized in November 2016.

Transformer F-12, located at Building 155 in the PHNSY and IMF CIA, was evaluated for further delineation based on additional data provided by the PHNSY and IMF's UST section. Former UST 14 was located near transformer F-12, and data from the UST investigation indicates potential PCB contamination in groundwater. Further sampling was conducted in August 2014 as part of the transformer RI, to evaluate whether PCB contamination in subsurface soil and/or groundwater is associated with a historical release from transformer F-12. Results were incorporated into the Draft Final and Final RI report for the various transformer sites at PHNC.

A TCRA was performed for transformer J-13, located adjacent to Building 661. During a construction project for Building 661 in 2012, the concrete pad for former transformer J-13 was removed from the site. Required actions for the handling and disposal of the concrete pad are being coordinated with EPA Region 9's TSCA section. Sampling conducted by the construction contractor confirmed that soil beneath the pad contains elevated levels of PCBs. A geophysical survey was conducted in late September 2013, to evaluate whether excavation was feasible for the J-13 site. Based on the results of the geophysical survey, an Action Memorandum was prepared in January 2014 to document the selected removal action alternative of excavation and off-site disposal for the PCB contaminated soil. Field work was initiated in August 2014 and was completed in March 2015. During the TCRA the vertical extent of PCB contamination was found to be greater than previously anticipated. PCBs remain in soil at maximum concentrations of 59 ppm at approximately 7 feet below ground surface. The excavated areas were backfilled with clean compacted fill and a concrete cap. Work performed under the TCRA is documented in a final RVR of November 2016, and was incorporated into the Draft Final and Final RI Report for the various transformer sites.

A RI Addendum is planned to perform delineation sampling at ten transformer sites (B-2, C-7, F-12, Former F-20, F-20A, F-20B, F-20C, Substation B, G-12, and H-5, where additional sampling is needed to characterize the nature and extent of contamination. A Draft RI Addendum Work Plan was prepared in April 2018. The Draft Final and Final Work Plan are planned for 2026.

D.26 VARIOUS PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) SITES

The Navy is committed to identifying, evaluating, and where appropriate, remediating contamination resulting from its activities including those relative to emerging contaminants, such as Per- and Polyfluoroalkyl Substances (PFAS). The Navy has initiated investigation of potential PFAS areas of interest (AOIs). SI WPs were developed to propose sampling at suspected AOIs that used/ released PFAS. A Draft PA for JBPHH NPL locations was prepared in April 2019 and Draft SI WPs were completed in October 2019. A Revised Draft PA and Revised Draft SI Work Plan were prepared in April 2021 and May 2021 respectively, based on updated Navy criteria for evaluating sites for further action in the PA. SI field sampling for the PHNC NPL AOIs was performed in 2022. Final PA and SI Work Plans were completed in December 2023. The Draft SI report for JBPHH NPL areas, was completed in November 2023.

Based on the data collected during the PA and SI, additional sites were recommended for site-specific RIs. Brief summaries for these additional sites are described below in Sections D.26.1 to D.26.4. Other sites with ongoing site-specific investigations that include PFAS are also described in Section D.7.8 (Former Plating Tank Sump Building 67), Section D.9.3 (Former Pearl City Fuel Annex), and Section D.10.4 (former NAVSHIPYD IWTP). The RI for the former IWTP site will also address AOI Bldg 1526, which was identified in the PA and included in the SI.

D.26.1 FLETRAGRU Fire Fighting Training Area, PFAS Release

The FLETRAGRU Fire Fighting Training Area is located in the Richardson GSA, and details of historical activities are described in Section D.13. This site was re-opened to evaluate PFAS as an emerging contaminant. SI sampling was performed in 2022 and groundwater and soil data exceeded current EPA RSLs. The FLETRAGRU Fire Fighting Training Area site is adjacent to Pearl Harbor, and near the location of a May 2019 fire at the U.S. Pacific Fleet barge where AFFF (aqueous film-forming foam) was released into the harbor. An RI is planned to evaluate PFAS releases associated with the FLETRAGRU training activities and barge fire. Initial preparation for RI planning documents began in 2024.

D.26.2 JBPHH Various Fire Stations, PFAS Release

Building 467 (b) (3) (B) is located on Ford Island off of Long Island Street, and Building 206 (b) (3) (B) is located at Pearl Harbor Naval Shipyard off of Central Avenue.

Building 467 was built in 1992 on the southern side of Ford Island and was formerly used as a headquarters for the Harbor Patrol Police. Building 467 is currently being used as a fire station. Pump tests formerly conducted at Building 467 discharged AFFF onto grass and soil along the northeastern side of the building. Empty containers of AFFF located in Building 467 indicate that the fire trucks hold 3M Light Water and Ansulite 3 percent AFFF formulas. AFFF is currently stored on the fire trucks, which are parking in Building 467 vehicle bays.

Building 206 (b) (3) (B) was built in 1942 at the junction of Long Way, Marine Barracks Way, and Safeguard Street for use as a fire station. In 2001, AFFF was released onto the grassy area adjacent to the fire station. This is believed to have been a one-time release based on an interview for the SI Work Plan in 2021 with site personnel. The release was in response to a pump test requested of all fire trucks after a pump had failed during an emergency response on another fire truck. The firefighters interviewed estimated that less than 25 gallons of AFFF were released at that time. Fire trucks are parking in the station bays; however, none of the fire trucks at Building 206 stored AFFF at the time of the interview for the SI Work Plan in 2021.

An SI consisting of soil and groundwater sampling was conducted in 2022. PFAS concentrations in soil and groundwater exceeded current EPA RSLs at Building 467 and Building 206. Preparation of RI Work Plan is planned for October 2026.

D.26.3 JBPHH Building 1613 and 1721, PFAS Release

Buildings 1613 and 1721 are part of a fire suppression system located north of the Halawa Upper Tank Farm. Building 1613 is a small concrete building that houses (b) (3) (B) . Building 1721 is adjacent to Bldg 1613 and is a

(b) (3) (B) . AFFF concentrate was released due to system malfunction in December 2019. An SI consisting of soil and groundwater samples was conducted in 2022 where PFAS concentrations exceeded the current EPA RSLs. Preparation of RI Work Plan is planned for January 2024.

D.26.4 Red Hill, PFAS Release

In November 2022, an AFFF spill in ADIT 6 released approximately 1,300 of AFFF. Spill response cleanup actions were performed to address concrete, asphalt, and soil impacted by the spill area. Confirmation sampling post response clean-up did not have any concentrations exceeding EPA RSLs. However, based on the detections of PFAS analytes, there are indications of historical AFFF releases. In addition, groundwater samples of PFAS in 10 surrounding wells have been on-going on a regular bases from Nov. 2022 through Dec. 2023. No exceedances of PFAS were recorded. Preparation of RI Work Plan is planned for 2024.

D.26.5 Potential PFAS Areas of Interest

Soil and groundwater sampling is planned at the following 3 locations where past PFAS releases may have occurred: Bldg 68 (b) (3) (B) located at Manana; Bldg 680 (b) (3) (B) located at SUBASE; and Bldg 54 Former Hangar located on Ford Island. During the PA phase there were no findings of historical use or spills at these locations, however AFFF releases may have occurred during past activities. Sampling is planned to confirm whether PFAS is present at levels that require further evaluation. The Draft Work Plan is planned for early 2025.

D.26.6 Potential PFAS in Pearl Harbor Sediment

Sediment sampling is planned for select locations in Pearl Harbor where a confirmed PFAS release has been identified in soil or groundwater at an upland site, and there is a direct pathway from the upland site to the harbor. The Draft Work Plan is planned for 2025.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
1	Aiea Laundry	Aiea Laundry Facility	1989	HLA	SI – Soil sampling in drainage swale area.	Measurable amounts of Stoddard solvent and evidence of dichloroethylene. Recommend removing contaminated soil.
			1990	ESE	UST - Soil borings	PCE detected. Investigate further.
			1991	PRC	Removal Action – RSE	Additional site characterization. Recommend removing solvent USTs and impacted soils.
			1991	PRC	EE/CA and AM	Removal/disposal alternatives evaluated.
			1991	PRC	Removal Design Docs	
			1992	Alfred & Sons	Removal Action	Five solvent/diesel USTs, drain line, and heavily impacted soils excavated and disposed.
			1992	PRC	Removal Action PCAS	Oversight and confirmation samples/report. Residual chlorinated solvents, including VC detected.
			1993	Ogden	Onsite/offsite soil gas/ambient air survey	Confirm onsite/offsite migration of contaminated soil gas. No immediate health threat determined.
			1995	Ogden	Removal Action RSE	Extent of subsurface soil/soil gas (chlorinated VOCs) determined. SVE pilot study performed.
			1995	Ogden	RI/FS Planning Docs	Concurrent work on RI/FS planning documents. Potential GW contamination, remainder of site, other potential contaminants (e.g., diesel, PCBs, etc.).
			1996	Ogden	EE/CA and AM	SVE system and treatment alternatives evaluated.
			1996	Ogden	Design documents	Construction documents for SVE system, Soil Gas Monitoring Plan, and SVE O&M plan.
			1996	Ogden	Construct SVE system	SVE system installed. 3-year soil gas monitoring program planned and VTU O&M plan implemented. Quarterly reports submitted.
			1996	Ogden	RI/FS field activities	Field work completed with installation of GW monitoring wells, additional surface/subsurface soil samples, and soil gas survey. Backyard area investigated.
			1997	Ogden	Draft RI/FS Report	Monitoring of natural attenuation/dilution of DNAPL plume recommended vice active GW remediation. Isolated free diesel product discovered floating on underlying GW below former diesel UST. Recommend removal action. No further action recommended for backyard area. No further action recommended upon completion of 3 yr. operation of SVE system. EPA/DOH required further GW delineation of DNAPL plume to prove natural attenuation/dilution models. Also required investigation under building concrete slabs.
			1998	Ogden	Addendum to RI/FS planning docs for additional GW and soil investigation.	One additional onsite well to basal aquifer and 3 offsite wells to caprock aquifer. Surface/subsurface soil samples beneath concrete slabs upon building demolition. EPA and DOH comments incorporated.
1	Aiea Laundry	Aiea Laundry Facility (Continued)	1998	Ogden	Removal Action – RSE	Install additional GW wells to delineate diesel plume.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			1998	Ogden	EE/CA and AM	Evaluate diesel product extraction alternatives. EE/CA finalized based on EPA and DOH review comments. AM finalized.
			1999	Ogden	Addt'l RI/FS field work	Install additional onsite/offsite GW monitoring wells and soil and soil gas sampling beneath building slabs.
			1999	Ogden	Diesel Interim RA Design	Complete design of diesel IRA
			1999	Ogden	Implement Diesel IRA	Install well socks in surrounding GW wells and extract diesel free product from well near source of plume. Product extraction, periodic replacement of well socks, and monitoring for 2-year period.
			1999	Ogden	Revised Draft RI/FS Report	Submit Revised Draft RI/FS Report. Report recommends focusing FS on continued operation of SVE and diesel extraction system. Also recommends NFA for DNAPL GW plume. EPA and DOH comment that offsite diesel and chlorinated VOC GW contamination, as well as, some onsite source areas require further characterization.
			1996-2001	Ogden/AMEC	SVE Monitoring Reports	Quarterly SVE/soil vapor monitoring reports submitted. SVE system in operation from 1996-1998 and reactivated in 2000.
			1999-2001	Ogden/AMEC	Diesel Removal Action and monitoring	Approx. 105 gallons of diesel extracted since May 99. Quarterly monitoring reports submitted.
			2000	Ogden	Soil Gas Survey at SECS	Soil gas survey conducted at the adjacent St. Eliz Church and School (SECS). All but one sample ND at 7.5' and 22.5' below grade. One detection near front of church at detection level.
			2000	Ogden	FSP Addendum for additional offsite wells. Install additional wells.	FSP Addendum currently being prepared for additional offsite GW MWs and further onsite sampling based on EPA/DOH comments to the 1999 Revised RI Report.
			2001-2002	AMEC	Install additional wells.	
			2002	AMEC	Draft final RI/FS Report	
			2001-2002	AMEC	Quarterly GW monitoring of onsite and offsite wells.	
			2004	Dawson	Final WP/SAP for Cont. GW monitoring & Removal Actions	WP & SAP to continue GW monitoring and Diesel and SVE removal actions
			2004-2005	Dawson	Quarterly GW monitoring of onsite and offsite wells.	Quarterly monitoring reports submitted.
			2004-2005	Dawson	SVE Monitoring Reports	Quarterly SVE/soil vapor monitoring reports submitted.
					Diesel Removal Action and monitoring	Approx. 675 gallons of diesel extracted since May 1999 Quarterly monitoring reports submitted.
1	Aiea Laundry	Aiea Laundry Facility (Continued)	2005-2006	Dawson	Quarterly GW monitoring of onsite and offsite wells.	Quarterly monitoring reports submitted.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2005-2006	Dawson	SVE Monitoring Reports Diesel Removal Action and monitoring	Quarterly SVE/soil vapor monitoring reports submitted. Approx. 690 gallons of diesel extracted since May 1999 Quarterly monitoring reports submitted.
			2006	Dawson	Revised WP/SAP Cont. GW Monitoring & Removal Actions	Revised WP & SAP to continue GW monitoring and Diesel and SVE removal actions incorporating improved sampling and analytical methodologies.
			2006	Earth Tech	Draft RI/FS Addendum Planning Docs	Additional investigation to fill data gaps in the draft final RI/FS and identify remedial alternatives in addition to MNA
			2006	Earth Tech	Final RI/FS Addendum Planning Docs	Incorporated comments on draft.
			2006	Earth Tech	Revised Final RI/FS Addendum Planning Docs	Incorporated comments on final.
			2007	Earth Tech	Draft Work Plan, Ambient Air & Vapor Intrusion Investigation	Work plan addressed comments made during January 2008 meeting with regulators on proposed air sampling for a vapor intrusion investigation.
			2008	Earth Tech	Final Work Plan, Ambient Air & Vapor Intrusion Investigation	Incorporated comments on draft.
			2008	Earth Tech	Technical Memorandum for Field Investigation for Surface Soil PCE Hot Spot	Technical Memorandum for additional field investigation for a surface soil PCE hot spot.
			2008	AECOM	Draft RI/FS Addendum	RI recommended the future land use of the site should be commercial or industrial only. No further action is necessary at Saint Elizabeth Church and School Property. Monitored Natural Attenuation for caprock groundwater is recommend for the Near-Shore/Inter-Tidal Zone at Aiea Bay.
			2010	AECOM	Technical Memorandum for Additional Air Sampling	Technical Memorandum for additional air sampling at site and adjacent Saint Elizabeth Church and School Property to address vapor intrusion concerns.
			2010	AECOM	In-progress Draft Final RI/FS Addendum	Includes additional Soil Vapor Response Alternatives and Soil Vapor sampling results for Backyard Area.
			2012	NAVFAC HI	Ltr requesting concurrence on non-drinking water classification in caprock	Letter requesting concurrence on non-drinking water classification in caprock formation sent to DOH April 2012.
			2012	DOH	Concurrence Letter	DOH Concurrence letter on non-drinking water for groundwater classification sent on May 2012.
1	Aiea Laundry	Aiea laundry (Continued)	2012	AECOM	Technical Memorandum for Treatability Study Work Plan for SVE	Technical Memorandum for SVE Treatability Study at site and backyard area.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2013	AECOM	First, Second, and Third Quarter Monitoring Report Treatability Study	Summary reports for Treatability Study showing effectiveness of treatment unit
			2014	AECOM	Abbreviated Work Plan Addendum 2	WP to document plans for interim operations, maintenance, and monitoring while the RI/FS report, PP and ROD are being created.
			2014	AECOM	Draft Final RI/FS	RI/FS recommended land use controls. Continued Monitored Natural Attenuation for caprock groundwater and for the Near-Shore/Inter-Tidal Zone at Aiea Bay. and continued SVE operation and VI monitoring at St Elizabeth Church.
			2016	AECOM	PP (Draft)	Draft PP for regulator review.
			2017	AECOM	Final Comprehensive RI/FS	Final Comprehensive RI/FS
			2022	AECOM	Final Work Plan	Expanded vapor intrusion investigation at the Administration Building at St. Elizabeth Church and School to better evaluate the potential migration and impacts of contaminants from Navy property to the Administration Building at St. Elizabeth Church and School
2	Manana Storage	DRMO Manana Storage Area	1985	EPA	RCRA Inspection	RCRA §3007 Inspection- No violation.
			1986	EPA	RCRA Inspection	RCRA §3007 Inspection - Two 55-gallon drums leaking.
			1987	EPA	RCRA Inspection	RCRA §3007 Inspection - One 55-gallon drum leaking (containing pentachlorophenol).
			1988	NEESA	PA	No further action.
			1992	Ogden	SI (Draft)	Based upon new data, SI conducted. Metals and minor amounts of VOCs detected, data needs identified to determine extent of contamination.
			1994	Ogden	SI (Final)	Additional data needs identified to determine potential migration path.
			1995/6	Ogden	RI (Final)	Three arsenic hot spots identified; one lead hot spot identified; no further investigation necessary; removal action in hot spot areas proposed.
			1996	Ogden	EE/CA (Final)	Final extent of Removal Action determined; recommend limited Removal Action at 13 locations spread throughout six 5,000 square foot exposure areas.
			1996	Ogden	Design Package (Final)	Documents finalized.
			1996	OHM	Removal Action	272 tons of arsenic-impacted soils were excavated from 13 sample locations located in six exposure areas.
			1996	OHM	RVR (Final)	Documentation of construction activities.
			1996	Ogden	RADD (Final)	Removal action considered complete. Recommend separate groundwater investigation at a future date.
			1998	Ogden	Regional Groundwater (GW) SAP (Draft)	

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
2	Manana Storage	DRMO Manana Storage Area (Continued)	1998	Ogden	Regional GW SAP (Final)	Draft planning documents to conduct regional groundwater assessment at Manana Storage and Pearl City Junction submitted
			2002	Earth Tech	Regional Groundwater Assessment	Final planning documents submitted.
			2003	Earth Tech	Regional Groundwater Assessment Report (Draft)	Completed fieldwork for groundwater assessment. Draft report to be submitted at the end of first quarter of 2003.
			2003	Earth Tech	Regional Groundwater Assessment Report(Final)	Draft report submitted. No further no action recommended for site.
			2005	Earth Tech	Proposed Plan (Draft)	Final report submitted. No further action recommended for site.
			2005	Earth Tech	Proposed Plan (Revised Draft)	Proposed Plan for NFA at site.
			2006	Earth Tech	Proposed Plan (Draft Final)	
			2006	Earth Tech	Proposed Plan (Revised (Draft Final)	
			2006	Earth Tech	Proposed Plan (Revised Final)	Proposed Plan submitted for public review and comment.
			2006	Earth Tech	ROD (Draft)	Revised incorporating regulator comments from revised draft final PP
			2006	Earth Tech	ROD (Draft Final)	Draft ROD submitted for regulators review. Incorporated regulators technical comments.
			2006	Earth Tech	ROD (Revised Draft Final)	Revised to incorporate regulatory format.
			2006	Earth Tech	ROD (Final)	Revised per first regulator legal review.
			2006	Earth Tech	ROD (Revised Final)	Revised per second regulator legal review. Signed by Navy and EPA with DOH concurrence.
3	Ford Island Landfill	Ford Island Landfill (IAS-08)	1983	NEESA	IAS	No further action necessary because "this site is not a threat to human health or to the environment." Per EPA direction, further investigation was required.
			1992	Ogden	SI	No significant levels of contamination, however, EPA presumptive remedy (i.e., cap) recommended to mitigate surface exposure and hazards due to cavities and debris.
			1994	Ogden	Removal Action – RSE	Further delineation of extent of landfill and hotspots.
			1994	Ogden	EE/CA and AM	Landfill cap alternatives evaluated. Vegetated permeable soil cap w/GW monitoring recommended.
			1996	Ogden	Design documents	Permeable cap design and GW Monitoring Plan.
			1996	OHM	Construct landfill cap	Landfill cap, surface drainage system, shoreline rip-rap protection, and additional GW monitoring wells installed.
			1996	Ogden	Removal Action – PCAS	Construction oversight, implement GW monitoring plan, and prepare O&M Plan.
			1997-2002	Ogden/AMEC	Removal Action GW monitoring and O&M	Five-year GW monitoring and landfill O&M program completed in June 2002. Two-year baseline established for GW quality. Semi-annual GW reports and quarterly O&M submitted.
			2003	Dawson	GW monitoring/ O&M	

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
3	Ford Island Landfill	Ford Island Landfill (IAS-08) (Continued)	2005-2006	Earth Tech	GW monitoring/ O&M	Prepared a draft LTM plan for an additional 5 years of GW monitoring and O&M. Annual LTM field event completed in Sep 2003. Revised LTM plan. Plan involves collecting ground/surface water in baseline and monitoring phases.
			2007-2009	Dawson	Baseline GW monitoring/ O&M	Continued with baseline groundwater monitoring program.
			2008	Earth Tech	Tidal Study Report	Hydraulic connection between GW aquifer and Pearl Harbor; continue with baseline sampling
			2009-2012	AECOM	Baseline GW monitoring/ O&M	Continued with baseline groundwater monitoring program.
			2009-2010	AECOM	Focused FS	Prepared Focused FS for final remedy of Land Use Controls.
			2010	AECOM	Proposed Plan	Prepared Proposed Plan and held public meeting for final remedy of Land Use Controls.
			2011	AECOM	Record of Decision (draft, draft final, final)	Documents final remedy of LUCs and LTM for Ford Island Landfill.
			2012	AECOM	Remedial Action Work Plan	LUC implementation requirements.
			2013	AECOM	Revised Long-Term Monitoring Plan	Reduce to annual GW sampling and cap inspections.
			2012-2014	Element Environmental	GW monitoring, cap inspection/maintenance	Continue annual GW sampling and cap inspections.
			2014	AECOM	PHNC NPL CERCLA 5-year Review	LUCs protective of human health and environment.
			2015-2019	Element Environmental	GW monitoring, cap inspection/maintenance	Continue annual GW sampling and cap inspections.
			2019	AECOM	PHNC NPL CERCLA 5-year Review	LUCs protective of human health and environment.
			2020-2024	Element Environmental	GW monitoring, cap inspection/maintenance	Continue annual GW sampling and cap inspections.
3	Ford Island Remedial Investigation	Ford Island Hazardous Substance Sites	1998	Earth Tech	SSR for Ford Island GSA	71 potential release locations (PRLs) identified for further investigation and potential cleanup. PRLs do not include ongoing IR or UST activities. Newly identified sites include: island-wide AVGAS distribution system, 58 transformer sites, former small arms range, former camel refurbishing area, and a former HW/HM storage area.
			1999	Earth Tech		

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
3	Ford Island Remedial Investigation	Ford Island Hazardous Substance Sites (Continued)	2000	Earth Tech	Ford Island GSA RI/FS planning documents	Based on PRLs identified in the SSR, RI/FS initiated for Phase 1a development areas of Ford Island. Draft GSA-wide WP, QA, and HSP, as well as phase-specific FSP for Phase 1a areas submitted in June. Review comments received and incorporated in to Draft Final RI/FS planning documents that were submitted in October.
			2000	Earth Tech	Revised Ford Island RI planning documents	RI planning documents were revised in accordance with the most current Ford Island development plan. Phasing by geographic areas eliminated, thus, revised planning documents reflect an island-wide RI.
			2000	Earth Tech	RI field activities	RI field activities completed in July 2000. Preliminary data submitted to EPA and DOH as Preliminary RI Data Package in Sep 2000.
			2001	Earth Tech		Recommended further action at 23 transformer sites, 5 hazardous substance sites, and an inactive AVGAS pipeline.
			2002	Earth Tech	Draft RI Report	Draft EECA prepared for planned Removal Actions at the 5 hazardous substance sites.
			2002	Earth Tech	Draft Final RI Report	Removal Action Memorandum prepared in accordance with Hawaii State Contingency Plan-for in-situ closure of AVGAS pipeline.
			2002	Earth Tech	Draft EE/CA	Final RI for Ford Island
			2003	Earth Tech	Removal Action Memorandum	Final EE/CA for Ford Island Hazardous Substance Sites
			2003	Earth Tech	RI (Final)	Final AM for Ford Island Hazardous Substance Sites
			2003	Earth Tech	EE/CA (Final)	Work plan for removal action at Ford Island Hazardous Substance Sites
			2003	Shaw	AM (Final)	RVR for removal action at Ford Island Hazardous Substance Sites
			2004	Shaw	Site Work Plan and Addendum No. 1	RVR for Ford Island AVGAS pipeline
			2004	Shaw	RVR (Draft)	RVR for removal action at Ford Island Hazardous Substance Sites
			2005	Shaw	RVR (Draft and Final)	Time Critical AMs signed for Former Building 80/02 site for soil removal, vegetative cover, and land-use controls.
			2005-2006	Earth Tech	RVR (Final)	Time Critical AM signed for Building 284 Slope for construction of a vegetative cover and shoreline protection.
			2005	Earth Tech	Time Critical AMs	Conducted field activities for removal action at Former Buildings 80 and 302
			2006	Dawson	Time Critical AM	Conducted field activities for removal action at Bldg 284 Slope site
			2006	Dawson	Time-Critical Removal Action Work Plan and field work	Summary of removal action to construct a vegetative cover for the Building 284 Slope Summary of removal
				Dawson	Time-Critical Removal Action Work Plan and field work	

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
3	Ford Island Remedial Investigation	Ford Island Hazardous Substance Sites (Continued)	2006-2007	Dawson	RVR (Draft and Final)	action to excavate hot spots and construct a vegetative cover for the Former Buildings 80 and 302 site
			2006-2007	NAVFAC, Earth Tech	RVR (Draft and Final)	Recommended LUCs as the response action alternative for the Building 284 Slope
			2006-2007	NAVFAC, Earth Tech	Focused FS (Draft and Final)	Recommended LUCs as the response action alternative for the Former Buildings 80 and 302
			2006-2007	Earth Tech	Focused FS (Draft and Final)	Presented proposed final remedy of LUCs for the Building 284 and Former Buildings 80 & 302 sites
			2008	Earth Tech	LUC Proposed Plan	Presented proposed final remedy of NFA for the Hazardous Substance and 32 Transformer Sites
			2008	Earth Tech/ AECOM	NFA Proposed Plan	Documents final remedy for LUCs for the Building 284 and Former Buildings 80 & 302 sites
			2008-2009	Earth Tech/ AECOM	LUC ROD (Draft/Draft Final, Final)	Documents final remedy of NFA for the Hazardous Substance and 32 Transformer Sites
			2008-2009	AECOM	NFA ROD (Draft/Draft Final, Final)	Details on Land-Use Control implementation requirements
			2009-2010	AECOM	Draft/Draft Final LUC Work Plan	Details on Land-Use Control implementation requirements
			2011		Final LUC WP	LUCs implemented in accordance with ROD and LUC WP
			2012-2014	Navy AECOMAECOM	Annual LUC inspections	LUCs protective of human health and environment
			2014		PHNC NPL CERCLA 5-year Review	Continue GW sampling and cap inspections
			2015-2016	Element Environmental	GW monitoring for Bldg 284 site, cap inspection/ maintenance for Bldg 284 and Former Bldgs 80 & 302	LUCs protective of human health and environment
			2017-2019		GW monitoring for Bldg 284 site, cap inspection/ maintenance for Bldg 284 and Former Bldgs 80 & 302	Continue GW sampling and cap inspections
			2019	AECOM	PHNC NPL CERCLA 5-year Review	LUCs protective of human health and environment
			2020-2024	Element Environmental	GW monitoring for Bldg 284 site, cap inspection/ maintenance for Bldg 284 and Former Bldgs 80 & 302	Continue GW sampling and cap inspections

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
4	PWC Transformer Sites	PWC Transformer Sites, Vaults M-14 and D-02	1991	Navy, PWC	Assess site for the presence of PCB contamination and define potential threat to human health or environment.	PCBs detected. Removal Action recommended.
			2006	Earth Tech	Proposed Plan	Proposed final remedy for various transformer sites.
			2007	ECC	RVR	Describes removal action activities during the PCB thermal desorption project.
			2008	Earth Tech	LUC ROD (Draft/Draft Final)	Documents final remedy of LUCs for M-14.
			2009-2010	AECOM	Draft and Final Tech Memo	Risk assessments for seven transformer sites at PHNC and NCTAMS PAC. Tech Memo recommends no further action, unrestricted use for transformer M-14.
			2011-2012	AECOM	RI WP (Draft, Draft Final, Final)	Remedial Investigation planning documents for 61 transformers. Includes further investigation of subsurface soil and groundwater at D-02.
			2013	AECOM	Draft RI Report	(D-02): NFA recommended for GW; further evaluation recommended for soil. Recommendations for other transformer sites discussed under Group 25 (Various Transformer Sites)
		PWC Transformer Sites, Vaults M-14 and D-02 (Continued)	2016	AECOM	Draft Final RI Report	
4	PWC Transformer Sites		2016		Final RI Report	
4	PWC Transformer Sites	PWC Transformer Sites, Vaults TC-01, TD-10, FR-06, FF-10, TG-04, -E-09, and J-16	1991	ERCE	SI (Final) – Assess sites for the presence of PCB contamination and define potential threat to human health or environment.	Samples detected Aroclor 1260.
			1994	Ogden	Site Evaluation – FSP (Draft)	Characterize contamination; evaluate various alternatives; assess human health threat; evaluate response alternatives and propose most appropriate removal action alternative.
			1996	Ogden	RSE(Final)	Field work initiated.
			1996	Ogden	RSE Report (Draft)	PCBs detected.
			1996	Ogden	EE/CA (Final)	Removal Action recommended. Recommended landfill soil w/ concentrations of PCB < 50 ppm on-island & either incinerate or landfill off-island soil w/ concentrations > 50 ppm.
			1997	EPA SITE program	Demo/Eval for EET, Inc. TechXtract Technology	Vault TG-04 was used to demonstrate/evaluate technology for extracting PCBs from concrete.
			1997	Earth Tech	Design (Final)	Removal action design finalized.
			1998	Ogden	Treatability Study Planning	On-island landfilling not an option since no CERCLA-approved on-island landfills available. Navy worked

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
4	PWC Transformer Sites	PWC Transformer Sites, Vaults TC-01, TD-10, FR-06, FF-10, TG-04, -E-09, and J-16 (Continued)	1998	Navy fact sheet/ RAB meeting	Revised cleanup goals and changes in EE/CA recommendation	with EPA to find cost-effective on-island treatment technology. Navy announces change in cleanup goals, and plans to pursue cost-effective on-island treatment rather than EE/CA recommended disposal options.
			1999	EPA SITE program	Demo/Eval for solvated electron technology	Results not yet published.
			1999	Ogden	Treatability Study (Final)	Concluded that solvated electron technology and thermal desorption (Terra Therm Environmental Services, Inc.) may achieve cleanup goal of 1 ppm (PCB) and be considered a viable remediation method for PHNC transformer sites.
			2000	Earth Tech	Treatment/Disposal EE/CA (Draft)	Evaluated treatment/disposal options for contaminated soil. Recommended on-island treatment by thermal desorption. Also recommended soil from PHNC, NCTAMS PAC, and former NAS Barbers Point be consolidated at one location at the former NAS Barbers Point for the purpose of treatment.
			2000	Navy fact sheet/RAB meeting	Removal Action Update, including changes to 1996 EE/CA	Explains status of removal action, including revised cleanup goals, and changes from 1996 EE/CA recommendations. Fate of excavated soil to be determined by 2000 Final Treatment/Disposal EE/CA. Announced that the draft Treatment/Disposal EE/CA recommended treatment by thermal desorption, and consolidation of the soil at the former NAS Barbers Point for purpose of treatment. The fact sheet was distributed for public review and a notice of availability was advertised in the local newspaper.
			2000	Earth Tech	Treatment/Disposal EE/CA (Draft Final)	Recommended: - Treatment of contaminated soil by thermal desorption. - Treated soil will not be subject to use restrictions once the soil has been treated to concentrations below the designated regulatory action levels. Since EPA and DOH guidance indicates soil less than or equal to 1 mg/kg PCB as total Aroclor is acceptable for unrestricted use, the soil will be used accordingly.
			2000	Earth Tech	Action Memorandum for PHNC Removal Action	Recommended: - Soil excavated at all PHNC transformer sites to cleanup goal of 1 mg/kg as total Aroclor. - Concrete cleaning at all PHNC transformer sites to cleanup goal of 10 micrograms/100 square cm.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
4	PWC Transformer Sites	PWC Transformer Sites, Vaults TC-01, TD-10, FR-06, FF-10, TG-04, -E-09, and J-16 (Continued)	2000 - 2001	Earth Tech/ Navy PWC	Removal Action	- Sampling of drainage structures and utility manholes to verify potential contamination and encapsulation of concrete surfaces if PCBs are detected above cleanup levels. - Temporary storage of contaminated soil at a stockpile staging area at former NAS Barbers Point for on-island treatment by thermal desorption. Excavation completed at six sites. Excavation not yet completed at three sites (TC-01, E-09, and D-02). Excavation for these three sites are to be completed as part of a separate project that will include excavation and treatment of PCB contaminated soil from various transformer sites.
			2003	Earth Tech	RVR (Draft)	Draft RVR prepared to document removal action activities completed to date. Remaining removal action efforts will be documented upon completion of the PCB soil treatment project.
			2006	Earth Tech	Proposed Plan	Proposed final remedy for various transformer sites. Describes removal action activities during the PCB thermal desorption project.
			2007	ECC	RVR	Documents final remedy of NFA for TC-01 and J-16 Documents final remedy of LUCs for TD-10 and TG-04.
			2007	Earth Tech	NFA ROD	
			2008-2010	Earth Tech	LUC ROD (Draft/Draft Final/Final)	
				AECOM	Draft and Final Tech Memo	Risk assessments for seven transformer sites at PHNC and NCTAMS PAC. Tech Memo recommends no further action, unrestricted use for transformer TG-04.
			2009-2010			
			2010	AECOM	Record of Decision (final)	Documents final remedy of LUCs for TD-10 (ROD also includes K-14 and W-4/W-5)
			2012	NAVFAC HI	Remedial Action Completion Report	Documents completion of remedial action to implement LUCs at TD-10, K-14, and W-4/W-5.
			2013-2014	Navy	Annual LUC inspections	LUCs at TD-10, K-14, and W-4/W-5 implemented in accordance with ROD and LUC WP
			2014	AECOM	PHNC NPL CERCLA 5-year review	LUCs protective of human health and environment
			2019	AECOM	PHNC NPL CERCLA 5-year review	LUCs protective of human health and environment
5	Shipyard Subsurface Oil	Building No. 8 (New SWMU 18)	1990	Navy (PACDIV)	RFA	Former power plant pits were identified as a new SWMU.
			1993	Ogden	Removal of 2 USTs	No fuel hydrocarbons detected in soil under USTs.
			1993	Ogden	Removal Action	

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
5	Shipyard Subsurface Oil	Building No. 8 (New SWMU 18) (Continued)	1995	Ogden	EE/CA (Final)	Finalized planning documents to further characterize site; work initiated and completed. Low-level VOCs and semi-VOCs detected throughout site.
			1996	Ogden	Design Package	Recommend modification to the NSY storm drain system and installation of an active extraction trench system.
			1996	OHM	Removal Action	Extraction system trench design.
			1997 – 2002	Ogden/AMEC	O&M/Performance Monitoring	Fuel extraction system construction.
			1998		RVR	System began operation in August. Quarterly reports are provided.
			2002 - present	OHM Dawson/HIES/ SAES/Element	O&M/Performance Monitoring for Bldg 8 Removal Action	Documentation of construction activities. Quarterly documentation of operation and maintenance and performance monitoring of fuel extraction system.
			2006	/ERRG	RAO Optimization	
			2010	URS	RAO Optimization	Recommendation is to continue operation of system.
			2015	URS AECOM	RI/FS/PP/ROD/RACR	Recommendation is to continue operation of system. Following a release 30 gallons of heavy fuel into the harbor near the site, an investigation is underway to determine if the release came from the Bldg 8 plume. The project has been updated to include better definition of the PCBs within the existing plume and if PCBs may be migrating to the harbor in dissolved phase PCBs in the groundwater or through transport via storm drains.
			2021		RI/FS	
			2022	AECOM	RI	Draft Final RI submitted in Oct 2021
				AECOM		Pre-Final submitted March 2022 (Note: Work on RI is completed but the document is submitted as "Pre-Final" due to OPSEC issues.)
			2022	AECOM	Draft FS	Submitted to Regs for comment Oct 2022
5	Shipyard Subsurface Oil	O-2 Pier	1995	Ogden	Removal Action	Planning documents to further characterize site finalized and field work initiated and completed.
			1996	Ogden	EE/CA (Final)	Recommend installation of a passive trench system.
			1996	Ogden	Design Package (Draft)	Submitted and awaiting finalization prior to the start of construction activities.
			1997	Earth Tech	Design Package (Final)	Completed.
			1997/8	OHM	Removal Action	Interceptor/collection trench with seawall construction.
			1998	OHM	RVR (Final)	Documentation of construction activities.
			1998 – 2003	Earth Tech/ Tetra Tech	O&M/Performance Monitoring	System began operation in March. Quarterly reports are provided.
			2003 - present	Dawson/HIES/ SESC/Element /ERRG	O&M/Performance Monitoring for Oscar 2 Pier Removal Action	Quarterly documentation of operation and maintenance and performance monitoring of fuel extraction system.
			2004	URS	RAO Optimization	Recommendation is to continue operation of system.
			2010	URS	RAO Optimization	Recommendation is to continue operation of system.
			2019	AECOM	EHMP	Quarterly Reports are provided.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
						EHMP recommends discontinuing product recovery and continued monitoring
5	Shipyard Subsurface Oil	Past Sludge Disposal Area, Lower Tank Farm (IAS -21c)	1983	NEESA	IAS	IAS reports oil seepage along shipyard shoreline in spite of the use of oil extraction wells.
			1990	HLA	SI	Excavations around active tanks encountered no sludge. SI recommended no further action for the active tanks.
			2003	Earth Tech	Planning Documents for SC (Final)	Planning documents for site characterization of subsurface fuel.
			2005	Earth Tech	Planning Documents Addendum for SC (Final)	Updated field work approach. Recommended NFA except for Bldg 8, Lower Tank Farm plume adjacent to Hickam AFB and some USTs.
			2008	Earth Tech	RI Report (Final)	
5	Naval Shipyard Sites	LNAPL and PCBs on Groundwater	2015	AECOM	RI Awarded 2016	Discovered during a construction project.
			2017	AECOM	RI Draft	Draft RI report July 2017 still under review. Site is being evaluated as a potential source for PCBs in the harbor sediments. Revised Draft submitted in October 2020.
			2020	AECOM	Revised Draft RI	
			2021	AECOM	Draft Final RI	EPA Concurs with DF RI
			2021	AECOM	Pre-Final RI	Document is final, but called "Pre-final" until OPSEC issues can be resolved.
			2022	AECOM	Draft FS	Draft FS completed in August 2022. Received HDOH comments in November 2023. Addressing HDOH comments.
6	NAVBASE Subsurface Oil	Upper Tank Farm - Tanks 46-48, 53 – 55 (RAA-2)	1983	NEESA	IAS	No further action necessary "because this site is not a threat to human health or to the environment." However, EPA review disagreed with IAS findings.
			1990	HLA	SI	Petroleum-related contamination found at Tanks 47, 48. Recommended further investigation.
			1994	Ogden	RI	Recommended sampling of groundwater and/or LNAPL product, and a survey of water level elevations.
			1995	Ogden	Phase II RI/FS (Final)	
			1996/7	Ogden	RI/FS (Final)	Planning documents finalized and field work initiated. Recommended removal action for free product in Remedial Action Area (RAA-2).
			1997 – 2009	Ogden/AMEC/ Dawson	O&M/performance monitoring for NEX Gas Stn fuel recovery system	Quarterly reports document product levels in monitoring wells in the Upper Tank Farm. Monitoring discontinued after receipt of conditional no further action approval from HDOH in June 2009. Last report submitted in July 2009 documented conditional no further action approval.
			1999	Ogden	Groundwater and product level monitoring	Recommended removal action as part of RAA-2. See NEX Gas Station site.
			2009	AECOM	EHE/MP for RAA-1-10	Recommended conditional no further action with the implementation of administrative notices at the site and continued performance monitoring for RAA-2.
			2012	AECOM	Remedial Investigation	Recommended incorporating 2007 release from Tank 48 into existing RAA-2 plume for monitoring.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2013	AECOM	Remedial Alternatives Analysis Tank 48	Recommends following RAA
			2014	AECOM	Response Action Memorandum, Tank 48 EHE/MP for RAA-1-10 (Updated)	Recommended conditional no further action with the implementation of administrative notices at the site and continued performance monitoring for RAA-2
6	NAVBASE Subsurface Oil	Former Upper Tank Farm - Tanks 39-40, 42-45 and 49-52 (RAA-3, RAA-10)	1983	NEESA	IAS	No further action necessary "because this site is not a threat to human health or to the environment." However, EPA review disagreed with IAS findings.
			1994	Ogden	RI	Recommended sampling of groundwater and/or LNAPL product, a survey of water level elevations, and installation of additional groundwater monitoring wells.
			1995	Ogden	Phase II RI/FS (Final)	Planning documents finalized and field work initiated.
			1996/7	Ogden	RI/FS (Final)	Recommended removal action for free product in RAA-3 and continued monitoring at RAA-10. Recommended quarterly monitoring for VOCs in groundwater for one year in RAA-13.
			1999	Ogden	Groundwater and product level monitoring	Quarterly monitoring for free product (4 qtrs – 9/97, 12/97, 3/98, 6/98) in Remedial Action areas 1,6-10 were conducted. Recommended removal action for RAA-3 (See Millican Field/Quarry Loch site.) Quarterly monitoring for VOCs (4 qtrs – 9/97, 12/97, 3/98, 6/98) in RAAs 11-13 were conducted.
6	NAVBASE Subsurface Oil	Former Upper Tank Farm - Tanks 39-40, 42-45 and 49-52 (RAA-3, RAA-10) (Continued)	1999	Ogden	Groundwater monitoring	VOCs were found in MW-43 at RAA-13.
			2000	Ogden	Groundwater monitoring	Monitoring of VOCs in MW-43 near former Tank 45. Found similar level as last year. Recommend continued annual monitoring.
			2001	AMEC	Groundwater monitoring	Recommend continued annual monitoring until further characterization is performed.
			2002	AMEC	Groundwater monitoring	Found similar levels of VOCs. Continue monitoring until further characterization is performed.
			2004	Earth Tech	Groundwater monitoring	Found similar levels of VOCs. Continue monitoring until further characterization is performed.
			2009	AECOM	EHE/MP for RAA-1 through RAA-10	Found similar levels of VOCs. Continue monitoring until further characterization is performed.
			2014	AECOM	EHE/MP for RAA-1 through RAA-10	Recommended conditional no further action with the implementation of administrative notices at both RAA-3 and RAA-10 with continued performance monitoring for RAA-3 (every 5 years). Updated document does not affect response to this site.
6	NAVBASE Subsurface Oil	Upper Tank Farm Canyon Disposal Area (IAS-23,NSC-13) (RAA-2)	1983	NEESA	IAS	No further action necessary "because this site is not a threat to human health or to the environment."
			1987	A. T. Kearney	RFA	

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			1989	KJC	RFI WP	Release potential to soil and groundwater is considered high.
			1990	HLA	SI	Recommended an evaluation of the types and amounts of materials present at site.
			1992	Ogden	RFI (Draft)	Recommended further investigations.
			1994	Ogden	RI	Recommended installing monitoring wells and treatment of the soil during excavation.
			1995	Ogden	Phase II RI/FS (Final)	Recommended sampling of groundwater and/or LNAPL product, a survey of water level elevations, and installation of additional groundwater monitoring wells.
			1996/7	Ogden	RI/FS (Final)	Planning documents finalized and field work initiated.
			1999 – 2009	Ogden/AMEC/ Dawson	Groundwater and product level monitoring	Recommended removal action for free product in RAA-2. Recommended removal action for free product as part of RAA-2. See NEX Gas Station site. Monitoring discontinued after receipt of conditional no further action approval from HDOH in June 2009. Last report submitted in July 2009 documented conditional no further action approval.
6	NAVBASE Subsurface Oil	Upper Tank Farm Canyon Disposal Area (IAS-23,NSC-13) (RAA-2) (Continued)	2009	AECOM	EHE/MP for RAA-1 through RAA-10	Recommended conditional no further action with the implementation of administrative notices at the site and continued performance monitoring for RAA-2.
			2014	AECOM	EHE/MP for RAA-1 through RAA-10 Update	EHE/MP Updated for Tank 48 Site. No changes were made to this site

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
6	NAVBASE Subsurface Oil	Past Sludge Disposal Area, Upper Tank Farm (IAS-21a) (RAA-2)	1983	NEESA	IAS	No further action necessary because "the sludges contained only a small amount of lead and the sludges are buried. This site is not a threat to human health or to the environment." However, EPA review disagreed with findings of the IAS.
			1994	Ogden	RI	Recommended sampling of groundwater and/or LNAPL product, and a survey of water level elevations.
			1995	Ogden	Phase II RI/FS (Final)	Planning documents finalized and field work initiated.
			1995	Navy/Ogden	Geotextile lining installation; excavation of sludge pits around tanks	Geotextile lining installation; excavation of sludge pits and surrounding soil and disposal in Waimanalo Gulch Landfill. No further investigation necessary as pits no longer exist.
			1996/7	Ogden	RI/FS (Final)	Recommended removal action for free product in RAA-2.
			1999	Ogden	Groundwater and product level monitoring	Recommended removal action for free product as part of RAA-2. See NEX Gas Station site. Monitoring discontinued after receipt of conditional no further action approval from HDOH in June 2009. Last report submitted in July 2009 documented conditional no further action approval.
			2009	AECOM	EHE/MP for RAA-1 through RAA-10	Recommended conditional no further action with the implementation of administrative notices at the site and continued performance monitoring for RAA-2.
			2014	AECOM	EHE/MP for RAA-1 through RAA-10 Update	EHE/MP Updated for Tank 48 Site. No changes were made to this site.
6	NAVBASE Subsurface Oil	Middle Tank Farm - Tanks 29-38 (RAA-4)	1983	NEESA	IAS	Identified sludge in shallow pits within the tank berms.
			1990	HLA	SI	No sampling of tanks 29-33, no sludge encountered around tanks 34-38.
			1994	Ogden	RI	Recommended sampling of groundwater and/or LNAPL product, a survey of water level elevations, and installation of additional groundwater monitoring wells. COCs are TPH, PAHs and lead.
			1995	Ogden	Phase II RI/FS (Final)	Planning documents finalized and field work initiated.
			1996/7	Ogden	RI/FS (Final)	Recommended removal action for free product in RAA-4.
			2000	Earth Tech/ Tetra Tech	EE/CA for Quarry Loch removal action	No conclusive data linking plume at the Middle Tank Farm to oil seepage at Quarry Loch.
6	NAVBASE Subsurface Oil	Middle Tank Farm - Tanks 29-38 (RAA-4) (Continued)	2002 – 2009	Dawson	O&M/Performance Monitoring for Quarry Loch Removal Action	Quarterly reports document product levels in monitoring wells at the Middle Tank Farm as part of the Quarry Loch Removal Action. Monitoring discontinued after receipt of conditional no further action approval from HDOH in June 2009. Last report submitted in July 2009 documented conditional no further action approval.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2009		EHE/MP for RAA-1 through RAA-10	Recommended conditional no further action with the implementation of administrative notices at the site and continued performance monitoring for RAA-4.
			2014	AECOM	EHE/MP for RAA-1 through RAA-10 Update	EHE/MP Updated for Tank 48 Site. No changes were made to this site
6	NAVBASE Subsurface Oil	Abandoned Underground Tank (IAS-24, NSC-14) (RAA-4)	1983	NEESA	IAS	No further action recommended "because oil stored in the tank was very thick and non-hazardous. This site is not a threat to human health or to the environment." EPA review disagreed with findings of the IAS.
			1987	A.T. Kearney	RFA	Believed to be a contributor to the subsurface oils.
			1988/89	Navy/EPA	RFA	Because this site is being studied by the IRP, no further action is required as a SWMU. Sludge encountered in excavations around active tanks.
			1990	HLA	SI	Recommended further investigations.
			1994	Ogden	RI	Recommended sampling of groundwater and/or LNAPL product, a survey of water level elevations, and installation of additional groundwater monitoring wells. COCs are TPH and PAHs.
			1995	Ogden	Phase II RI/FS (Final)	Planning documents finalized and field work initiated.
			1996/7	Ogden	RI/FS (Final)	Recommended removal action for free product in 5 areas in RAA-4.
			2000	Earth Tech/ Tetra Tech	EE/CA for Quarry Loch removal action	No conclusive evidence that contamination at the tank is contributing to oil seepage at Quarry Loch.
			2002 – 2009	Dawson	O&M/Performance Monitoring for Quarry Loch Removal Action	Quarterly reports document product levels in monitoring wells at the Abandoned Underground Tank as part of the Quarry Loch Removal Action. Monitoring discontinued after receipt of conditional no further action approval from HDOH in June 2009. Last report submitted in July 2009 documented conditional no further action approval.
			2009	AECOM	EHE/MP for RAA-1 through RAA-10	Recommended conditional no further action with the implementation of administrative notices at the site and continued performance monitoring for RAA-4.
			2014	AECOM	EHE/MP for RAA-1 through RAA-10 Update	EHE/MP Updated for Tank 48 Site. No changes were made to this site.
6	NAVBASE Subsurface Oil	Valve Chambers No. 2, 3 (RAA-1), 4, and 7 (RAA-2)	1994	Ogden	RI	Recommended sampling of groundwater and/or LNAPL product, a survey of water level elevations, and installation of additional groundwater monitoring wells. COCs based on soil results are TPH and PAHs.
6	NAVBASE Subsurface Oil	Valve Chambers No. 2, 3 (RAA-1), 4, and 7 (RAA-2) (Continued)				Planning documents finalized and field work initiated.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			1995	Ogden	Phase II RI/FS (Final)	Recommended removal action for free product in RAA-2. No further action planned for Valve Chambers Nos. 2 and 4.
			1996/7	Ogden	RI/FS (Final)	
			1997 - 2009	Ogden/AMEC	O&M/performance monitoring for NEX Gas Station Removal Action	Quarterly reports document product levels in monitoring wells in the Valve Chamber No. 7 area, adjacent to the NEX Gas Station. See NEX Gas Station site. Monitoring discontinued after receipt of conditional no further action approval from HDOH in June 2009. Last report submitted in July 2009 documented conditional no further action approval.
			1999	Ogden	Groundwater and product level monitoring	Recommended removal action as part of RAA-2 for Valve Chamber No. 7 and RAA-1 for Valve Chamber No. 3. See Hotel Pier site. Last report submitted in July 2009.
			2009	AECOM	EHE/MP for RAA-1 through RAA-10	Recommended conditional NFA with the implementation of administrative notices at the sites and continued performance monitoring for RAA-1 and RAA-2.
			2014	AECOM	EHE/MP for RAA-1 through RAA-10 Updated	EHE/MP Updated for Tank 48 Site. No changes were made to this site.
			2022	HDOH-HEER	NFA Rescinded	Due to a release from the active fuel system, HDOH rescinded the NFA memo for RAA-1. Since the release is from an active site, the work is being managed by the NAVFAC HI Compliance program.
6	NAVBASE Subsurface Oil	ADIT No. 1 (RAA-6 & RAA-11/12/13)	1994	Ogden	RI	Surface soils and water should be sampled with additional borings and monitoring wells.
			1995	Ogden	Phase II RI/FS (Final)	Planning documents finalized and field work initiated.
			1996/7	Ogden	RI/FS (Final)	Recommended removal action for free product in RAA-6. Recommended quarterly monitoring of free product in RAA-6 and VOCs in groundwater for one year in RAA-11.
			1999	Ogden	Groundwater and product level monitoring	Negative results at RAA-6 so recommendation was to discontinue monitoring. VOCs detected at RAA-11 in MW-13. EPA asked for annual monitoring to help prioritize future site characterization.
			1999	Ogden	Annual groundwater monitoring for VOCs	VOCs detected at RAA-11 in MW-13.
			2000	Ogden	Annual groundwater monitoring for VOCs	VOCs detected at RAA-11 in MW-13
			2001	AMEC	Annual groundwater monitoring for VOCs	Found similar VOC levels. Continue monitoring until further characterization is performed.
6	NAVBASE Subsurface Oil	ADIT No. 1 (RAA-6 & RAA-11/12/13) (Continued)	2002	AMEC	Annual groundwater monitoring for VOCs	Found similar VOC levels. Continue monitoring until further characterization is performed.
			2004	Earth Tech	Annual groundwater monitoring for VOCs	Found similar VOC levels. Discontinue monitoring until further characterization is performed.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2009	AECOM	EHE/MP for RAA-1 through RAA-10	Recommended conditional no further action with the implementation of administrative notices at RAA-6.
			2011	AECOM	Phase II RI/FS RAA-12	Planning documents finalized and field work initiated to better define TCE groundwater contamination at RAA-12.
			2011	AECOM	Proposed Plan RAA-11/13	Proposed Plan drafted. Public meeting scheduled in October 2011 for RAA-11/13 recommending NFA. NFA ROD (RAA-11/13)
			2013	AECOM	ROD	WP for interim sampling while RI/FS, PP, ROD, and RAWP are completed
			2014	AECOM	WP Addend No 6	Comprehensive draft RI/FS RAA-12
			2014	AECOM	Draft RI/FS RAA-12	Comprehensive final RI/FS RAA-12
			2015	AECOM	Final RI/FS RAA-12	
6	NAVBASE Subsurface Oil	Waste Oil Reclamation Facility (formerly known as Fuel Reclamation Facility) (IAS-20, NSC-[01-10]) (RAA-2)	1983	NEESA	IAS	No further action necessary because "although non-toxic oily waste could have contaminated the soil under the pit, the pit is now lined and is not a threat to human health or to the environment." However, EPA review disagreed with findings of the IAS.
			1987	A. T. Kearney	RFA	Release potential to soil and groundwater is high.
			1989	Navy/EPA	RFA	No further action required under RFI program because plant recycles waste oil for use in boilers and used oil is not a hazardous waste.
			1994	Ogden	RI	Recommended sampling of groundwater and/or LNAPL product, a survey of water level elevations, and installation of additional groundwater monitoring wells.
			1995	Ogden	Phase II RI/FS (Final)	Planning documents finalized and field work initiated.
			1996/7	Ogden	RI/FS (Final)	Recommended removal action for free product in RAA-2.
			1997 – 2002	Ogden/AMEC	O&M/Performance monitoring for NEX Gas Station Removal Action	Quarterly reports document product levels in monitoring wells at the Waste Oil Reclamation Facility, as part of the NEX Gas Station Removal Action. See NEX Gas Station site.
			2002 – 2009	DAWSON	O&M/Performance monitoring for NEX Gas Station Removal Action	Quarterly reports document product levels in monitoring wells at the Waste Oil Reclamation Facility, as part of the NEX Gas Station Removal Action. See NEX Gas Station site. Monitoring discontinued after receipt of conditional no further action approval from HDOH in June 2009. Last report submitted in July 2009 documented conditional no further action approval.
6	NAVBASE Subsurface Oil	Waste Oil Reclamation Facility (formerly known as Fuel Reclamation Facility) (IAS-20, NSC-[01-10]) (RAA-2) (Continued)	2009	AECOM	EHE/MP for RAA-1 through RAA-10	Recommended conditional no further action with the implementation of administrative notices at the site and continued performance monitoring for RAA-2.
			2014	AECOM	EHE/MP for RAA-1 through RAA-10 Updated	EHE/MP Updated for Tank 48 Site. No changes were made to this site.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
6	NAVBASE Subsurface Oil	NEX Gas Station (formerly known as PWC Gas Station) (RAA-2)	1988	Unitek – BOA	Subsurface investigation	Presence of LNAPL.
			1990	PRC	Subsurface investigation	Investigate further.
			1992	Ogden	Removal Action pilot test	Removal of LNAPL using well extraction system.
			1994	Ogden	RI	Recommended sampling of ground water and/or LNAPL product, a survey of water level elevations, and installation of additional groundwater monitoring wells. Also recommend a removal action.
			1995	Ogden	Phase II RI/FS (Final)	Planning documents finalized and fieldwork initiated.
			1996	Ogden	Ogden Design Package (Final)	Extraction system design.
			1996/7	Ogden	RI/FS (Final)	Recommended removal action for free product in RAA-2
			1997	OHM	Removal Action	Fuel extraction system construction.
			1997	OHM	RVR	Documentation of construction activities.
			1997-present	Ogden/AMEC	O&M/performance monitoring	System began operations in February. Quarterly reports are provided.
			1999	Ogden	Groundwater and product level monitoring	Recommended a removal action in addition to the existing NEX Gas Station removal action.
			2000	Ogden	EE/CA	For the plume beyond the influence of the existing fuel extraction system, recommended the installation of a low permeability barrier wall with an interceptor/collection trench and a passive fuel oil recovery system. This system is adjacent to Magazine Loch.
			2000	Ogden	AM	Documents selected alternative.
			2000	Ogden	Design Documents	Completed.
			2001	IT	Final Site Work Plans	Work plans for construction; construction began.
			2002	IT/Dawson	O&M/performance monitoring	Construction completed. Began O&M/performance monitoring
			2003 – 2009	Dawson	O&M/performance monitoring	Quarterly documentation of operation, maintenance, and performance monitoring of fuel extraction system. Monitoring discontinued after receipt of conditional no further action approval from HDOH in June 2009. Last report submitted in July 2009 documented conditional no further action approval.
			2006	URS	RAO Optimization	Recommendation is to discontinue operation of the fuel extraction system and continue quarterly product level measurements.
			2008	Dawson	43rd Quarterly Report	Documented shutdown of the extraction system.
6	NAVBASE Subsurface Oil	NEX Gas Station (formerly known as PWC Gas Station) (RAA-2) (Continued)	2009	AECOM	EHE/MP for RAA-1 through RAA-10	Recommended conditional no further action with the implementation of administrative notices at the site and continued performance monitoring for RAA-2.
			2014	AECOM	EHE/MP for RAA-1 through RAA-10 Updated	EHE/MP Updated for 2007 Tank 48 release. Monitoring frequency hasn't changed but some additional wells were added to the semiannual program.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
6	NAVBASE Subsurface Oil	Gas Station (RAA-2 and RAA-8)	1994	Ogden	UST removal	Completed.
			1994	Ogden	RI	Surface soils and water should be sampled with additional borings and monitoring wells.
			1995	Ogden	Phase II RI/FS (Final)	Planning documents finalized and fieldwork initiated.
			1996/7	Ogden	RI/FS (Final)	Recommended removal action for free product in RAA-2. Recommended quarterly monitoring free product in RAA-2 and RAA-8 for one year.
			1997 – 2009	Ogden/AMEC/ Dawson	O&M/Performance monitoring for NEX Gas Station Removal Action	Quarterly reports document product levels in the monitoring well near the Gas Station. Monitoring discontinued after receipt of conditional no further action approval from HDOH in June 2009. July 2009 report documented conditional no further action approval.
			1999	Ogden	Groundwater and product level monitoring	Recommends removal action at RAA-2 in addition to the NEX Gas Station Removal Action (see NEX Gas Station site) and discontinuance of monitoring in RAA-8 due to negative results.
			2009	AECOM	EHE/MP for RAA-1 through RAA-10	Recommended conditional no further action with the implementation of administrative notices at the RAA-2 and RAA-8 and continued monitoring for RAA-2.
			2014	AECOM	Updated EHE/MP	EHE/MP was updated for 2007 Tank 48 release. Some additional wells were added to the semiannual program.
6	NAVBASE Subsurface Oil	Halawa Service Station	1990	ESE	UST investigation	Recommended removal.
			1994	Ogden	RI	Recommend sampling of groundwater and/or LNAPL product, a survey of water level elevations, and installation of additional groundwater monitoring wells. Also recommend groundwater sampling and analysis be conducted subsequent to UST removal.
			1995	Ogden	Phase II RI/FS (Final)	Planning documents finalized and fieldwork initiated.
			1996	Navy (PWC)	UST Removal	Two underground storage tanks were removed.
			1996/7	Ogden	RI/FS (Final)	Recommended removal action for free product in 5 areas in the PHNC. Recommended quarterly monitoring free product and VOCs in groundwater for one year. This site is not included in these areas and no further action is planned.
6	NAVBASE Subsurface Oil	Bldg. No. 60, Sludge Disposal Pit - Diesel Purification Plant	1983	NEESA	IAS	No further action necessary "because this site is not a threat to human health or to the environment." However, EPA review disagreed with findings of the IAS.
			1987	A. T. Kearney	RFA	Release potential to soil and groundwater is considered high.
			1988/89	Navy/EPA	RFA	No further action is required under the RFI program because it is not used for diesel purification but for waste oil which is pumped to the fuel reclamation plant.
			1994	Ogden	RI	

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			1995	Ogden	Phase II RI/FS (Final)	Recommended sampling of groundwater and/or LNAPL product, a survey of water level elevations, and installation of additional groundwater monitoring wells.
			1996/7	Ogden	RI/FS (Final)	Planning documents finalized and fieldwork initiated.
			1997 – present	Ogden/AMEC	O&M/Performance monitoring for NEX Gas Station RA Groundwater and product monitoring	Recommended removal action for free product in RAA-2.
			1998	Ogden	EE/CA	Quarterly reports document product levels in monitoring wells near the Diesel Purification Plant adjacent to Magazine Loch.
			2000	Ogden		Recommended a removal action in addition to the existing NEX Gas Station removal action.
				Ogden	AM	Recommended the installation of a low permeability barrier wall with an interceptor/collection trench and a passive fuel oil recovery system.
			2000	IT	Design Documents	
			2000	IT/Dawson	Final Site Work Plans	
			2001		O&M/performance monitoring	Documents selected alternative.
			2002	Dawson		Completed. Work plans for construction; construction began.
			2003 – 2009	URS	O&M/performance monitoring	Construction completed. Began O&M/performance monitoring. Quarterly reports are provided. Monitoring discontinued after receipt of conditional no further action approval from HDOH in June 2009. Last report submitted in July 2009 documented conditional no further action approval.
			2006	Dawson	RAO Optimization Sixteenth Quarterly Report	Recommended to discontinue operation of recovery system at Magazine Loch. Replace with a passive recovery approach using absorbent socks.
			2009	AECOM	EHE/MP for RAA-1 through RAA-10	Documented shutdown of the extraction system. Absorbent socks being used to remove free product.
			2014	AECOM	EHE/MP for RAA-1 through RAA-10 Updated	Recommended conditional NFA with the implementation of ICs and continued performance monitoring for RAA-2. EHE/MP was updated for 2007 Tank 48 release. Monitoring frequency has not changed but some additional wells were added to the semiannual program.
6	NAVBASE Subsurface Oil	Merry Point Old Diesel Purification Plant Area (IAS-26, SIMA-09)	1983	NEESA	IAS	No further action necessary "because this site is not a threat to human health or to the environment." However, EPA disagreed with findings of the IAS.
			1987	A. T. Kearney	RFA	Release potential to soil and groundwater is considered high.
			1989	Navy/EPA	RFA	Not regulated by RCRA.
			1994	Ogden	RI	Recommended sampling via additional borings and monitoring wells.
			1995	Ogden	Phase II RI/FS (Final)	Planning documents finalized and field work initiated.
			1996/7	Ogden	RI/FS (Final)	

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
						Recommended removal action for free product in 5 areas in the PHNC. Recommended quarterly monitoring free product and VOCs in 5 areas. This site is not included in these areas. Therefore, no further action is planned.
6	NAVBASE Subsurface Oil	Millican Field (Quarry Loch) (RAA-3)	1989	Geolabs-Hawaii	Subsurface investigation	Petroleum product discovered at 5 to 7 feet below the surface.
			1994	Ogden	RI	Recommended sampling of groundwater and/or LNAPL product, a survey of water level elevations, and installation of additional groundwater monitoring wells. Recommended sampling via additional borings and monitoring wells.
			1995		Phase II RI/FS (Final)	Planning documents finalized and field work initiated.
			1996/7	Ogden	RI/FS (Final)	Recommended removal action for free product in RAA-3. Recommended free product monitoring in RAA-10.
			1998	Ogden	Product level monitoring	Recommended removal action for RAA-3 and RAA-10 as part of Quarry Loch removal action.
			1998-1999	EPA SITE Program	Product recovery demonstrations	Electroheating and surfactant enhanced aquifer remediation were demonstrated.
			2000	Earth Tech/ Tetra Tech	EE/CA	Recommended extraction sumps along existing storm drain lines with a barrier trench.
			2000	Earth Tech/ Tetra Tech	AM	Documents selected alternative.
			2001	Earth Tech/ Tetra Tech	Final Design Documents	Completed.
			2001	Earth Tech/ Tetra Tech	Final Site Work Plan	Work plans for construction; construction began.
			2002	IT	O&M/performance monitoring	Construction completed. Began O&M/performance monitoring.
			2003 – 2009	IT/Dawson	O&M/performance monitoring	Quarterly reports are provided. Monitoring discontinued after receipt of conditional no further action approval from HDOH in June 2009. Last report submitted in July 2009 documented conditional no further action approval.
			2004	Dawson	Eighth Quarterly Report	Recommended shutdown of the system with continued long-term monitoring.
6	NAVBASE Subsurface Oil	Millican Field (Quarry Loch) (RAA-3) (Continued)	2004	Dawson	Tenth Quarterly Report	Documented shutdown of the extraction system. Absorbent socks being used to remove free product.
			2009	AECOM	EHE/MP for RAA-1 through RAA-10	Recommended conditional no further action with the implementation of administrative notices at the site and continued performance monitoring for RAA-3.
			2014	AECOM	EHE/MP for RAA-1 through RAA-10 Updated	EHE/MP Updated for Tank 48 Site. No changes were made to this site.
6	NAVBASE Subsurface Oil	Fuel Corridor Pipelines (IAS-29)	1983	NEESA	IAS	No further action necessary "because this site is not a threat to human health or to the environment." However,

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
						the IAS did not investigate potential past releases from underground pipelines.
			1994	Ogden	RI	Recommended sampling of groundwater and/or LNAPL product, a survey of water level elevations, and installation of additional groundwater monitoring wells.
			1995	Ogden	Phase II RI/FS (Final)	Planning documents finalized and fieldwork initiated.
			1996/7	Ogden	RI/FS (Final)	Recommended removal action for free product in 5 areas in the PHNC. Recommended quarterly monitoring free product and VOCs in groundwater for one year.
			1999	Ogden	Groundwater and product level monitoring	Quarterly monitoring for free product (4 qtrs – 9/97, 12/97, 3/98, 6/98) in Remedial Action areas 1,6-10 were conducted. Quarterly monitoring for VOCs (4 qtrs – 9/97, 12/97, 3/98, 6/98) in RAAs 11-13 were conducted.
			1999	Ogden	Groundwater and product level monitoring	All follow-on work is being conducted as part of separate removal actions at specific RAAs.
6	NAVBASE Subsurface Oil	Former Oily Waste Pit, EPMU-6, Bldg. 1535 (RAA-3)	1990	ERCE	Preliminary Assessment	Investigate further - SI.
			1991	ERCE	SI	Petroleum hydrocarbons identified in soil and groundwater. Investigate further - RI/FS.
			1994	Ogden	RI	Recommended sampling of groundwater and/or LNAPL product, a survey of water level elevations, and installation of additional groundwater monitoring wells.
			1995	Ogden	Phase II RI/FS (Final)\	Planning documents finalized and field work initiated.
			1996/7	Ogden	RI/FS (Final)	Recommended removal action for free product in RAA-3 in the PHNC and quarterly monitoring for free product at RAA-10.
			1999	Ogden	Groundwater and product level monitoring	Recommended removal action as part of RAA-3. (See Millican Field (Quarry Loch) site.)
6	NAVBASE Subsurface Oil	Hotel Pier (RAA-1)	1998	Earth Tech/ Tetra Tech	RSE	Planning documents completed.
			1999	Earth Tech/ Tetra Tech	EE/CA	Recommended lining storm drain pipes, installing cut-off wall and installing product recovery system.
			2000	Earth Tech/ Tetra Tech	AM	Documents the selected alternative.
6	NAVBASE Subsurface Oil	Hotel Pier (RAA-1) (Continued)	2000	Earth Tech/ Tetra Tech	Design documents	Finalized design.
			2001	IT	Final Site Work Plans, O&M/performance monitoring	Work plans for construction; construction completed. Began O&M/performance monitoring.
			2002 – 2009	Dawson	O&M/performance monitoring	Quarterly reports are provided. Monitoring discontinued after receipt of conditional no further action approval from HDOH in June 2009. Last report submitted in July 2009 documented conditional no further action approval.
			2004	URS	RAO Optimization	

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
						Recommended to discontinue operation of recovery system. Replace with a passive recovery approach using absorbent socks.
			2004	Dawson	Fourteenth Quarterly Report	Documented shutdown of the extraction system.
			2009	AECOM	EHE/MP for RAA-1 through RAA-10	Absorbent socks being used to remove free product. Recommended conditional no further action with the implementation of administrative notices at the site and continued performance monitoring for RAA-1.
			2014	AECOM	EHE/MP for RAA-1 through RAA-10 Updated	EHE/MP Updated for Tank 48 Site. No changes were made to this site.
			2020	AECOM	Interim Investigation to determine source of recent release.	Recent fuel releases into Honolulu Harbor have caused concern that this site may be the source of the release.
			2022	HDOH-HEER	NFA Rescinded	An investigation was initiated in late 2020 to investigate and found that the fuel was from a recent release. Due to a release from the active fuel system, HDOH rescinded the NFA memo for RAA-1. Since the release is from an active site, the work is being managed by the NAVFAC HI Compliance program.
6	NAVBASE Subsurface Oil	Pierce Street Area (RAA-9)	1994	Ogden	RI	Recommended installation of additional groundwater monitoring wells.
			1996/7	Ogden	RI/FS (Final)	Recommended periodic monitoring to observe possible mobilization of free product in this area.
			1999	Ogden	Groundwater and product level monitoring	Recommended quarterly monitoring be continued for a period of one year.
			2002	Earth Tech	Removal Site Evaluation planning documents	Planning documents finalized and fieldwork initiated.
			2004	Earth Tech	Removal Action Report	Recommended placing absorbent socks into wells with observable free product and perform quarterly monitoring.
			2006	Earth Tech	Removal Action Report	Added recommendation to collect groundwater sample after free product removal is completed.
6	NAVBASE Subsurface Oil	Pierce Street Area (RAA-9) (Continued)	2006 – 2009	Dawson	Performance monitoring	Quarterly performance monitoring reports are provided. Monitoring discontinued after receipt of conditional no further action approval from HDOH in June 2009. Last report submitted in July 2009 documented conditional no further action approval.
			2009	AECOM	EHE/MP for RAA-1 through RAA-10	Recommended conditional no further action with the implementation of administrative notices.
			2014	AECOM	EHE/MP for RAA-1 through RAA-10 Updated	EHE/MP Updated for Tank 48 Site. No changes were made to this site.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
6	NAVBASE Subsurface Oil	Ward Field (RAA-5)	1994	Ogden	RI	Recommended borings and monitoring wells be installed to further characterize subsurface contamination.
			1995	Ogden	Phase II RI/FS (Final)	Planning documents finalized and fieldwork initiated.
			1996/7	Ogden	RI/FS (Final)	Recommended removal action for free product in RAA-5.
			1999	Ogden	Groundwater and product level monitoring	Recommended quarterly monitoring on select wells and installation of two additional microwells to the west of the mapped plume.
			2005	Earth Tech	Removal Site Evaluation planning documents	Planning documents finalized and field work initiated.
			2006	Earth Tech	Removal Action Report	Recommended placing absorbent socks into wells with observable free product and perform quarterly monitoring.
			2006 – 2009	Dawson	Performance monitoring	Quarterly performance monitoring reports are provided. Monitoring discontinued after receipt of conditional no further action approval from HDOH in June 2009. Last report submitted in July 2009 documented conditional no further action approval.
			2009	AECOM	EHE/MP for RAA-1 through RAA-10	Recommended conditional no further action with the implementation of administrative notices.
			2014	AECOM	EHE/MP for RAA-1 through RAA-10 Updated	EHE/MP Updated for Tank 48 Site. No changes were made to this site.
7	Naval Shipyard Sites	Former Battery Acid Pit Adjacent to Bldg. 394, Shop 51 (IAS-10, SY-47)	1983	NEESA	IAS	No further action necessary because "the amount of lead in the ground at this site is probably small and dispersed. This site is not a threat to human health or to the environment." However, EPA review disagreed with findings of the IAS.
			1987	A. T. Kearney	RFA	Release potential to of lead to soil and groundwater is considered low.
			1989	Navy/EPA	RFA	Site is covered under the IR Program.
			1990	ANL	SI	Detected lead in soils.
			1993	Ogden	RI	Detected lead in soils and groundwater.
			1995	Ogden	RSE (Final)	Planning documents submitted.
					Removal of waste acid	Site covered with plastic sheeting over which 3 to 6 inches of gravel was placed in order to maintain dust control of the area.
7	Naval Shipyard Sites	Former Battery Acid Pit Adjacent to Bldg. 394, Shop 51 (IAS-10, SY-47) (Continued)	1995	Navy	UST, two ASTs, and associated piping and "time-critical" Removal Action	
					RSE	Field work initiated and completed.
			1996	Ogden	RSE/EE/CA (Final), Plan	Results indicate approx. 1500 cubic yards of lead-impacted soil be addressed by Removal Action. In situ electrokinetics recommended for removal alternative.
			1997	Ogden	and Implement In-Situ Electrokinetics Demonstration	Navy working with EPA SITE Program to perform an electrokinetic demonstration.
			2000			

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
				AMEC (Ogden)/GII	Perform preliminary test on In-Situ System	Test indicated adequate hydraulic control cannot be achieved. Pilot scale test of ex-situ electrokinetic system proposed.
			2001	AMEC (Ogden)/GII	Pilot Scale Test of Ex-Situ Electrokinetic System	Navy working with EPA SITE Program to perform and evaluate the ex-situ electrokinetic system pilot scale test.
			2002	AMEC/GII	Pilot Scale Test of Ex-Situ Electrokinetic System	Pilot scale test completed and evaluation report being written by EPA SITE Program.
			2003	AMEC/GII	Pilot Scale Test of Ex-Situ Electrokinetic System	Evaluation report being written and finalized by EPA SITE Program.
			2004	EPA	Pilot Scale Test of Ex-Situ Electrokinetic System	Evaluation report finalized by EPA SITE Program.
			2007	Navy/EPA	General Site Work Plan for Alternate Removal Option	Work Plan for implementation of soil stabilization.
			2008	Shaw	RI Addendum/FS	Upon further consideration an addendum to the EE/CA to re-evaluate removal alternative initiated.
			2009	Shaw/Navy	Amended RI/FS Work Plan	Based on discussion with EPA, change from Removal to Remedial Action process. Final Work Plan to further delineate lead contamination at the site.
			2010	AECOM/ Environet	Consolidated Data Package	Draft Consolidated Data Package provided sampling results from the Amended RI Work Plan
			2012	AECOM	Addendum GW Work Plan	Submitted Draft Work Plan for additional round of GW sampling requested by EPA
			2013	AECOM	RI/FS Report	Site Characterization Complete. Installation of Asphalt/Concrete Cover and Associated LUCs as Final Remedial Alternative
			2013	AECOM	Action Memorandum	Decision Document for Installation of Asphalt/Concrete Cover
			2014	CAPE	Performance Design Package	Design/Specifications for Asphalt/Concrete Cover
			2014	AECOM	Non-Time Critical Removal Action Work Plan	Implementation Methods and Procedures for Asphalt/Concrete Cover
			2015	CAPE	Architect/Engineer Inspection Report	Details the Post Construction Award Services (PCAS) construction oversight activities for the Non-Time Critical Removal Action (NTCRA).
7	Naval Shipyard Sites	Former Battery Acid Pit Adjacent to Bldg. 394, Shop 51 (IAS-10, SY-47) (Continued)	2015	AECOM	Removal Verification Report	Documents remediation activities completed during the Non-Time Critical Removal Action (NTCRA).
			2015	AECOM	Proposed Plan	Proposed Plan submitted for public review and comment. Public meeting held for PP in August 2015.
			2016	AECOM	Record of Decision (Draft)	Presents the selected remedy for the site, which included construction of an asphaltic concrete (A.C.) pavement cover and land use controls (LUCs).
			2016	AECOM	Record of Decision (Draft Final)	

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
						Presents the selected remedy for the site, which included construction of an asphaltic concrete (A.C.) pavement cover and land use controls (LUCs).
			2020	AECOM	Tier II Work Plan (Draft and Final)	Documents the sampling and analysis plan for a surface soil investigation to evaluate the LUC footprint for the site.
			2021	AECOM	Tier II Work Plan Update (Draft)	Documents the sampling and analysis plan for additional surface soil investigation to evaluate the LUC footprint for the site.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
7	Naval Shipyard Sites	Asbestos Contaminated Shoreline	1994	Ogden	Site Evaluation WP	No evidence of hazardous wastes other than asbestos. Recommended posting hazardous warning signs and further remedial action and sampling.
			1995	Ogden	Site Evaluation Field work	Asbestos potential contaminant onsite.
			1996	Ogden	Site Evaluation Report (Final)	Asbestos not present / no further action required.
			1997	Ogden	Letter Report	At Shipyard's request, shoreline resampled. Asbestos containing material found.
			1998	Ogden	Revised Site Evaluation Report	Due to U.S. EPA Region IX comments to Building 6 section of report.
			1999	Earth Tech	Prepare documents for removal action	Samples collected during site visit contained asbestos containing material (ACM). Time-critical removal action to be done.
			2000	Navy, PWC	Time-critical Removal Action	Removed asbestos containing material/soil and backfill.
			2000	Earth Tech	AM, RVR/RADD	Preparation of documents for removal action.
			2001	Earth Tech	AM (Final)	Documents Time-Critical Removal Action.
			2001	Earth Tech	RVR (Final)	Documents Removal Action Objectives met.
			2002	Earth Tech	PP/ROD	Draft PP and ROD being prepared.
			2006	Earth Tech	PP/ROD	Final PP completed. NFA recommended. Public meeting held. ROD will need to be revised.
			2008	Earth Tech	Revised Draft ROD	NFA ROD will need to be revised to LUC ROD. ROD is being revised.
			2009-2010	AECOM	ROD (Draft Final, pre-final/Final)	ROD for final remedy to construct concrete cap and implement LUCs.
			2011	AECOM	RAWP (Draft, Final)	Remedial Action work plan to construct concrete cap and implement LUCs
			2012	ERRG	Remediation Verification Report	Documents construction activities completed for concrete cap.
			2012	AECOM	Remedial Action Completion Report	Documents completion of remedial action to construct concrete cap over areas of exposed surface soil, and implementation of LUCs.
			2013-2014	Navy	Annual LUC inspections	LUCs implemented in accordance with ROD and LUC WP
			2014	AECOM	PHNC NPL CERCLA 5-year review	LUCs protective of human health and environment
7	Naval Shipyard Sites	Foundry Shop, Bldg. No. 6 SY-7,8	1987	T. Kearney	RFA	10 tons of metals and dies cast each week. PAHs, petroleum, and PCBs are possible contaminants based on past history.
			1988/9	Navy/EPA	RFA	Hydroblast and Drainage Area (SY-7) is a closed system that recycles sand and is surrounded by cement. Liquid discharges to sanitary sewer based on a NPDES permit.
7	Naval Shipyard Sites	Foundry Shop, Bldg. No. 6				Air Cleaning System (SY-8) removes sand from a

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
		SY-7,8 (Continued)				wheelabrator machine cyclonically. Sand is placed into the ground and there is a low potential to release to the air. Both SWMUs were determined to have no further action.
			1993	Navy, PWC	Surface sampling	Elevated lead concentrations detected.
			1994	Ogden	Site Evaluation WP	Recommended additional sampling and assessment of potential contaminant transport.
			1995	Ogden	Site Evaluation Field work	Metals, PCBs, PAHs, and TPH potential contaminants.
			1997	Ogden	Site Evaluation Report (Final)	PCBs (Aroclor 1254 & 1260), PAHs, TPH (diesel and lubricant oil), and metals were detected. Elevated lead in sediment in storm drain system. Recommend no further action other than obtaining a deed restricting residential land use and monitoring lead levels (as part of the NPDES permit for NSY) in storm water entering the harbor.
			1998	Ogden	Sediment removal from two catch basins and paving an unpaved area adjacent to one catch basin.	Due to this storm drain system not being part of NPDES permit, a time-critical removal action was performed.
			1998	Earth Tech	Revised Site Evaluation Report	Due to U.S. EPA Region IX comments, report was changed to recommend removal action be taken on soil with elevated levels of lead.
			2000	Earth Tech	Expanded Site Inspection	Site Visit.
			2001	Earth Tech	Expanded Site Inspection WP and Field work	Plans completed. Fieldwork completed.
			2002	Earth Tech	Expanded SI	Address regulatory comments to final WP, take additional samples.
			2003	Earth Tech	Expanded SI	Draft report completed.
			2004	Earth Tech	Expanded SI	Final report completed. No further action is recommended for groundwater. Under current building use no immediate action is warranted for the site soil.
			2006	Navy/EPA	RI/FS	Per discussions with EPA an RI/FS report to be generated in place of the Expanded SI Report.
			2007	Earth Tech	RI/FS	Metals, PCBs, and PAHs in soil; and PAHs and aluminum in groundwater are COCs. Current use for building may change.
			2008	Earth Tech	RI/FS	Draft Final RI/FS report was submitted in June 2009.
7	Naval Shipyard Sites	Foundry Shop, Bldg. No. 6 SY-7,8 (Continued)	2010	AECOM	RI/FS	Due to groundwater issues, two more GW sampling events are planned for vanadium in 2009/2010. A

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
						revised draft final RI/FS report will then be submitted for regulatory review.
			2011	AECOM		Revised Draft Final RI/FS report submitted in July 2010. Report includes data for vanadium in groundwater.
			2012	AECOM	Proposed Plan	Public meeting for Proposed Plan held in May 2011. Draft ROD distributed for review.
			2012	AECOM	ROD	LUC ROD with no groundwater monitoring and soil encapsulation
			2013	AECOM	RAWP	WP for soil encapsulation and LTM
			2014	SESC	Performance Design	Design for remedial action
			2014	CKY	Remediation Verification Report	Summary of remedial action at the site to seal floor openings.
			2015	AECOM	Monitoring well decommissioning report	Summary of monitoring well decommissioning and land use control sign installation
			2015	AECOM	Draft Final RACR	Report documenting completion of remedial actions.
					Final RACR	Report documenting completion of remedial actions.
7	Naval Shipyard Sites	Transportation Yard	1983	NEESA	IAS	Subsurface chromic acid contamination may exist.
			1990	ANL	SI	Elevated levels of chromium, lead, and zinc. No further remedial action recommended.
			1993	Ogden	RI (Bldg. 394)	Chromium contamination detected in groundwater from a monitoring well on the transportation yard site.
			1994	Ogden	Site Evaluation WP	Proposed sampling program to confirm or deny presence of subsurface contamination in soils and groundwater.
			1995	Ogden	Site Evaluation Field work	Metals, PCBs, PAHs, and TPH potential contaminants. PCBs (Aroclor 1260), PAHs, TPH (diesel, kerosene, and lubricant oil), and metals in soil and TPH and PAHs in groundwater.
			1997	Ogden	Site Evaluation Report (Final)	Chromium contamination detected in groundwater in two monitoring wells. Recommend no further action other than obtaining a deed restricting residential land use.
			1998	Ogden	Revised Site Evaluation Report	Due to U.S. EPA Region IX comments to Building 6 section of report.
			2012	AECOM	RI Work Plan	Further Characterization of Site
			2013	AECOM	RI Phase 2 Work Plan Addendum	Step-out sampling to complete characterization of PCBs in Soil.
			2014	AECOM	Final RI/FS Report	Presentation of characterization of soil and groundwater contamination as site and remedial alternatives to address contamination issues.
			2015	AECOM	Proposed Plan	Proposed Plan submitted for public review and comment. Public meeting held for PP in July 2015.
7	Naval Shipyard Sites	Transportation Yard (Continued)	2015	AECOM	Record of Decision (Draft)	Presents the selected remedy for the site, which included implementation and maintenance of land use controls (LUCs).

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2016	AECOM	Record of Decision (Draft Final)	Presents the selected remedy for the site, which included implementation and maintenance of land use controls (LUCs).
			2019	AECOM	Record of Decision (Pre-Final)	Presents the selected remedy for the site, which included implementation and maintenance of land use controls (LUCs).
7	Naval Shipyard Sites	Oscar-1 Pier Shoreline (Area) includes Bldg. 1420	2006	ESI	SI (Draft)	Completed April 2006. Two VOCs, PCBs (Aroclor 1260), and some metals exceeded initial screening criteria in soil. Two metals exceeded initial screening criteria in groundwater. Based on the risk evaluations, no further action is recommended for soil and groundwater. Further characterization is recommended for sediment along the shoreline.
			2007-current	ESI	SI (Final)	Completed April 2007. No further action is recommended for soil and groundwater. Further characterization is recommended for sediment offshore of the site and of hydrocarbon impacts in the southeastern portion of the site (will be covered in the Pearl Harbor Sediment Study & Subsurface Fuel Investigation). Received concurrence with recommendation for NFA from DOH on 09/07/2011 and from EPA on 09/21/2011.
7	Naval Shipyard Sites	Laboratory Annex, Bldg T-25 Mercury Handling Site	2005	Earth Tech	Focused SI Report (Final)	Recommended further evaluation to characterize the extent of arsenic soil at Bldg T25
			2006	Earth Tech	Focused SI Report (Revised)	No changes to recommendation made in the 2005 Final Focused SI Report
			2010	AECOM	Preliminary Draft SI WP	WP Worksheets 10, 11, 15, 17 drafted and reviewed.
			2011	AECOM	Final SI WP	SI Work Plan Finalized
			2012	AECOM	SI Report	Recommended No Further Action for site. DOH concurred with NFA recommendation in letter 9 July 2012, EPA concurred with recommendation in letter 6 April 2012.
7	Naval Shipyard Sites	Sump Underlying Plating Tanks, Building 67	2006	Earth Tech	Focused SI Report (Final)	Recommended further investigation on the northwest side of Building 67.
			2019	ESI	SI (Draft)	Recommends further investigation to delineate the extent of hexavalent chromium in the soil and cyanide and hexavalent chromium in the groundwater.
			2020	AECOM	SI (Final)	Recommend RI to delineate the extent of hexavalent chromium in the soil and cyanide and hexavalent chromium in the groundwater (November 2020).
7	Naval Shipyard Sites	SSR Identified Sites	2001	Earth Tech	SSR (Draft Final)	Completed November 2001. Total of 1,120 sites were evaluated. 916 were recommended for no further action. 58 sites have current ongoing response actions. 146 sites recommended for further action investigation.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2003	Earth Tech	SSR (Final)	Final SSR completed August 2003. June 2004 - Navy responds to U.S. EPA Region IX comments on Final. Navy received U.S. EPA Region IX comments Sept 2004. Navy in review of comments. March 2005 - U.S. EPA Region IX provided a letter stating they had no further comments on SSR. Revised Final issued April 2005.
			2005	Earth Tech	SSR (Revised Final)	
			2005	Earth Tech	Focused SI Report (Final)	
			2006	Earth Tech	Focused SI Report (Revised)	
8	Red Hill Fuel Facility	Red Hill Oily Waste Disposal Pit (IAS-22)	1983	NEESA	IAS	Further investigations recommended due to "proximity of the site to the [redacted] and the quantities of sludge burned at the site."
			1983	Rockwell Int'l	Investigation to characterize oily sludges	Samples detected oil, organic solids, PAHs, heavy metals, phenols, and volatile hydrocarbons.
			1983	ATT	Verification Study	Subsurface soil and groundwater sampling confirmed the previous investigations' findings.
			1992	Hirata & Assoc.	Evaluation of slope stability	Data used to construct a spill retaining wall around [redacted].
			1994	Ogden	EE/CA	Recommended removal of the Stilling Basin and contents.
			1994	Ogden	Closure Plans/ Specs	Completed EE/CA removal recommendations.
			1995/6	Ogden	Phase I RI (Final)	Recommended characterization of potential impacts to [redacted].
			1995	OHM	Removal Action	Field work was completed and Remediation Verification Report (RVR) was generated.
			1996	Ogden	RVR/RADD (Final)	Completed.
			1997	Earth Tech	Phase II RI Planning Documents	Addressed all regulatory review comments.
			1998	Earth Tech	Phase II RI field investigation	Completed field investigation. First round of groundwater sampling indicates no impact to [redacted]. Mutually agreed to complete second round of groundwater sampling before submitting draft Phase II RI report. Completed second round in September 1998.
			1999	Earth Tech	Phase II RI Report (Draft)	Submitted draft Phase II RI report in January 1999. Report found no impact to [redacted]. Recommended abandonment of all investigation monitoring wells and no further response action.
8	Red Hill Fuel Facility	Red Hill Oily Waste Disposal Pit (IAS-22) (Continued)	1999	Earth Tech	Phase II RI Report (Draft Final)	Submitted draft final Phase II RI report in September 1999. Awaiting regulators' response before considering report final.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2000	Earth Tech	Phase II RI Report (Revised Draft Final)	Submitted revised draft final Phase II RI report in September 2000. Regulators did not concur with report recommendations.
			2001	PACDIV	Partnering Session	Site not under CERCLA due to petroleum exclusion. Agreement reached with EPA and DOH to address petroleum contamination with DOH.
			2001	Earth Tech	TPH Characterization SAP (Draft)	DOH requested a delineation of 25 ppm for TPH vice 5000 ppm presented in SAP
			2002	Earth Tech	TPH Characterization SAP (Final)	Incorporated 25 ppm for delineation of TPH and other DOH comments
			2002	Earth Tech	TPH Characterization	Completed field investigation.
			2003	Earth Tech	TPH Characterization Report (Draft)	Submitted draft report in January 2003. EPA and DOH had no comments.
			2003	Earth Tech	TPH Characterization Report (Final)	Submitted final report in December 2003. DOH had no further comments and concurred with report recommendation of no further action (NFA) for site.
			2004	PACDIV	Ltr Request for NFA concurrence	Submitted letters request for NFA concurrence in March, April, May, and December 2004. DOH requested additional information/clarification to support the request for March, April, and May letters.
			2005	DOH	NFA Concurrence Letter	DOH concurred with NFA. Well abandonment anticipated to be performed in late 2005 or early 2006.
			2005	NAVFAC HI	Letter Request for NPL delisting	Letter to EPA requesting to delist site from PHNC NPL.
			2005	EPA IX	Response letter	Response letter disapproving NPL delisting
			2019	NAVFAC HI	Technical Memorandum	Briefly summarizes previous investigations and analyses, and presents an overview of the proposed technical approach for evaluating and addressing changes in site conditions observed in recent groundwater data collected from the sole remaining monitoring well at the site.
			2021	NAVFAC HI	Draft Site Assessment Work Plan	Technical approach for evaluating and addressing the detection of total petroleum hydrocarbons in groundwater samples collected from the sole remaining monitoring well at the site. Data collected from the investigation will be used to perform chemical forensics to evaluate the nature of impacts as well as additional groundwater flow and fate and transport analyses. If warranted, a risk assessment will be conducted consistent with DOH guidance, and the need for potential response actions will be evaluated.
8	Red Hill Fuel Facility	Red Hill Oily Waste Disposal Pit (IAS-22) (Continued)				
9	Pearl City Peninsula	Pearl City Peninsula Landfill (IAS-04)	1939	Stearns	Geologic mapping	Depicts location of fill area.
			1972	Foote	Mapping	Map of soil types
			1973	NEPDB	Groundwater study	Study of contaminated groundwater.
			1976	ES	Solid waste disposal plan	Long range solid waste study for PWC.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			1981	PWC (Konno)	Multimedia sampling	Concluded "contamination is not a problem."
			1982	E&E	EPA Field investigation	Confirmatory study on findings recommended.
			1983	NEESA	IAS	Further investigations are recommended because "large quantities of hazardous waste may have been disposed of in the landfill."
			1988	ATT	Field investigation	Recommend additional testing be conducted to address potential impacts.
			1990	IT / ANL	RI	No contamination found. Recommend additional soil sampling and analysis.
			1995	Ogden	RI (Final)	Recommended additional sampling, removal action consisting of capping black sands.
			1996	Earth Tech	RSE Planning Docs.	Sampling and Analysis Plan and Health and Safety Plan completed.
			1996	Earth Tech	RSE	Fieldwork initiated.
			1997	Earth Tech	RSE	Fieldwork completed.
			1997	Earth Tech	EE/CA (Draft)	Recommended cover repair, inspection, and maintenance; no action with long-term monitoring for the berm; erosion control for black sands area; no action with long-term monitoring for Waiawa Unit; and excavation of dioxin/furan impacted soil on City and County property, consolidation of contaminated soil on Navy property, and covering of contaminated soil on Navy property.
			1998	Earth Tech	EE/CA (Draft Final)	Same recommendation as draft EE/CA. The draft final EE/CA was revised in response to comments.
			1998	Earth Tech	Action Memo (Draft)	Completed.
			1998	Earth Tech	Design (Final)	Design of removal action recommended in EE/CA.
			1998	IT	Removal Action	Removal action initiated.
			1999	IT	Action Memorandum	AM issued to document significant change from EE/CA. Interim removal action is proposed since for the ecological assessments at Waiawa Unit, characterization, and long-term monitoring to be conducted following interim removal action construction activities. Interim action includes landfill cover repair, black sands area erosion control, soil cover at hot spot areas, containment system at Waiawa Stream, and construction of a bridge for site access.
9	Pearl City Peninsula	Pearl City Peninsula Landfill (IAS-04) (Continued)	1999	IT	Additional Ecological Assessment at Waiawa Unit	Initiation of additional ecological assessment.
			2000	IT	Abbreviated Sampling & Analysis Plan for Waiawa Unit	Plan prepared in response to FWS report of distressed vegetation and fish.
			2000	IT		

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
9	Pearl City Peninsula	Pearl City Peninsula Landfill (IAS-04) (Continued)	2000	IT	Waiawa Unit Sediment Sampling Report	Concluded that there appeared to be no imminent threat to human health and environment as a result of a perceived contaminant release. The Waiawa Unit would continue to be monitored as part of an on-going ecological assessment and evaluation of the adjacent landfill.
			1999	IT	Draft screening level ecological risk assessment report for Waiawa Unit Interim Removal Action	Recommended a baseline ecological risk assessment. Interim removal action completed.
			2000	IT	RVR (Draft)	Draft RVR documented completion of interim removal action and identifies future site activities to include: - Bridge maintenance - Continued inspection and repair of additional cracks - Long-term monitoring - Waiawa Unit risk assessment - Capping of the Burn Disposal Area following risk assessment activities at the adjacent Burn Area Site
			2001	IT	Draft final screening level ecological risk assessment for the Waiawa Unit	Institutional controls. Completed.
			2001	IT	Long-term monitoring plan (draft)	Completed.
			2001	IT	Field work to implement long-term monitoring plan (planned)	Field work initiated in December 2001 (year 1 of current LTM plan).
			2002	IT/Shaw	Revisions 01 and 02 to LTM plan	LTM plan revised to address additional regulatory comments.
			2001-2003	IT/Shaw	Baseline Ecological Risk Assessment WP (Draft)	The draft baseline ecological risk assessment Work Plan for the Waiawa Unit/Landfill/Burn Disposal Area/Burn Area Site was prepared in July 2003.
			2004	IT/Shaw	Baseline Ecological Risk Assessment Work Plan (Draft Final)	The draft final Baseline Ecological Risk Assessment Work Plan for Pearl City Peninsula Landfill, Burn Area Site and Waiawa Unit was prepared in July 2004.
			2005	Shaw	Addendum 3 to LTM Plan (Draft)	LTM plan revised to include seep investigation. (Jan 2005)
			2005	Shaw	Addendum 3 to LTM Plan (Final)	LTM plan revised to include seep investigation. (May 2005)
			2005	Shaw	Final Baseline Risk Assessment Work Plan	Replacement pages for the final Baseline Risk Assessment Work Plan (Dec 2005)
			2006	Shaw	Draft Seep Study	Draft Seep Study Report (Dec 2005) Findings for the second semiannual of year 3 and the summary and conclusions for Years 1, 2, and 3 of the

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2006	Shaw	Second Semiannual (Year 3)/Third Annual Long-Term Monitoring Report	groundwater monitoring, and other activities of the LTM Program. (February 2006)
			2006	Shaw	Draft Site Conceptual Model and Groundwater Modeling Report	Draft Site Conceptual Model and Groundwater Modeling Report (May 2006)
			2007	Earth Tech	First Semiannual (Year 4) Long-Term Monitoring Report	Findings for the first semiannual (Sept 2005) of year 4 groundwater and other activities for the LTM Program. (June 2006)
			2008	Earth Tech	Revised Draft Baseline Risk Assessment Work Plan	Updated the 2005 work plan to ensure additional data gaps noted are addressed (includes adjacent Burn Area Site).
			2009	AECOM	Revised Draft Final Baseline Risk Assessment Work Plan	Draft Final work plan completed, includes a streamlined sampling approach (includes adjacent Burn Area Site).
			2010-2012	AECOM	RI field work	RI field work completed (includes adjacent Burn Area Site).
					Draft RI Report	RI report recommended further action to address potential risks for chemicals of concern in soil and groundwater (includes adjacent Burn Area Site).
			2013	AECOM	Draft Final & Final RI Report	Addresses review comments on Draft RI Report.
			2015	AECOM	Draft FS Report	Recommends remedial action for the Landfill, Burn Disposal Area, limited areas of the Burn Area Site, and Kaiapo Canal.
			2021		Draft Final FS Report	Recommends remedial action for the Landfill, CCH Burn Disposal Area, Burn Disposal Area, and limited areas of the Burn Area Site, and Kaiapo Canal.
						Formerly Used Defense Sites (FUDS) transfer of the Burn Disposal Area CCH Exposure Unit.
9	Pearl City Peninsula	Burn Area Adjacent to Pearl City Peninsula Landfill	1983	NEESA	IAS	Further investigations are recommended because "large quantities of hazardous waste may have been disposed of in the landfill."
			1996	Ogden	RI (Draft)	Planning documents submitted.
			1999	IT	RSE	Initiated RSE Planning. SAP, HSP, QAP prepared.
			2000	IT	RSE planning documents (SAP, HSP,QAP) (Final)	Final RSE planning documents completed.
			2000	IT	RSE Field Work	RSE field work completed.
9	Pearl City Peninsula	Burn Area Adjacent to Pearl City Peninsula Landfill (continued)	2001	IT	RSE report (Draft)	RSE draft report completed.
			2001	IT	RSE report (Draft Final)	RSE draft final report completed in October 2001.
			2002-2003	IT/Shaw	Baseline Ecological Risk Assessment Work Plan (Draft)	The draft baseline ecological risk assessment was prepared for the Waiawa Unit/Landfill/Burn Disposal Area/Burn Area Site.
			2004	IT/Shaw	Baseline Ecological Risk Assessment Work Plan (Draft Final)	The draft final Baseline Ecological Risk Assessment Work Plan for Pearl City Peninsula Landfill, Burn Area Site and Waiawa Unit was prepared in July 2004.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2005	Shaw	Final Baseline Risk Assessment Work Plan	Replacement pages for the final Baseline Risk Assessment Work Plan (Dec 2005). This site has been combined under the Pearl City Peninsula Landfill (see; Burn Area Adjacent to Pearl City Peninsula Landfill).
9	Pearl City Peninsula	Pearl City Fuel Annex	1995	Ogden	PA	Collect and evaluate existing data to evaluate if hazardous substance release has occurred. Based on HRS, recommend further action in DQO.
			1995	Ogden	DQO	Planning document for future SI.
			1995	Ogden	Phase I RSE	Field work initiated and completed; additional characterization recommended.
			1996	Ogden	Phase II RSE (Final)	Planning documents finalized and field work initiated and completed.
			1997	Ogden	RSE Report (Final)	Only lead poses a risk to future construction workers. Recommend EE/CA to remediate lead.
			2005	AMEC	Pilot Study Work Plan (Draft)	Conduct Phytoextraction Pilot Study to assess the feasibility of using phytoextraction as a remedial alternative to treat lead, antimony and arsenic in surface soil (Mar 2005).
			2005	AMEC	Pilot Study Work Plan (Final)	Conduct Phytoextraction Pilot Study to assess the feasibility of using phytoextraction as a remedial alternative to treat lead, antimony and arsenic in surface soil (Aug 2005).
			2005	ECC	Draft Sampling and Analysis Plan	Draft Sampling and Analysis Plan prepared for the time-critical removal action anticipated (Nov 2005)
			2006	ECC	Time-Critical Removal Action Sampling and Analysis Plan	Final Sampling and Analysis Plan (SAP). (March 2006)
			2006	ECC	Phytoextraction Treatability Study Report (Final)	Report documents the activities and results for the Phytoextraction Pilot Study (June 2006)
			2008	ECC	Sampling Report Pearl City Fuel Annex (Final)	Identified decision units that required action based on surface incremental samples.
			2008	ECC	Remedial Investigation/ Feasibility Study Work Plan (Draft)	Work Plan includes the Sampling and Analysis Plan prepared to conduct a Remedial Investigation to better characterize this site (Dec 2008).
9	Pearl City Peninsula	Pearl City Fuel Annex (Continued)	2009	ECC	Remedial Investigation/ Feasibility Study Work Plan (Draft Final)	Work Plan includes the Sampling and Analysis Plan prepared to conduct a Remedial Investigation to better characterize this site (Jun 2009).
			2009	ECC	Remedial Investigation/ Feasibility Study Work Plan (Final)	Work Plan includes the Sampling and Analysis Plan prepared to conduct a Remedial Investigation to better characterize this site (Nov 2009).
			2010	ECC	Remedial Investigation (Draft)	Recommends further action for surface and subsurface soil and groundwater. (May 2010)
			2011	ECC		

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2011	ECC	Remedial Investigation (Final)	Recommends further action for surface and subsurface soil and groundwater. (Feb 2011)
			2011	ECC	Engineering Evaluation/ Cost Analysis (Draft)	Recommend installation of a soil cap. (Feb2011)
			2011	ECC	Engineering Evaluation/ Cost Analysis (Final)	Recommend installation of a soil cap. (Jun 2011)
			2011	ECC	Action Memorandum (Final)	Recommended approval of soil cap (Jun 2011)
			2011	ECC	Removal Action Work Plans, Phase I (Draft)	Implement EE/CA alternative, soil cap (Jun 2011)
			2011	CAPE	Removal Action Work Plans, Phase I(Final)	Implement EE/CA alternative, soil cap (Jun 2011)
			2015	CAPE	Removal Action Work Plan Addendum Phase II (Draft)	Implement EE/CA alternative, soil cap Phase II (Nov 2011)
			2020	CAPE	Removal Action Work Plan Addendum Phase II (Final)	Implement EE/CA alternative, soil cap Phase II (Sep 2015)
			2023	AECOM	Remediation Verification Report Non Time Critical Removal Action (Final)	Implement LUCs to address the remaining subsurface and groundwater contamination (May 2020)
					Addendum Remedial Investigation (Draft)	Recommends additional sampling for surface and subsurface soils and groundwater. (August 2023)
9	Pearl City Peninsula	SSR Identified Sites	2000	Earth Tech	SSR (Draft Final)	Draft Final Site Summary Report (SSR) submitted to regulators/trustees in Sep 00. SSR identified 3 pad-mounted transformers that require further evaluation of potential PCB releases. An abandoned fuel corridor and 3 docks were also identified for further evaluation of potential petroleum releases. (The Draft SSR of 1997 encompassed the entire PHNC. Based on review comments by EPA/DOH, individual SSRs are being prepared for 10 GSAs.)
9	Pearl City Peninsula	SSR Identified Sites (Continued)	2001	Earth Tech	SSR (Revised Draft Final)	Based on the level of detail for the Bishop Point SSR, the Pearl City Peninsula GSA August 2000 draft-final SSR was revised and completed in July 2001.
			2002	Earth Tech	SSR (Final)	SSR finalized in January 2002.
			2003	Earth Tech	SSR (Revised Final)	April 2003 SSR Final amendment revisions based on agreement with EPA Region IX through phone conference correspondence.
			2004	ESI	SI Work Plan (Draft)	Investigate the abandoned AVGAS/MOGAS pipeline and the area south of Bldg 992 (Oct 2004).

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2005	ESI	SI Work Plan (Final) SI Work Plan & Sampling & Analysis Plan	Investigate the abandoned AVGAS/MOGAS pipeline and the area south of Bldg 992 (July 2005).
			2006	ESI	Draft Technical Addendum	Technical Addendum to the Final Work Plan & Sampling and Analysis Plan for the Site Inspection (May 2006)
			2006	ESI	SI Health & Safety	Site Health and Safety Plan(HASP) for the work to be done at the site (Sept 2006)
			2007	ESI	SI (Draft)	Recommended no further action required for the abandoned AVGAS/MOGAS pipeline along Lehua Avenue. Recommended further investigation for the PCB and PAH contamination at the open area adjacent to Building 992.
			2008	ESI	SI (Final)	SI report finalized (same recommendation as above)
			2013	Element	SI Field Work	AVGAS/MOGAS Field Work Performed Jun/Jul 2013
			2013	Element	RI Report	RI being finalized with recommendation to prepare an FS/PP/ROD
			2014	Element	RI Report (Final)	Open area adjacent to Building 992, the RI indicated that the site is suitable for unrestricted reuse.
			2014	Element	RI Report (Final)	Abandoned AVGAS/MOGAS pipeline SI report finalized and an Environmental Hazard Management Plan to be prepared.
			2015	Element	PP (Final)	Open area adjacent to Building 992, public meeting (Feb 2015) and comment period held.
			2016	Element	ROD(Final)	Open area adjacent to Building 992 ROD recommendation of NFA completed.
			2016	Element	Environmental Hazard Management Plan	Abandoned AVGAS/MOGAS pipeline completed under the Hawaii DOH Hawaii State Contingency Plan. An Environmental Hazard Management Plan generated and NFA with institutional controls concurred on by Hawaii DOH. DOH Concurrence Letter of Jun 2016.
10	Storm Drains	Bldg. No. 215, Shop 38, Storm Drain Disposal Areas (SY-44)	1987	A. T. Kearney	RFA	Release potential to soil and groundwater is minimal.
			1989	KJC	RFI WP	Recommended additional soils investigation. COCs consist of TPH and PAHs.
10	Storm Drains	Bldg. No. 215, Shop 38, Storm Drain Disposal Areas (SY-44) (Continued)	1992	Ogden	RFI (Draft)	Recommended that additional sampling and analyses of storm drains be conducted upgradient and downgradient and a removal action for contaminated sediment be performed.
			2005	Earth Tech	SI (Draft)	Recommends that subsurface soil and groundwater warrant no further action. However, interim removal action for sediment in the adjacent storm drain catchbasin is recommended.
			2006	Earth Tech	SI (Final)	Same recommendation as above.
			2006	Dawson		Conduct field activities for removal action at Bldg 215 storm drain.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2007	Dawson	Time-Critical Removal Action WP and field work	Completed field activities for removal action at Bldg 215 storm drain.
			2007	Dawson	Time-Critical Removal Action fieldwork	RVR prepared to document removal action activities completed and clean-up goal met.
			2007	Earth Tech	RVR (Draft)	AM documented the decision to perform the time-critical removal action, alternatives evaluation, and recommended alternative; clean out of sediment from the storm drain.
			2009	Dawson	Action Memorandum	RVR prepared to document removal action activities completed and clean-up goal met, recommended No Further Action.
			2009	DOH	Time-Critical Removal Action fieldwork RVR (Draft)	DOH Concurrence Letter of Jun 2009. Site closed.
					NFA Concurrence Letter	
10	Storm Drains	NAVSHIPYD Storm Drains (SY-84)	1987	A. T. Kearney	RFA	Release potential to soil and groundwater is considered high.
			1989	KJC	RFI WP	Recommended the collection of sediment samples from storm drain trunk lines.
			1992	Ogden	RFI (Draft)	COCs are PCBs, TPH, and PAHs. Recommended sampling/analyses of storm drains upgradient and downgradient and a Removal Action.
			2006	ESI	SI WP	Draft Work Plan being prepared.
			2007	ESI	SI WP (Final)	SI Work Plan approach is to sample catch basin sediment, soil adjacent to the catch basins, and groundwater as appropriate.
			2009	ESI	Final Revised WP (Draft)	Based upon EPA comments, SI WP revised to include additional sites and additional COCs.
			2011	ESI	SI Report	Further action for soil at 11 of the sites, groundwater at 12 of the sites, and for sediment at 14 of the sites. Impacted storm drain sediments to be addressed in non-time critical removal action.
			2012	ESI	RI WP	Documents soil and groundwater sampling approach.
			2013	ESI	Final EE/CA	Documents approach for NTCRA for impacted storm drain sediments.
10	Storm Drains	NAVSHIPYD Storm Drains (SY-84) (Continued)	2013	ESI	RI Report (Draft)	Presents results of sampling and analysis of soil, soil gas, and groundwater at the sites. Additional soil samples taken in October 2014.
			2013	ESI	AM	Documents the decision to conduct a NTCRA to address impacted sediments contained in identified storm drain catch basins in the PHNSY&IMF area.
			2014	Cape	NTCRA WP (Final)	Implement NTCRA, sediment removal from storm drain and catch-basins. Removal started.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2015	Cape	NTCRA fieldwork	Removal action completed.
			2016	Cape	NTCRA fieldwork	Document completion of NTCRA for storm drain sediments.
			2017	Cape	RVR (Draft)	Presents results of sampling and analysis of soil, soil gas, and groundwater at the sites. Additional soil samples taken in April 2016.
				Element	RI Report (Final)	Evaluates and recommend remedial alternative(s) for the storm drain areas that warrant remedial action.
			2018	Element	FS Report (Draft)	Documented completion of NTCRA for storm drain sediments.
			2018	Cape	RVR (Final)	
10	Storm Drains	Paint Shop Storage Area (PWC-01/SWMU-01)	1987	A. T. Kearney	RFA	Release potential to soil and groundwater is considered possible.
			1989	KJC	RFI WP	Recommended additional investigations to be conducted to further delineate chemical constituents in soils and storm drain sediments. COCs were toluene, xylene, and metals.
			1992	Ogden	RFI (Draft)	
			2009	ESI	RI WP (Draft Final)	Fieldwork for RI/FS started in September 2009.
			2009	ESI	RI/FS	
			2010	ESI	RI (Draft)	Draft RI report submitted in May 2010.
			2011	ESI	RI report, Proposed Plan	RI report to be finalized in early FY12. Proposed Plan started.
			2013	ESI	ROD	NFA ROD
10	Storm Drains	Industrial Waste Treatment Plant Collection Sump (PWC-10)	1987	A. T. Kearney	RFA	Release potential to soil and groundwater is considered low.
			1989	KJC	RFI WP	Recommended a limited soils investigation to determine if releases of RCRA wastes have occurred.
			1992	Ogden	RFI (Draft)	COCs were antimony, lead, and arsenic. Recommend further sampling of soils in the immediate vicinity of the collection sump to determine vertical and lateral extent of contamination.
10	Storm Drains	Industrial Waste Treatment Plant Collection Sump (PWC-10) (Continued)	2006	ESI	RSE	Field Work for RSE completed in October 2006. Refer to Industrial Waste Treatment Plant Waste Unloading Area (PWC-13), combined.
10	Storm Drains	Industrial Waste Treatment Plant Waste Unloading Area (PWC-13)	1987	A. T. Kearney	RFA	Release potential to soil and groundwater is considered low.
			1989	KJC	RFI WP	Recommended a limited soils investigation to determine if releases of RCRA wastes have occurred.
			1992	Ogden	RFI (Draft)	COCs are arsenic and beryllium. Recommended additional sampling be performed in the vicinity of composite soil samples to supplement

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
						uncertain analyses which may be above RCRA levels for soil.
			2006	ESI	RSE	Field Work for RSE completed in October 2006.
			2007	ESI	RI/FS (Draft)	The process was changed from an Removal action to remedial action, therefore the data gathered from the RSE field work was used to produce the RI/FS, RI/FS found contaminants of concern were arsenic, antimony and lead in the surface soil. The FS remedial alternative recommended was to remove and dispose of soil exceeding natural background levels and residential PRGs.
			2008	ESI	RI WP Addendum No. 2 (Draft)	Based on the Draft RI/FS additional sampling required to address data gaps and further delineate the site
			2009	ESI	RI WP Addendum No. 2 (Final)	Based on the Final RI WP Addendum No. 2, the fieldwork was completed and the information will be incorporated into the Revised Draft RI
			2012	ESI	RI WP SAP Technical Addendum No. 3 (Final) Jan 2012	Additional sampling for Lead and PCB was required by both EPA and HDOH to address the data gaps from the Technical Addendum No. 2.
					Draft RI Report, Dec 2012	Presented the complete delineation of the Lead and PCB contamination of the site.
					RTC to EPA comments in Jun 2013 and Aug 2013 on the Draft RI Report	Subsurface fuel EHMP addresses the floating product in the groundwater at the former IWTP. Since LUC is implemented in the whole Subsurface Fuel area of the Lower Tank Farm and the former IWTP is within the foot print of the Subsurface Fuel area, then former IWTP should be exempt from putting another LUC. Requiring an LUC for IWTP to address the groundwater fuel contamination is redundant. Soil contamination passed the risk assessment.
			2013	ESI	Draft PP, Dec 2013	Proposed Plan (PP) was completed and finalized in Jun 2014. Public meeting to present the PP was held on Jul 9, 2014. Public comment period for the PP ended on Jul 15, 2014.
			2014	ESI	Final PP, Jun 2014	
10	Storm Drains	Industrial Waste Treatment Plant Waste Unloading Area (PWC-13) (Continued)			PP public mtg, Jul 2014	
			2015	ESI	Draft ROD, Dec 2014 Draft/Final ROD, Mar 2015	EPA does not agree with NFA decision for the site. Will need to do a targeted Tier-2 human health risk evaluation for lead in surface soils and conduct a PFASs investigation.
			2018	AECOM	Final SAP Aug 2018	Sampling and Analysis Plan was prepared to conduct a targeted Tier-2 human health risk evaluation for lead in surface soils and a PFASs investigation.
			2019	AECOM	PFAS Tech Memo (Draft and Final)	

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2020	AECOM	Draft RI Addendum WP	Summarizes results of PFAS sampling conducted in October 2018. Recommends additional PFAS sampling for groundwater.
			2021	AECOM	Final RI Addendum WP	Documents the proposed groundwater monitoring well installation and sampling program for the identification of PFAS at the site. Documents the groundwater monitoring well installation and sampling program for the identification of PFAS at the site.
10	Storm Drains	Bldg. No. 472, Spent Battery Storage Area (NAS-04)	1987	A. T. Kearney	RFA	Release potential to soil and groundwater is considered low.
			1989	KJC	RFI WP	Recommended a soils investigation be conducted in the battery locker and along the storm drain. Detected COC is lead.
			1992	Ogden	RFI (Draft)	Recommended a removal action of the sediment from onsite catch basins to mitigate potential human health and environment.
			2009	ESI	Draft RI WP and SAP	This site is a part of the Halawa Main Gate (HMG) Storm Drain RI, which will investigate specified drainage basins at this building and buildings 449, 651, 660, and 674. Documents for the collective HMG SI effort will be documented in this entry.
			2010	ESI	Final RI WP and SAP	Final RI Work Plans Completed.
			2011	ESI	Phase 1 RI Report	Conducted soil and sediment sampling at Bldg 449, 472, 651, 660, and 674 storm drain systems. Additional characterization of soil, sediment and groundwater recommended in a Phase 2 RI at Bldgs 449, 472, 651, and 660. NFA recommended for Bldg 674.
			2012	ESI	Phase 2 RI SAP	Documents plan for soil, sediment, and groundwater sampling.
10	Storm Drains	Bldg. No. 472, Spent Battery Storage Area (NAS-04) (Continued)	2013	ESI	Phase 2 RI/FS Report	Presentation of characterization of soil and groundwater contamination at Bldgs 472, 651, 660, and 674 sites and remedial alternatives to address contamination issues at these sites. Bldg 449 is undergoing more sampling to complete characterization of soil contamination as recommended by the Navy and concurred with by regulatory agencies. Contaminated storm drain sediments are also being addressed in a separate EE/CA – NTCRA effort as recommended by the Navy and concurred with by regulatory agencies.
			2013	ESI		Documents plan for soil sampling at Bldg 449.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2014	ESI	Phase 2a RI WP Addendum EE/CA	Documents a proposed interim action to address impacted sediments in storm drain inlets at Bldgs 449, 472 and 660.
			2014	ESI	AM	Documents the decision to conduct a NTCRA to address impacted sediments contained in 10 identified storm drain catch basins associated with Bldgs 449, 472 and 660.
			2014	ESI	Phase 2a RI/FS Report (Draft)	Presentation of characterization of soil, sediment and groundwater contamination at Bldg 449 and remedial alternatives to address contamination issues at this site.
			2014	Cape	NTCRA WP (Final)	Implement NTCRA, sediment removal from storm drain and catch-basins. Removal started in April 2015.
			2015	Cape		Removal started.
			2016	Cape	NTCRA Fieldwork	Removal action completed
			2017	Cape	NTCRA Fieldwork RVR (Draft)	Document completion of NTCRA for storm drain sediments.
			2017	ESI	Phase 2a RI/FS Report (Draft Final)	Presentation of characterization of soil, sediment and groundwater contamination at Bldg 449 and remedial alternatives to address contamination issues at this site. Bldg 449 will under go more sampling to address data gaps of soil contamination as recommended by the Navy and concurred with by regulatory agencies. A revised draft final RI/FS report will be written.
			2017	ESI	Phase 2 RI/FS Report (Draft Final)	Presentation of characterization of soil, sediment and groundwater contamination at Bldgs 472, 651, 660, and 674 sites and remedial alternatives to address contamination issues at these sites.
			2018	Cape	RVR (Final)	Documented completion of NTCRA for storm drain sediments, Bldg 449 additional soil sampling to address data gaps.
10	Storm Drains	Bldg. No. 472, Spent Battery Storage Area (NAS-04) (Continued)	2018	AECOM	Phase 2a Addendum #2 to Revised Final RI WP (Draft)	Addressed comments to draft WP.
			2019	AECOM	Phase 2a Addendum #2 to Revised Final RI WP (Draft Final)	Addressed comments to draft final WP.
			2019	AECOM	Phase 2a Addendum #2 to Revised Final RI WP (Final)	
10	Storm Drains	Hose Draining Area (SB-26)	1987	A. T. Kearney	RFA	Release potential to soil and groundwater is considered possible.
			1989	KJC	RFI WP	No recommendations due to inconclusive results.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			1992	Ogden	RFI (Draft)	Detected COC is arsenic. Recommend further research regarding arsenic background concentrations as well as additional soil sampling.
10	Storm Drains	Former PCB Disposal Storm Drains Near Bldg. No. 68 (IAS-13)	1983	NEESA	IAS	No further action necessary because even if the storm drain pipe leaked and soil near the pipe may be PCB-contaminated; this site was not judged to be a threat to human health or to the environment. However, EPA review disagreed with findings of the IAS.
			1992	ANL	SI	Several scattered detections of PCB.
			1994	Ogden	RI (Draft)	Detected PCBs in sediments. Recommended sediment removal from catch basins; and periodic re-sampling to reassess conditions.
			1995/6	Navy, PWC	Removal Action	Removed sediments from catch basins.
			1996	Ogden	RI Report	RI Report addendum.
			1997	Navy, PWC	Removal Action	Time-critical removal action of sediments from catch basins.
			1997	Ogden	RI Report (Final)	Recommended removal of sediments, conduct sampling, and if contaminated, determine source of contaminated sediments and a long term remedy.
			2006	ESI	SI WP (Draft)	Part of NAVSHIPYD Storm Drains (SY-84). Sediments to be sampled.
			2007	ESI	SI WP (Final)	Part of NAVSHIPYD Storm Drains (SY-84).
			2009	ESI	Revised SI WP (Draft)	Final SI WP revised to incorporate EPA comments. Revised plan includes additional sites and additional COCs for some sites.
10	Storm Drains	Past Waste Plating Solution Disposal, Storm Drain System (SB-12)	1987	A. T. Kearney	RFA	Release potential to soil and groundwater could not be determined.
			1989	KJC	RFI WP	Recommended a collection of sediment samples from the catch basins.
			1992	Ogden	RFI (Draft)	COCs are barium and lead. The RFI recommended a removal action.
10	Storm Drains	Spent Flash Acid Disposal, Storm Drain System (SB-13)	1987	A. T. Kearney	RFA	Release potential to soil and groundwater could not be determined.
			1989	KJC	RFI WP	Recommended a collection of sediment samples from the catch basins.
			1992	Ogden	RFI (Draft)	COCs are barium and lead. The RFI recommended a removal action.
10	Storm Drains	Bldg. 155, Shop 41, Former Sandblast Area (New SWMU 07)	1990	Navy, PACDIV	RFA	Wastewater entered storm drain and will be addressed as part this SMP group.
10	Storm Drains	Bldg. 4, Shop 56, Concrete Pad and Drain (New SWMU 09)	1990	Navy, PACDIV	RFA	Any past release will be addressed as part of this SMP group.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
10	Storm Drains	Bldg. 4, Shop 56, Capped Storm Drains (New SWMU 10)	1990	Navy, PACDIV	RFA	Any past release will be addressed as part of this SMP group.
10	Storm Drains	Bldg. 4A, Shop 56, Pipe and Copper Shop Floor (New SWMU 15)	1990	Navy, PACDIV	RFA	Currently being studied as part of this SMP group.
10	Storm Drains	Bldg. 4, Shop 41, Former Boiler Shop Storm Drain (New SWMU 17)	1990	Navy, PACDIV	RFA	Currently being studied as part of this SMP group.
10	Storm Drains	Bldg. 449, Battery Charging Area Floor Drain (New SWMU 20)	1990 2009 2012	Navy, PACDIV ESI	RFA Draft RI WP and SAP	Currently being studied as part of this SMP group. This site is a part of the Halawa Main Gate Storm Drain RI, which will investigate specified drainage basins. Progress for this site will be documented as part of all HMG Storm Drain sites in previous entry for Bldg. No. 472, Spent Battery Storage Area (NAS-04)
10	Storm Drains	Bldg. 43, Electrical Shop Floor Drain (New SWMU 22)	1990 2010	Navy, PACDIV Navy, NAVFAC Hawaii US EPA	RFA NFRAP letter NFA Letter	Site assessed in FY09. No concerns identified. Navy plans to process NFA paperwork in FY10. NFRAP Letter submitted in January 2010 to regulators. NFA Letter February 2010.
10	Storm Drains	Bldg. 651/674, Former Battery Acid Tanks and Pit (New SWMU 29)	1990 2009 2010 2012	Navy, PACDIV ESI ESI	RFA Draft RI WP and SAP Final RI WP	Currently being studied as part of this SMP group. This site is a part of the Halawa Main Gate Storm Drain RI, which will investigate specified drainage basins Final RI WP Completed. Progress for this site will be documented as part of all HMG Storm Drain sites in previous entry for Bldg. No. 472, Spent Battery Storage Area (NAS-04)
10	Storm Drains	Bldg. 472, Drum Storage (New SWMU 34)	1990 2009 2012	Navy, PACDIV ESI ESI	RFA Draft RI WP and SAP Final RI WP	Currently being studied as part of this SMP group. This site is a part of the Halawa Main Gate Storm Drain RI, which will investigate specified drainage basins. Progress for this site will be documented as part of all HMG Storm Drain sites in previous entry for Bldg. No. 472, Spent Battery Storage Area (NAS-04)

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
11	Makalapa Pesticide Rinsate Pit	Makalapa Pesticide Rinsate Pit (IAS-02, PWC-07)	1983	NEESA	IAS	No further action necessary since pesticides are "probably not sorbed onto soils in the pit and the area is fenced. This site is not a threat to human health or to the environment."
			1989	Navy/EPA	RFA	Site is covered under IR Program.
			1995	Ogden	RI (Final)	Recommend follow-up sampling and analysis to evaluate the distribution of chlorinated pesticides. The RI also recommended capping as a feasible remedial option.
			2004	ESI	RSE (Draft)	Planning documents for the additional sampling as recommended by the RI. Field sampling began in May 05.
			2008	ESI	RI/FS (Final)	The RI/FS recommended a removal action which will allow unrestricted use of this site. A public meeting for the Proposed Plan was held on September 23, 2008. No comments were received.
			2009	ESI	Draft Final Rod	Revised Draft Final ROD submitted to EPA on 7/31/09.
			2010		Final ROD	Final ROD signed 9/29/10. Confirmation sampling showed additional contamination. Additional soil removal is in progress. Removal Action Completed. Draft ESD and RVR submitted to EPA for review and comments. NFA concurrence for unrestricted use received from both EPA and Hawaii State DOH. Site has been closed out.
12	Ewa Junction Fuel Drumming Facility	Ewa Junction Fuel Drumming Facility MOGAS Spill (IAS-27)	1972	Navy (Mau)	Recovery wells	LNAPL spill; trench built; partial recovery.
			1975	SLTH	Soil borings	MOGAS detected in soil samples; presence of LNAPL; Trench filled.
			1983	NEESA	IAS	No further study recommended. However, EPA requested further investigation.
			1989	ESE	Drilling and soil sampling program	Presence of fuel hydrocarbons, toluene, ethylbenzene, and total xylenes in soil.
			1990	HLA	Investigation/Soil borings	Elevated levels of fuel hydrocarbons and organic compounds. Recommended modifications to trench and performance of a risk assessment.
			1992	MFA	Field investigation	Soil and groundwater contamination observed.
12	Ewa Junction Fuel Drumming Facility	Ewa Junction Fuel Drumming Facility MOGAS Spill (IAS-27) (Continued)	1996	Ogden	Phase I RI Report (Final)	Data indicate an overall decrease in fuel component concentrations. Low potential for future offsite contaminant migration. Recommended additional groundwater monitoring wells be installed south of the Site within the caprock water-bearing zone to close data gaps related to the limits of contamination. Also recommend long-term monitoring of all the onsite and offsite monitoring wells.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			1996	Earth Tech	Phase II RI Planning Documents (Final)	Concentrate on off-site areas downgradient of interceptor trench, especially near area where petroleum contamination found in trench for sewer line. Will attempt to prove natural attenuation occurring on-site.
			1998	Earth Tech	Phase II RI Revised SAP	Addressed QC/QA consultant's comments. Focused on off-site areas. Deleted soil gas probes.
			1998-9	Earth Tech	Phase II RI Field Investigation	Generally found no COCs above action levels. Completed first round of groundwater monitoring and sampling during the dry period. Due to unusually dry weather conditions, the second round of groundwater monitoring and sampling was not performed until April 1999.
			1999	Earth Tech	Phase II RI Report (Draft)	Submitted draft Phase II RI report in November 1999. Received regulators' comments in September 2000.
			2000	Earth Tech	Phase II RI Report (Draft Final)	Submitted draft final Phase II RI report in November 2000. Regulators did not concur with report recommendations.
			2001	PACDIV	Partnering Session	Site not under CERCLA due to petroleum exclusion. Agreement reached with EPA and DOH to address petroleum contamination with DOH.
			2001	PACDIV	Letter requesting NFA concurrence from DOH	Site conditions comply with State Contingency Plan (SCP) criteria for NFA.
			2002	DOH	NFA Concurrence Letter	Site closed. All site monitoring wells abandoned.
			2005	NAVFAC HI	Ltr Request for NPL delisting	Letter to EPA requesting to delist site from PHNC NPL.
			2005	EPA IX	Response letter	Response letter disapproving NPL delisting
13	Richardson	FLETRAGRU Fire Fighting Training Area (NAS-06)	1987	A. T. Kearney	RFA	Release potential to soil and groundwater is considered possible.
			1989	KJC	RFI WP	Recommended investigation to determine the presence and extent of fuel and fuel by-product contamination.
			1992	Ogden	RFI (Draft)	Detected COCs were TPH, and sporadic VOC and SVOCs in soil samples. The RFI recommended a preliminary risk assessment be conducted in association with an evaluation of the hydraulic connection of the site with the harbor.
13	Richardson	FLETRAGRU Fire Fighting Training Area (NAS-06) (Continued)				Recommended removal action to address detected contaminated hot spots.
			2004	ESI	RSE Planning Documents (Draft)	Objective is to complete the characterization of COPCs at the site that been previously identified, to characterize features that have not yet been investigated, to evaluate the degree of risk represented by the detected COPCs, and to determine if the site requires investigation.
			2005	ESI		Incorporated regulators comments on draft.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2005	ESI	RSE Planning Documents (Final)	Identified project-specific planning information in response to regulators' comments to planning documents and incorporate personnel and subcontractor specific information (drilling services, testing laboratory, etc.)
			2005	ESI	RSE Technical Addendum to Planning Documents (Draft)	Incorporated regulators comments on draft.
			2007	ESI	RSE Technical Addendum to Planning Docs (Final)	Recommended removal action to address detected dioxin, TPH, and lead contaminated hot spots.
			2007	ESI	EE/CA (Draft)	Recommended removal action to address detected dioxin, TPH, lead, PCB, and PAH contaminated hot spots. PAH included per agreement made during discussion with EPA.
			2007	ECC	EE/CA (Final)	WP for pre-excavation confirmation and delineation sampling.
			2007	ECC	Abbreviated Sampling WP (Draft)	WP for Removal Action at site to remove dioxin, TPH, lead, PCB, and PAH contaminated hot spots. Included the final Abbreviated Sampling WP.
			2007	ECC	Removal Action WP (Draft) w/ Abbreviated Sampling WP (Final)	Incorporated comments on draft.
			2007	ECC	Removal Action WP w/ Abbreviated Sampling WP (Final)	Removal action removed COCs from site. In response to EPA Region IX comment regarding dioxin in groundwater, performed a round of groundwater sampling and analysis (unfiltered and filtered) for dioxin.
			2008	ECC	RVR (Draft)	Incorporated comments on draft and results of dioxin groundwater analysis.
			2008	ESI	RVR (Final)	PP for proposed final remedy for both the CERCLA COCs and the residual petroleum at the site.
			2009	ESI	PP (Draft)	Incorporated comments on draft. Submitted for 30 day public review and comment.
			2009	ESI	PP (Final)	NFA ROD for CERCLA COCs. No further action necessary.
			2010	ESI	ROD (Draft)	NFA ROD signed.
13	Richardson	FLETRAGRU Fire Fighting Training Area (NAS-06) (Continued)	2012	NAVFAC HI	ROD (Final)	Long-term monitoring indicated no migration of petroleum product and site conditions comply with State Contingency Plan (SCP) criteria for NFA. NFA Letter submitted in February 2012 to DOH.
			2012	DOH	Letter requesting NFA concurrence from DOH	DOH Concurrence Letter of April 2012. Site closed.
					NFA Concurrence Letter	

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
14	Makalapa Crater	Early Disposal Area (IAS-01, PWC-16)	1983	NEESA	IAS	No further action necessary. This site is not a threat to human health or to the environment." IAS did not identify wastes or the extent of fill, and further investigations were warranted.
			1987	A.T. Kearney	RFA	Release potential to soil and GW is considered low.
			1989	KJC	RFI WP	Recommended soils investigation to determine nature and extent chemicals present.
			1992	Ogden	RFI (Draft)	COCs detected are beryllium, arsenic, lead, and mercury. Recommended further evaluation consisting of additional soil sampling and a removal action.
			2009	AECOM	Draft SI Work Plan – worksheets	Initiated draft SI work plan worksheets. (Investigations for this site are consolidated with IAS, PWC-18 – discussed below)
14	Makalapa Crater	Makalapa Crater Clean Fill Area (IAS-01, PWC-17)	1983	NEESA	IAS	No further action necessary because "this site is not a threat to human health or to the environment." IAS did not identify wastes, or the extent of fill, and further investigations were warranted.
			1987	A. T. Kearney	RFA	Release potential to soil and groundwater was considered relatively low.
			1989	KJC	RFI WP	Recommended soils investigation to determine nature and extent of chemicals present.
			1992	Ogden	RFI (Draft)	COCs detected are beryllium, arsenic, lead, and mercury. Recommended further evaluation consisting of additional soil sampling and a removal action.'
			2009	AECOM	Draft SI Work Plan - worksheets	Initiated draft SI work plan worksheets. (Investigations for this site are consolidated with IAS, PWC-18 – discussed below)

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
14	Makalapa Crater	Makalapa Crater Clean Landfill Area (IAS-01, PWC-18)	1983	NEESA	IAS	No further action necessary. "This site is not a threat to human health or to the environment." IAS did not identify wastes or the extent of fill, and further investigations were warranted.
			1987	A. T. Kearney	RFA	Release potential to soil and groundwater was considered low.
			1992	Ogden	RFI (Draft)	COCs detected are beryllium, arsenic, lead, and mercury. Recommended a further evaluation consisting of additional soil sampling. Recommended removal action.
			2009	AECOM	Draft SI Work Plan – worksheets	Initiated Draft SI work plan worksheets.
			2010-2011	AECOM	Preliminary Assessment (PA) for potential munitions concerns (Draft and Final)	PA performed to address EPA concerns on potential presence of munitions and explosives of concern (MEC) or munitions constituents (MC) from historical disposal activities. PA concluded that there are potential MEC/MC concerns in a 3.7 acre area of the former crater.
			2012	AECOM	RI Work Plan (Draft & Draft Final)	Work plan and sampling/analysis plan to collect soil, sol gas, and groundwater samples and evaluate potential risk to human health and the environment.
			2015	AECOM	Draft RI Report	Based on current land use, acceptable risk. However,
			2016	AECOM	Draft Final RI Report	may not be acceptable for unrestricted land use/unlimited
			2016	AECOM	Final RI report	exposure. FS recommended.
			2017	AECOM	RI Addendum Work Plan	Additional delineation/characterization recommended for area northeast of sample boring BW-41 on NE side of site.
			2021	AECOM	Draft RI Addendum Report	FS recommended to evaluate potential response actions
14	Makalapa Crater	SSR Identified Sites	2000	Earth Tech	Site Summary Evaluation field work completed in July 2000	Visual site inspections and research of facilities within the Makalapa Crater GSA in preparation of the SSR.
			2001	Earth Tech	SSR (Draft Final)	Draft final SSR completed in August 2001.
			2002	Earth Tech	SSR (Revised Draft Final)	Revised draft final completed February 2002
			2002	Earth Tech	SSR (Revised Final)	November 2002 SSR Final revisions based on agreement with EPA Region IX through phone conference correspondence.
15	Pearl Harbor Regional Sediment Study	Pearl Harbor Sediments (IAS-19)	1983	NEESA	IAS	No further action necessary because "many of the contaminants discharged to the harbor have dispersed or have been removed with the sediments by maintenance dredging. This site is not a threat to human health or to the environment." However, EPA review disagreed with the IAS findings.
			1992	Naval Command,	Technical Report (literature search)	Navy Technical Report found overall environmental risks to be moderately low. Recommended sediment

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
15	Pearl Harbor Regional Sediment Study	Pearl Harbor Sediments (IAS-19) (Continued)		Control and Ocean Surveillance Center		characterization and minimization of nonpoint releases to Pearl Harbor. COCs are silver, PCBs, and fuel hydrocarbons. No sampling or preliminary risk evaluations conducted.
			1996	Ogden	RI/FS Planning Docs	Effects-based harbor-wide sediments study including ecological and human health risk assessments. Development of RI/FS planning documents coordinated with regulators and natural resource trustees.
			1996	Ogden	RI/FS Field Sampling Activities	Conducted between July and November. Sediment, water, and tissue samples (infauna, fish, crab) collected.
			1997	Ogden	RI/FS In-progress mtgs.	In-progress technical meeting held with Navy activities, regulators, and natural resource trustees to discuss preliminary results and screening methods to reduce COPCs and CPECs. Prelim. fish and crab tissue results sent to EPA, DOH, ATSDR, and NEHC for input on potential human consumption concerns and fish advisory.
			1998	DOH	Fish Advisory	Based on data collected during the RI/FS, DOH w/ EPA concurrence issued a public health advisory on 8/27/98 warning against the consumption of fish and shellfish from Pearl Harbor via press conference. Navy posted DOH warning signs along coastline. COCs for fish consumption are pesticides, herbicides, and PCBs.
			1998-2002	Ogden/AMEC	RI/FS In-progress mtgs. (Including ERTAT team from May 1999) SERA Step 1 and 2 SMDP document BERA Step 3a document BERA Step 3b/4 SMDP document	Ecological and human health risk assessment methodologies and prelim. results presented/discussed. Project GIS and Website capabilities demonstrated. NFESC ERTAT (incl. Dave Charters of EPA) advised Navy to strictly adhere to EPA 8-Step Method for conducting eco risk assessments. October 1999 meeting at EPA Region IX set sequence of deliverables including SMDPs and technical data. EPA/DOH concurred that Draft RI/FS Report must include a BERA and schedule should be determined pending identification of potential data gaps in EPA Step 4. Project being "re-tooled" to conform to the EPA 8-Step Method since the original planning documents were completed in 1996 prior to issuance of EPA policy in 1997 and CNO policy in 1999.
			2004	Earth Tech	BERA Step 7 (Draft)	Draft Step 7 document completed. Document identifies ecological COPCs and PRGs for the harbor.
			2005	Earth Tech	BERA Step 7 (Final)	Incorporated comments from regulators.
			2005	Earth Tech	Remedial Investigation	Document includes assessment of human health risk, ecological risk and background evaluation. Document recommends areas for further consideration in Feasibility Study.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
15	Pearl Harbor Regional Sediment Study	Pearl Harbor Sediments (IAS-19) (Continued)	2006	Earth Tech	Work Plan for FS (Draft)	Document presents work plan for collecting data to prepare a FS.
			2009	AECOM	Work Plan for RI Addendum (Draft, Final)	Document presents work plan for collecting additional data to complete the RI.
			2013	AECOM	RI Addendum Report (Draft, Draft Final, Final)	Document presents the results of the 2009 RI sampling event.
			2012	AECOM	FS Work Plan (Draft, Draft Final, Final)	Document presents additional sampling event necessary to define data gaps identified in the RI addendum report in support of the Feasibility Study.
			2015	AECOM	FS Report (Draft, Draft Final, Final)	Document presents the results of the FS performed in summer 2012 and recommendations for remedial alternatives of areas requiring active remediation.
			2014	AECOM	Treatability Study Work Plan (Draft, Final)	Document presents work plan for performing a treatability study focusing on under pier areas and placement of activated carbon.
			2016	AECOM	Proposed Plan (Draft, Draft Final, Final)	Document presents the preferred remedial alternatives for those areas identified in the FS requiring active remediation.
			2016/ 2017	AECOM	Remedial Design Work Plan (Draft, Final)	Document presents work plan for performing additional sediment and biota sampling within the areas identified in the FS and Proposed Plan for active remediation to support the remedial design.
			2018	AECOM	Record of Decision (Draft, Draft Final, Final)	Document presents the selected remedy for the Pearl Harbor Sediment site. Remedial alternatives were developed for each DU and evaluated based on the unique physical, chemical, and biological characteristics of each of the six active-remediation DUs. The remedy selected for each DU addresses human health risks associated with the consumption of harbor fish and shellfish by reducing concentrations of chemicals of concern in surface sediments to protective levels.
			2018/ 2019	AECOM	Basis of Design and Design Package	Defines the technical parameters to use to serve as the basis for the design of the selected remedy to address contaminated sediment at the site. The Design Package presents the design specifications and drawings for the selected remedies for the Pearl Harbor Sediment site.
					Treatability Study Report	Presents the implementation and results of a treatability study for activated carbon amendment of contaminated sediments under the Sierra 1B Pier within the Pearl Harbor Sediment site. The objective of the study is to evaluate the feasibility and effectiveness of activated carbon amendment as a remedy for under-pier sediment.
			2019	Cape Environmental	Remedial Action Work Plan and Environmental	These plans describe how the remediation construction tasks will be performed in Pearl Harbor and what site-

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
15	Pearl Harbor Regional Sediment Study	Pearl Harbor Sediments (IAS-19) (Continued)		Management Inc.	Monitoring and Management Plan and Amendments	specific conditions may affect, contribute to, or influence any remedial activities. The plans explain how each task during remediation construction is implemented and details how the contractor plans to comply with the design, specifications, and permits for the remediation tasks. Included are detailed descriptions of the means and methods to execute the various work elements. The plans also include various elements of how environmental monitoring will be implemented and detail any necessary controls to protect the natural environment. These plans have been and will continue to be amended as each phase of work is contracted.
			2020 2022 2023	Cape Environmental Management Inc.	Interim Remedial Action Completion Report	The implementation of the remedial actions at various locations in the harbor is being accomplished over long periods of time for this large project, due to operational and budgeting coordination needs. This report presents the details of the remedial actions that have been implemented at the Pearl Harbor Sediment site within JBPHH on Oahu, Hawaii to date. The objective of the IRACR is to document the completion of selected remedial actions in specific areas of the harbor where remedial action was defined necessary in the Record of Decision.
			2024	AECOM	Long-Term Monitoring Work Plan	The Long-Term Monitoring Work Plan presents the proposed sampling and analysis program as part of the long-term monitoring (LTM) program at the Pearl Harbor Sediment site. The objective of the LTM program is to evaluate the performance of selected remedial actions and measure progress toward achievement of the remedial action objectives within the six decision units (DUs) identified for remediation at the site. This work plan also documents the sampling and analysis program for the four DUs recommended for No Active Remediation (NAR) as outlined in the December 2012 Navy position paper titled Post-Remediation Monitoring Plan to Support CERCLA Five-Year Reviews for Decision Units Recommended for No Active Remediation. The purpose of the sampling and analysis program for the NAR DUs is to confirm that sediments within these DUs continue to pose no unacceptable risk to human health and the environment.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
16	Pearl City Junction	DRMR Pearl City Junction	1990	ERCE	SI	PCBs and Dieldrin detected in shallow soils.
			1993	Ogden	Removal Action	PCB contaminated soils removed.
			1994	OHM	Removal Action	Dieldrin contaminated soils removed. EPA has indicated that they consider the potential for groundwater contamination at this site an issue.
			1997	Ogden	Letter Report – Soil Verification Sampling	Analysis of sample split with prospective buyer indicates that concentrations of PCB and dieldrin below site-specific goals at previous removal action areas.
			1998	OHM	Removal Action	PCB contaminated soils removed at area found by prospective buyer.
			1998	Ogden	RADD (Draft)	Removal action complete and project will be closed out following finalization of RADD. Final RADD submitted in November 1999.
			1998	Ogden	Regional Groundwater SAP (Draft)	Draft planning documents to conduct regional groundwater assessment at site and Manana Storage Area.
			1998	Ogden	Earth Tech SAP (Final)	Completed in October 1998.
					Regional Groundwater Assessment	Completed field work for assessment.
			2002	Earth Tech	Regional Groundwater Assessment Report (Draft)	Draft report submitted. No further no action recommended for site.
			2003	Earth Tech	Regional Groundwater Assessment Report (Final)	Final report submitted. No further action recommended for site.
			2003	Earth Tech	Proposed Plan (Draft)	Proposed Plan for both Manana and Pearl City Junction sites.
			2005	Earth Tech	Comments on Proposed Plan (Draft)	Comment to prepare separate Proposed Plans for Manana and Pearl City Junction sites.
			2005	DOH	Focused Feasibility Study (Draft)	LUCs require Focused Feasibility Study (nine criteria comparison) of remedial alternatives.
			2006	Earth Tech	Focused Feasibility Study (Final)	Incorporated comments on draft.
			2007	Earth Tech	Comments on Focused Feasibility Study (Final)	Comments on LUC response action, history, Air Force role in cleanup of petroleum, ARARs, etc.
			2007	EPA IX	Focused Feasibility Study (Revised Final)	Addressed EPA Region IX comments on final FFS.
			2008	Earth Tech	Proposed Plan (Draft)	Proposed Plan for solely Pearl City Junction. Propose LUCs for Commercial/Industrial use.
			2008	Earth Tech	Proposed Plan (Final)	Incorporated comments on draft. Submitted for 30 day public review and comment.
			2009	AECOM	ROD (Draft)	Draft ROD w/LUCs submitted for regulators review.
					ROD (Final)	ROD w/LUCs signed.
			2009	AECOM	Five Year Review	
			2010	AECOM	LUC Work Plan (Draft)	
			2014	AECOM		

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
16	Pearl City Junction	DRMR Pearl City Junction (Continued)	2016 2019	AECOM AECOM	Five Year Review (Final, September 2019)	A five year review was conducted in 2019 to ensure protectiveness of the site. The property has been transferred and is no longer held by the Navy. The new land owners were not signatories of the ROD.
17	Waipio Peninsula	SSR Identified Sites	2000	Earth Tech	Final Site Summary Report (SSR)	SSR for the Waipio Peninsula GSA completed in October 1999. Per Federal Facilities Agreement, document finalized in November 1999. However, comments were received from EPA in April 2000, thus document was revised in August 2000. SSR identified 5 pad-mounted transformers that require further evaluation of potential PCB releases.
			2003	Earth Tech	SI Report	Sites recommended for further evaluation sampled in 2003 to determine if further investigation is warranted. Final SI report December 2003.
			2004	Earth Tech	SI Report	Finalized the SI report June 2004
17	Waipio Peninsula	Oahu Sugar Company (Herbicide/ Pesticide Mixing Area	2002	BEI Environmental Industries	Remedial Investigation Report	The Herbicide/Fertilizer Mixing Area (Oahu Sugar Company) is located on the Waipio Peninsula, in NMC EAD DET Pearl Harbor (formerly NAVMAG Pearl Harbor West Loch Branch). The site is a former pesticide mixing plant, operated by Former Oahu Sugar Company (OSC). OSC ceased operations at the Waipio Peninsula site over 25 years ago and have filed for bankruptcy. A RI was completed by OSC and determined that there is evidence of release to the environment from this facility. Surface and subsurface soil samples were collected
17	Waipio Peninsula	Oahu Sugar Company (Herbicide/ Pesticide Mixing Area (Continued)				during the RI and analyzed for Dioxins, SVOCs, metals, pesticides, herbicides, and TPH (DRO). Groundwater samples were also collected and analyzed for Dioxins, SVOCs, VOCs, metals, pesticides, and herbicides. The analytical results indicated that the concentrations of dioxin and pesticides exceeded the screening criterion in surface and subsurface soils and groundwater. PAH and metal concentrations exceeded the screening criterion in surface soils. However, the RI conducted by OSC did not fully characterize the site; therefore, a subsequent RI is necessary. (Aug 2002) On 28 Mar 05; EPA issued a Unilateral Administrative Order to OSC requiring them to take action at the OSC site. On 21 Apr 05, OSC filed for bankruptcy. In 2007, EPA found a successor to OSC. We are currently in

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
						legal discussion with EPA and OSC successor to determine the approach for this site. Due to the unknown outcome of the legal discussions with EPA and OSC successor, we included in our budget effort to conduct a Remedial Investigation (RI) and Engineering Evaluation/Cost Analysis (EE/CA) in FY16.
			2009	Environ	Conceptual Site Model and Risk Evaluation	The Conceptual Site Model and Risk Evaluation found that exposure under current and reasonable anticipated future land use yield risk that are generally considered protective of human health. EPA/DOH and Navy disagreed with conclusions and identified data gaps. (May 2009)
			2009	Environ	Conceptual Soil Sampling Plan	Developed to further delineate the site and address the data gaps. (May 2009
			2009	Environ	Summary of Existing Data Report (Draft)	Summaries all existing data, identifies data gaps and evaluates human health and ecological risk to acceptable screening criteria at the site. (Nov 2009)
			2010	Environ	Summary of Existing Data Report (Final)	Summaries all existing data, identifies data gaps and evaluates human health and ecological risk to acceptable screening criteria at the site. (Jul 2010)
			2011	Environ	Data Gap Study Work Plan	Work Plan includes the Sampling and Analysis Plan prepared to conduct a Remedial Investigation to better characterize this site (May 2011).
			2012	Environ	Revised Data Gap Study Work Plan Addendum	Revised Work Plan includes the step-out sample locations to the Sampling and Analysis Plan to better characterize the site (Sep 2012).
17	Waipio Peninsula	Oahu Sugar Company (Herbicide/ Pesticide Mixing Area (Continued)	2013	Environ	Final Data Gap Study Report	The DGS report states that the site is generally delineated and recommends to proceed to the Engineering Evaluation/Cost Analysis (EE/CA) to fully delineate the area of concern and to address the risk associated at the site then on the selected remedy for the site. EPA/DOH and Navy do not agree with the conclusions and recommendations of the final DGS; however, they will address their respective concerns during the development of the EE/CA work plan.
			2014	Environ	Draft Engineering Evaluation/Cost Analysis	Draft EE/CA work plan (WP) does not address all risk associated at the site and has not adjusted the conceptual site model appropriately. Therefore, the cleanup action levels are not addressing the risk posed by the site. Based on data collect during the Data Gap Study, the size of the site has grown significantly, extending outside of the fence line. EPA/DOH and Navy do not agree with the draft EE/CA WP and has provided comment reflecting concerns with the WP (Feb 2014).

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2017	AECOM	Draft RI Work Plan for Sediment adjacent to OSC site	Work Plan includes the Sampling and Analysis Plan to delineate extent of contamination in offshore sediment
			2018	AECOM	Draft Final RI Work Plan for Sediment adjacent to OSC site	
			2019	AECOM	Final RI Work Plan for Sediment adjacent to OSC site	
			2021	AECOM	Draft RI/FS for Sediment adjacent to OSC site	Extent of dioxin contamination in sediment is defined; activated carbon amendment recommended. 2022 consent decree resolved PRP issues and Navy will complete all remaining CERCAL actions. A RI is planned for delineation/evaluation of the terrestrial source areas.
17	Waipio Peninsula	Confined Disposal Area Contaminated Soil Site	2009	Earth Tech	Remedial Investigation/ Feasibility Study Work Plan (Draft)	Work Plan includes the Sampling and Analysis Plan prepared to conduct a Remedial Investigation to better characterize this site (May 2009).
					Remedial Investigation/ Feasibility Study Work Plan (Draft Final)	Work Plan includes the Sampling and Analysis Plan prepared to conduct a Remedial Investigation to better characterize this site (Nov 2009).
					Remedial Investigation/ Feasibility Study Work Plan (Final)	Work Plan includes the Sampling and Analysis Plan prepared to conduct a Remedial Investigation to better characterize this site (May 2010).
			2010	AECOM	Technical Memorandum Phase I Preliminary Evaluation	Technical Memorandum (Oct 2010) evaluated sample results and recommended step-out sample locations. The proposed sampling locations were agreed upon in Dec 2010 (revised Figure 1).
17	Waipio Peninsula	Confined Disposal Area Contaminated Soil Site (Continued)				RI recommends site for further action. (Aug 2011)
			2010	AECOM	Remedial Investigation/ Feasibility Study Work Plan (Draft)	
			2012	AECOM	Technical Memorandum II Evaluation and Recommendations for Phase III Soil Sampling	Technical Memorandum II (Aug 2012) evaluated sample results from Phase II and proposed additional step-out sample locations.
			2013	AECOM	Revised Remedial Investigation (Draft)	The revised draft RI evaluated all data collected during the three phases of sampling and concluded that further action is required for the site. (Apr 2013)
						RI recommends site for further action. (Aug 2015)
			2015	AECOM	Remedial Investigation (Final)	The draft FS recommended alternative # 2 (LUCs and Earthen Berm) (Nov 2015).
			2015	AECOM	Feasibility Study (Draft)	

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2016	AECOM	Feasibility Study (Draft Final)	The draft final FS incorporated comments received from EPA and DOH; however, the recommendation remained as alternative # 2 (LUCs and Earthen Berm) (Jul 2016). Navy received EPA and DOH comments to the draft final FS, Navy is currently evaluating regulator comments.
			2017	AECOM	Proposed Plan (PP)	Public Meeting held in June 2017. Awaiting comments from regulatory agencies. No comments from Public.
			2018	AECOM	Technical Memorandum	Technical Memorandum, Confined Disposal Area Contaminated Soil Site JBPHH, Waipio Peninsula.
			2021	CAPE	Work Plan, Time Critical Removal Action (Final)	Work plan prepared and describes Time Critical Removal Action activities (Jan 2021).
			2021	CAPE	Remediation Verification Report Time Critical Removal Action (Draft)	Documented excavation and disposal of metal contaminated soils (Nov 2021).
17	Waipio Peninsula	Sandblast Grit Disposal Sites	2011	ESI	AM	AM which documents the removal action decision was finalized Jan 2012.
			2011	CAPE	Time Critical Removal Action (TCRA) Work Plan (Draft),	Implement AM alternative, dig and off-site disposal (Nov 2011)
			2012	CAPE	TCRA Work Plan (Final)	Implement AM alternative, dig and off-site disposal (Mar 2012)
			2012	CAPE	TCRA Removal Verification Report (Draft)	Documented excavation and disposal of metal contaminated soils from the two sandblast disposal areas. (Jun 2012).
			2012	CAPE	Time Critical Removal Action Removal Verification Report (Final)	Documented excavation and disposal of metal contaminated soils from the two sandblast disposal areas. (Dec 2012).
17	Waipio Peninsula	Sandblast Grit Disposal Sites (Continued)	2013	Element	Remedial Investigation Work Plan (Draft)	Work Plan includes the Sampling and Analysis Plan prepared to conduct a Remedial Investigation to better characterize this site (Jan 2013).
			2014	Element	Remedial Investigation Work Plan (Final)	Work Plan includes the Sampling and Analysis Plan prepared to conduct a Remedial Investigation to better characterize this site (Apr 2014).
			2015	Element	RI Report (Draft)	Draft findings showed step-out investigation was necessary. (June 2015)
			2023	Element	RI Report (Draft)	Draft findings concluded that additional site-specific soil sampling, biological surveying, and a topographic survey be performed to update the risk assessment and feasibility study.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2016	Element	RI Work Plan Addendum (Draft)	Step-out investigation description to delineate metals contamination (Mar 2016).
			2016	Element	RI Work Plan Addendum (Draft Final)	Step-out investigation description to delineate metals contamination (Aug 2016).
			2017	Element	RI Work Plan Addendum (Final)	Work Plan Addendum 1 was finalized Apr 2017.
			2018	Element	RI Work Plan Addendum 2 (Draft)	Additional step-out investigation to determine visual boundary of buried grit at Area 1. (Apr 2018).
			2018	Element	RI Work Plan Addendum 2 (Draft Final)	Additional step-out investigation to determine visual boundary of buried grit at Area 1. (Jul 2018).
			2018	Element	RI Work Plan Addendum 2 (Final)	Work Plan Addendum 2 was finalized Aug 2018.
			2019	Element	RI Work Plan Addendum 3 (Draft)	Additional step-out investigation to determine boundary of buried grit and solid waste at Area 1 (Sep 2019).
			2019	Element	RI Work Plan Addendum 3 (Final)	Work Plan Addendum 2 was finalized Nov 2019.
			2021	Element	RI Work Plan Addendum 4 (Draft)	Additional step-out investigation to determine boundary of solid waste at Area 1 (Apr 2021).
18	West Loch	SSR Identified Sites	2000	Earth Tech	SSR (Draft Final)	Draft Final Site Summary Report (SSR) submitted to regulators/trustees in September 2000. (The Draft SSR of 1997 encompassed the entire PHNC. Based on review comments by EPA/DOH, individual SSRs are being prepared for 10 GSAs.)
			2001	Earth Tech	SSR (Revised Draft-Final)	Based on the level of detail for the Bishop Point SSR, the West Loch GSA August 2000 draft-final SSR was revised and completed in August 2001.
			2002	Earth Tech	SSR-revised draft final	Revised draft final completed March 2002.
			2003	Earth Tech	SSR Revised Final	July 2003 SSR Final revisions based on agreement with EPA Region IX through phone conference correspondence.
			2003	Earth Tech	SI Report	Sites recommended for further evaluation sampled in 2003 to determine if further investigation is warranted.
			2004	Earth Tech	SI Report	Finalized the SI report June 2004
18	West Loch	Auxiliary Power Facility, Building 49	1999	IT	Action Memorandum	AM which documents the removal action decision was finalized 25 July 1999.
			1999	IT	Work Plan	The removal action Work Plan, including a field sampling plan, quality assurance project plan, and health and safety plan was completed July 1999.
			1999	IT	Removal Action	Removal and disposal of PCB contaminated soil at the front of the Building 49 was completed in August 1999.
			2000	IT	Removal Action	Removal of drain pit and disposal of PCB contaminated soil at the back of Building 49 was completed June 2000.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2001	IT	Removal Action	Further monitoring of the well did not indicate an oil sheen. Groundwater sample results did not indicate groundwater has been impacted. Based on findings, no further response is required.
			2002	IT	RVR (Draft)	The draft RVR was completed in January 2002.
			2003	IT	RVR (Final)	Finalized the RVR May 2003 and amended December 2003. Navy in review of U.S. EPA Region IX comments.
			2006	ET	Proposed Plan (Revised (Draft Final)	Proposed Plan submitted for public review and comment.
			2006	ET	Proposed Plan (Revised Final)	Revised incorporating regulator comments revised draft final PP
			2006	ET	ROD (Draft)	Draft ROD submitted for regulators review.
			2006	ET	ROD (Draft Final)	Incorporated regulators technical comments.
			2006	ET	ROD (Revised Draft Final)	Revised to incorporate regulatory format.
			2006	ET	ROD (Final)	Revised per first regulator legal review.
			2006	ET	ROD (Revised Final)	Revised per second regulator legal review. Signed by Navy and EPA with DOH concurrence.
18	West Loch	Iroquois Point and Puuloa Housing	2001	Earth Tech	Site Investigation (Draft)	Site Investigation covered Iroquois Point and Puuloa Housing Areas and recommended a removal action at transformer I-4.
18	West Loch	Munitions Response Sites (Electrical Component Disposal Area and West Loch Burning Pit sites were broken into separate sites)	2004	Earth Tech	Site Investigation (Final)	Further Evaluation (Electrical Component Disposal Area was the only MRP site studied in this report)
			2007	Malcolm Pirnie	Preliminary Assessment (Final)	Further Evaluation (all three sites-Electrical Component Disposal Area, West Loch Burning Pit and Injection Well)
			2009	USA Environmental	Site Inspection (Draft)	Further study (West Loch Burning Pit and Electrical Component Disposal Area), No Further Action (Injection Well after closure per DOH requirements).
			2011	USA Environmental	Site Inspection (Final)	Revised per regulator review.
18	West Loch	Electrical Component Disposal Area	2012	USA Environmental	Remedial Investigation Work Plan (Draft)	The Work Plan includes a Munitions and Explosives of Concern Quality Assurance Project Plan and Munitions Constituents Sampling and Analysis Plan to conduct a Remedial Investigation to better characterize this site (Oct 2012).
			2013	USA Environmental	Remedial Investigation Work Plan (Draft Final)	The Work Plan includes a Munitions and Explosives of Concern Quality Assurance Project Plan and Munitions Constituents Sampling and Analysis Plan to conduct a Remedial Investigation to better characterize this site (Mar 2013).
			2013			

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
				USA Environmental	Remedial Investigation Work Plan (Final)	The Work Plan includes a Munitions and Explosives of Concern Quality Assurance Project Plan and Munitions Constituents Sampling and Analysis Plan to conduct a Remedial Investigation to better characterize this site (Dec 2013).
			2016 through 2019 2021	USA Environmental	Various RI Field Change Requests (Final)	Step-out investigation of metal debris and additional sampling (Jun 2016, Sep 2016, May 2017, Jan 2018, Apr 2018, Jan 2019).
				USA Environmental	Remedial Investigation (Draft)	RI report documents all field activities and characterization of site and recommends FS to evaluate potential MEC hazard and health risks. (Aug 2021).
18	West Loch	Burning Pit	2014	AECOM Technical	Remedial Investigation Work Plan (Draft)	The RI is to evaluate the nature and extent of the hazard/threat presented by munitions constituents and other contamination. The Work Plan proposes excavation of test pits in the area of subsurface anomalies, soil sampling, and groundwater sampling for TPH, VOCs, SVOCs, PAHs, pesticides/herbicides, PCBs, dioxins/furans, metals, and explosives.
			2015	Services, Inc	Remedial Investigation Work Plan (Draft Final)	
					Remedial Investigation Work Plan (Final)	
			2016	AECOM	Work Plan Addendum (Draft)	Step-out investigation to delineate site (Jun 2016).
			2016	AECOM	Work Plan Addendum 1 (Final)	Work Plan Addendum 1 was finalized Oct 2016.
			2018	AECOM	Work Plan Addendum 2 (Draft)	Additional step-out investigation in shallow soil (Apr 2018)
					Work Plan Addendum 2 (Final)	Work Plan Addendum 2 was finalized May 2018.
			2020	AECOM	Work Plan Addendum 3	Additional step-out investigation to delineate site boundary (Sep 2020).
			2024	AECOM	Remedial Investigation (Draft)	RI report documents all field activities and characterization of site and recommends FS to evaluate how to mitigate potential health risks.
18	West Loch	4th Street Coral Pit Landfill	2009	Earth Tech	Remedial Investigation Work Plan (Draft)	The RI is to evaluate whether contamination is present at the landfill or its boundary, confirm contents of the landfill waste, and evaluate whether any landfill gas is present at the landfill or its boundary. Groundwater investigated to determine whether contaminants are leaching from the landfill and/or migrating from the site.
			2009	AECOM	Remedial Investigation Work Plan (Draft Final)	
			2010	AECOM	Remedial Investigation Work Plan (Final)	
			2011	AECOM	Final RI, Draft FS	The final RI was completed. The draft FS was started.
			2013	AECOM	Draft final ROD	LUC ROD, no sampling, finalized Oct 2014.
			2014	AECOM	Remedial Action Work Plan	WP summarizing actions to be taken as part of the LTM for the site. Finalized Jun 2015.
			2015	AECOM	Draft Final RACR	

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2016	AECOM	Final RACR Concurrence	Report to document completion of remedial actions at the site.
			2015 – current	NAVFAC HI	Annual LUC Inspection	Regulator concurrence on RACR received Sep 2016.
			2019	AECOM	PHNC NPL CERCLA 5-Year Review	Annual LUC inspection checklist and/or report LUCs protective of human health and environment
18	West Loch	Otto Fuel Waste Storage Site	1990	Harding Lawson Associates	Site Inspection (Final)	Final Site Inspection (SI) Report concluded that no further action necessary for this site. However, in 2002, an SSR was prepared to present the results of a site summary evaluation (SSE) of the West Loch geographic study area (GSA). A reevaluation of the site performed as part of the SSE indicated that further investigation was required to confirm the presence of PGDN, and (if present) evaluate the extent of PGDN contamination in groundwater.
			2011	AECOM	Remedial Investigation Work Plan (Draft)	Work Plan includes the Sampling and Analysis Plan prepared to conduct a Remedial Investigation to characterize this site (Jun 2011).
			2012	AECOM	Remedial Investigation Work Plan (Draft Final)	Work Plan incorporated EPA comment regarding soil gas sampling. (Mar 2012).
			2012	AECOM	Remedial Investigation Work Plan (Final)	Work Plan incorporated all comment, completed in Jun 2012.
			2012	AECOM	Remedial Investigation (Draft)	The RI report evaluated data collected and concluded that there is acceptable risk at the site. The RI recommends no further action. (Jun 2012)
			2013	AECOM	Remedial Investigation (Draft Final)	The RI report was revised to incorporate comments received from EPA; however, the conclusion remained as no further action. (Jul 2013)
			2013	AECOM	Remedial Investigation (Final)	The RI report was completed, recommended no further action (NFA). FS not prepared since RI recommended NFA, prepared PP. (Nov 2013).
18	West Loch	Otto Fuel Waste Storage Site (Continued)	2014	AECOM	Proposed Plan (Draft)	The draft Proposed Plan (PP) distributed for internal Navy and regulatory comment. (Apr 2014).
			2014	AECOM	Proposed Plan (Final)	The final PP completed recommending NFA. Public meeting for the PP held on Jun 2014)
			2014	AECOM	Record of Decision (Draft)	The draft ROD recommended no further action (NFA) (Dec 2014)
			2015	AECOM	Record of Decision (Draft)	The draft final ROD was revised to incorporate comments received from EPA and DOH; however, the conclusion remained as no further action (NFA) (Oct 2015).
			2015	AECOM		The Final ROD recommending NFA was signed by EPA in Aug 2016 and DOH in Sep 2016.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
					Record of Decision (Final)	
18	West Loch	Vehicle Maintenance Facilities	2011	AECOM	RI/FS	Field work underway. Additional sampling needed after 1st round of field work.
			2015	AECOM	Proposed Plan	Final NFA ROD signed April 2017. Note that the site consists of 6 sub-sites but only 5 receive NFA in this ROD. The remaining subsite is in a condemned building and that site can't be closed until it has been investigated. There are no current plans to demolish the building.
			2017	AECOM	ROD	
19	Bishop Point	SSR Identified Sites (UST BP-1)	2000	Earth Tech	SSR (Draft Final)	Draft Final Site Summary Report (SSR) submitted to regulators/trustees in Sep 00. (The Draft SSR of 1997 encompassed the entire PHNC. Based on review comments by EPA/DOH, individual SSRs are being prepared for 10 GSAs.)
			2001	Earth Tech	SSR (Revised Draft-Final)	Based on review comments, the level of detail for the Bishop Point GSA was revised and the SSR completed in June 2001. EPA and DOH accepted this revision as final in August-September 2001.
			2005	Earth Tech	Focused Site Inspection Report (Final)	Recommended further evaluation to confirm the presence of a UST, properly close the potential UST, and characterize the extent of lead and possible TPH-GRO in subsurface soil.
			2006	Earth Tech	Focused Site Inspection Report (Revised)	No change to recommendation.
			2013	AECOM	Site Inspection Letter Report Final	SI Letter Report Recommended RI be performed for Area Near Former UST BP-1. RI/FS/PP/ROD work has been awarded and started for this site.
			2014	AECOM	Remedial Investigation Work Plan	Phased approach to soil and groundwater sampling and analysis was recommended with exploratory trenching. (Feb 2014).
19	Bishop Point	SSR Identified Sites (UST BP-1) (Continued)	2015	AECOM	Remedial Investigation (Final)	Debris layer was characterized through trenching and sampling indicated contamination needing of further mitigation (Sep 2015).
			2015	AECOM	Feasibility Study (Draft) (Draft Final)	Preferred alternative is for LUCs with a possible asphalt cover after additional surface soil sampling indicates its necessity (Aug 2016).
			2016	AECOM	(Final)	Proposed plan was finalized and public meeting was held in Apr 2017.
			2016	AECOM	Proposed Plan (Draft)	
			2017	AECOM	Proposed Plan (Final)	Draft ROD recommended land use controls (Jul 2017).
			2017	AECOM	ROD (Draft)	
20	Naval Housing	SSR Identified Sites	2000	Earth Tech	Site Summary Evaluation field work completed in July 2000	Visual site inspections and research of facilities within the Naval Housing GSA in preparation of the SSR.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2001	Earth Tech	SSR (Draft Final)	Draft Final completed in September 2001.
			2002	Earth Tech	SSR (Revised Draft-Final)	Based on review comments by the regulators, the draft final was revised and completed in April 2002.
			2003	Earth Tech	SSR (Final)	The SSR finalized based on additional comments received by the regulators and scheduled for completion in December 2002.
			2003	Earth Tech	SSR (Revised Final)	December 2003 SSR Final revisions based on agreement with EPA Region IX through phone conference correspondence
			2004	Earth Tech	Site Inspection Work Plan (Draft)	June 2004 Draft Work Plan and Sampling & Analysis Plan prepared for housing sites identified in the SSR requiring further investigation to determine whether further environmental action is required.
			2004	Earth Tech	Site Inspection Work Plan (Final)	Incorporated regulators comments.
			2006	Earth Tech	Focused Site Inspection Work Plans (Draft)	Prepared abbreviated planning documents for focused SI at housing sites identified in the SSR requiring further investigation.
			2006	Earth Tech	Focused Site Inspection Work Plan (Final)	Incorporated comments on draft.
			2007	Earth Tech	Focused Site Inspection report (Draft)	Recommended no further action at 3 sites and further evaluation at 3 sites.
					Focused Site Inspection report (Final)	Incorporated comments on draft.
			2008	Earth Tech	Extended Site Inspection Work Plan (Draft)	Prepared work plan for Extended SI at 3 housing sites identified in the focused SI requiring further investigation and 2 sites where a previous investigation indicated presence of contamination.
			2008	Earth Tech	Extended Site Inspection Work Plan (Final)	Incorporated comments on draft.
			2009	AECOM	Extended SI report (Draft)	Recommended no further action at 5 sites.
20	Naval Housing	SSR Identified Sites (Continued)	2010	AECOM	Response to Comments	Prepared RTCs for regulatory comments on draft ESI. Phone conference held with EPA and DOH to discuss their comments on RTC. ESI to be revised to clearly show the lines of evidence to support the NFA recommendation.
			2011	AECOM	Extended Site Inspection report (Final)	Final ESI incorporated EPA and DOH comments. ESI written to clearly show the lines of evidence to support the NFA recommendation.
			2011	NAVFAC HI	Ltr Request for NFA concurrence	NFA Letter submitted in November 2011 to regulators.
			2011	EPA IX	NFA Concurrence Letter	EPA IX Concurrence Letter of November 2011.
			2012	DOH	NFA Concurrence Letter	DOH Concurrence Letter of Febtuary2012. Sites closed.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
21	NISMO (Formerly NISMF)	SSR Identified Sites	2000 2001 2002	Earth Tech Earth Tech Earth Tech	SSR (Draft Final) SSR (Revised Draft-Final) SSR (Revised Final)	Draft Final Site Summary Report (SSR) submitted to regulators/trustees in Sep 00. (The Draft SSR of 1997 encompassed the entire PHNC. Based on review comments by EPA/DOH, individual SSRs are being prepared for 10 GSAs.) Based on the level of detail for the Bishop Point SSR, the NISMO GSA August 2000 draft-final SSR was revised and completed in July 2001. Revisions to the revised draft final were completed in November 2001. October 2002 SSR Final revisions based on agreement with EPA Region IX through phone conference correspondence.
22	PWC Compound	SSR Identified Sites	2000 2001 2002 2002	Earth Tech Earth Tech Earth Tech Earth Tech	Site Summary Evaluation field work completed in July 2000 SSR (Draft Final) SSR-(Revised Draft Final) SSR (Revised Final)	Visual site inspections and research of facilities within the PWC Compound GSA in preparation of the SSR. Draft Final SSR completed in August 2001. The revised draft final was completed in March 2002. December 2002 SSR Final revisions based on agreement with EPA Region IX through phone conference correspondence.
22	PWC Compound	Building X24	2017 2018 2019 2020 2020	AECOM AECOM AECOM AECOM AECOM AECOM	SI WP (Draft) SI WP (Final) SI Report (Draft) SI Report (Final) RI WP (Draft) RI WP (Final)	Draft SI WP for Building X24 (February 2017). Final SI WP for Building X24 (August 2017). Draft SI Report for Building X24 (April 2018). Final SI report for Building X24 (May 2019). RI is recommended. Draft RI WP completed February 2020. Final RI WP completed April 2020
23	Halawa-Main Gate	SSR Identified Sites	2001 2002 2003	Earth Tech Earth Tech Earth Tech	SSR (Draft Final) SSR (Revised Draft Final) SSR (Revised Final)	Draft Final SSR completed in October 2001. The revised draft final was completed in May 2002. March 2003 SSR Final revisions based on agreement with EPA Region IX through phone conference correspondence
23	Halawa – Main Gate	RAA 11	2006 2011 2013	Earth Tech AECOM AECOM	Draft RI Work Plan for RAA 11 and 12 Final RI Report ROD	Draft RI Work Plan for RAA 11 and 12 (April 2006). (See site below RAA 12) Final RI report for RAA 11 and 13 completed. Started the Proposed Plan. NFA ROD
23	Halawa – Main Gate	RAA 12	2005 2006	Earth Tech Earth Tech	Tech Memo for RAA 12 and 13	Tech Memo for RAA 12 and 13 (Oct 2005) Draft RI Work Plan for RAA 11 and 12 (April 2006)

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2006	Earth Tech	Draft RI Work Plan for RAA 11 and 12 Revised Tech Memo for RAA 12 and 13	Revised Tech Memo for RAA 12 and 13 (June 2006) recommends continue groundwater monitoring and conduct investigative activities at RAA 12.
			2007	Earth Tech	RI WP Addendum for RAA 11 and 12 (Draft and Final)	Updated project specific (lab, project procedures, etc.) information.
			2008	Earth Tech	RI WP Addendum No. 2 for RAA 11 and 12 (Draft)	Further delineation required in groundwater and soil gas vapors.
			2010	AECOM	Draft RI Work Plan Addendum No. 3	Submitted draft RI Work Plan Addendum #3 for further delineation of TCE groundwater contamination.
			2011	AECOM	Final RI WP Adden 3	WP finalized and field work started.
			2013	AECOM	Tech Memo #2	WP for sample IA
			2013	AECOM	Tech Memo #3	WP for sample Bldg 444
			2014	AECOM	Draft RI/FS	Summary of RI/FS. Recommendations for site are land use controls, monitored natural attenuation, and vapor intrusion monitoring.
			2015	AECOM	Draft Final RI/FS	Summary of RI/FS.
			2015	AECOM	Final RI/FS	Distributed for regulator review January 2016.
			2016	AECOM	PP (Draft)	Interim Sampling Results
			2016	AECOM	Tech Memo #4	Updated project specific information (lab, project procedures, etc.) for the continuation of interim monitoring
			2020	AECOM	Draft WP Update, Interim Sampling	
23	Halawa – Main Gate	RAA 13	2005	Earth Tech	Tech Memo for RAA 12 and 13	Tech Memo for RAA 12 and 13 (Oct 2005)
			2006	Earth Tech	Revised Tech Memo for	Revised Tech Memo for RAA 12 and 13 (June 2006) recommends continue groundwater monitoring and conduct investigative activities at RAA 12.
23	Halawa – Main Gate	RAA 13 (Continued)	2011	AECOM	Final RI Report	Final RI report for RAA 11 and 13 completed.
			2011	AECOM	PP	Started the Proposed Plan.
			2013	AECOM	ROD	Started NFA ROD
23	Halawa – Main Gate	Surface Disposal Area (Building 450)	2008	Earth Tech	SI WP (Draft)	SI WP Draft completed.
			2009	AECOM	SI WP (Final) & field work	SI WP finalized, field work completed
			2010	AECOM	SI Report	No further action recommended.
23	Halawa – Main Gate	Earthen Area in Building 644	2009	ESI	Draft SI Work Plan - worksheets	Initiated Draft SI work plan worksheets
			2010	ESI	SI Work Plan	Prepared Draft SI Work Plan
			2011	ESI	SI Report (Draft & Final)	SI report recommended NFA for former foundry Bldg 644. Petroleum contamination identified in subsurface soil attributed to RAA-2 subsurface fuel plume, and will be managed under the EHMP for the RAA-2 site.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
24	Richardson	SSR Identified Sites (FLETRAGRU Fire Fighting Training Area described separately above in SMP Group #13. The Substation G (Building 6) Former Electrical Switching Station site is only site that remains to be addressed in this SMP group. After the finalization of the SI report, the site was incorporated into Group #25.)	2000	Earth Tech	Site Summary Evaluation field work completed in July 2000	Visual site inspections and research of facilities within the Richardson GSA in preparation of the SSR.
			2001	Earth Tech	SSR (Draft Final)	Draft Final SSR completed in September 2001.
			2002	Earth Tech	SSR (Revised Draft Final)	The revised draft final was completed in March 2002.
			2002	Earth Tech	SSR (Revised Final)	December 2002 SSR Final revisions based on agreement with EPA Region IX through phone conference correspondence
			2003	Earth Tech	Site Inspection (Final)	Transformer R-4 addressed by Various Transformer Sites SI. No further action recommended.
			2003	Earth Tech	Supplemental RI (Final)	Former Building 593, Storage Maintenance Shop by addressed by Supplemental RI. No further action recommended.
			2003	Earth Tech	Phase II EBS (Final)	AST 593 addressed by Phase II EBS. No further action recommended.
			2005	Dawson	RVR (Final)	Inactive Fuel and Diesel Oil Pipeline addressed by RVR Removal action removed COCs from site.
			2006	ESI	SI WP (Draft)	Work Plan for SI at Substation G (Building 6) Former Electrical Switching Station
			2007	ESI	SI WP (Final)	Incorporated comments on draft.
			2007	EPA IX	Comments on SI WP (Final)	Comments Metal Background section, catch basins, deletion of interior sampling, regulatory concurrence on sampling locations.
			2007	ESI	SI report (Draft)	Further action recommended for subsurface soil at the location of highest PCB detected.
			2008	ESI	Response to Comments (Draft)	Response to Comments on draft SI report. In response to EPA Region IX comment, agreed to perform additional sampling for PCB. Technical Addendum to be submitted for additional sampling. Finalization of SI report will be postponed until the additional sampling results are incorporated into the report.
24	Richardson	SSR Identified Sites (FLETRAGRU Fire Fighting Training Area described separately above in SMP Group #13. The Substation G (Building 6) Former Electrical Switching Station site is only site that remains to be addressed in this SMP group. After the finalization of the SI report, the site was incorporated into Group #25.) (Continued)	2009	ESI	Work Plan Technical Addendum (Final)	Technical Addendum submitted for additional sampling. Incorporated comments on informally submitted draft.
			2010	ESI	Completed field work for additional sampling & In-progress SI (Draft Final)	Preparing revised draft final SI report incorporating the additional sampling results, information on the adjacent site, and updating references to the Pearl Harbor sediment draft RI addendum report.
			2011	ESI	SI (Final)	The final SI report incorporating the additional sampling results, information on the adjacent site, and updating references to the Pearl Harbor sediment draft RI addendum report. Site to be address under the Various Transformer Site on Oahu investigation.
25	Various Transformer Sites	Various Transformer Sites on Oahu	2001	Earth Tech	Site Inspection	Draft SI Work Plan completed in August 2001.

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
25	Various Transformer Sites	Various Transformer Sites on Oahu (Continued)	2001	Earth Tech	Removal Action	Final SI Work Plan completed October 2001. Field sampling work completed November-December 2001. The Sampling and Analysis Plan, Removal Action Design Support and Confirmation Sampling for Ford Island, PHNC, Waikele, Iroquois Point, NRTF LLL, Former NAS Barbers Point was completed in December 2001. Field work was to support the design for the thermal desorption treatment project at the various sites.
			2002	Earth Tech	SI (Draft)	The draft SI for Various Transformers Sites in the PHNC was completed in June 2002. There were 167 sites where PCBs were either not detected or below screening criteria. 128 sites were found to exceed TSCA screening criteria in either the soil or concrete.
			2002	Earth Tech	Design Package (Group B sites) (Draft)	Submitted Finalized in 2004.
			2002	Earth Tech	AM addendum	Action Memorandum for various transformer sites at Ford Island, Waikele, Iroquois Point and NRTF LLL
			2003	Earth Tech	SI (Final)	Final SI was prepared in Jan 2003.
			2003	Earth Tech	AM addendum	Action Memorandum for various transformer sites at PHNC, NAVMAG, former NAS Barbers Point
			2006	Environmental Chemical Corp	Draft RVR	Documented excavation and treatment of PCB contaminated soils from various sites.
			2006	Earth Tech	Consolidated RVR	Documented the various Removal Actions that fed to the thermal treatment project
			2006	Earth Tech	PP, draft ROD, Draft Land Use Control Work Plan	Documenting the final remedy determination on several transformers involved in the thermal treatment project.
			2006	Earth Tech	SI Addendum	SI Addendum, Various Transformer Sites, PHNC
			2007	ECC	RVR	Describes removal action activities during the PCB thermal desorption project.
			2007	Earth Tech	NFA ROD	Documents final remedy of NFA for various transformers
			2008-2010	Earth Tech	LUC ROD (Draft/Draft Final/Final)	Documents final remedy of LUCs for three transformers (TD-10, K-14, and W-4/W-5)
			2009	AECOM	NFA Tech Memo	Risk assessments for seven transformer sites at PHNC and NCTAMS PAC. Tech Memo recommends no further action, unrestricted use for all seven transformers.
			2010	AECOM	Draft RI Work Plan Worksheets	RI for 61 transformers requiring further action. Draft RI WP Worksheets proposing planned sampling approach submitted for regulatory review.
			2011-2012	AECOM	RI WP (Draft, Draft Final, & Final)	RI Work Plans for field investigation.
			2013	AECOM	Draft RI Report	

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

SMP Group #	SMP Group	Site(s)	Year	Source	Scope of Work	Finding(s) / Recommendation(s)
			2016 2016 2018	AECOM AECOM AECOM	Draft Final RI Report Final RI report Draft RI Addendum Work Plan	Further action recommended for some transformer sites. The number of sites and media (soil/concrete) impacted will be clarified in the Draft Final RI Report. 34 transformer sites recommended for further evaluation in an FS: 13 sites for concrete, 18 sites for soil, and 3 sites for concrete and soil. Additional delineation planned for 10 sites
26	Various Per- and Polyfluoroalkyl Substances (PFAS) Sites	Various Perfluorinated Compounds/Perfluoroalkyl Substances (PFC/PFAS) Sites at National Priorities List site locations	2019 2019 2021 2021 2023 2023 2023	AECOM AECOM AECOM AECOM AECOM AECOM AECOM	Draft PA Draft SI Work Plan Revised Draft PA Revised Draft SI Work Plan Final PA Final SI Work Plan Draft SI	The Navy began investigation of potential PFAS sites as an installation-wide effort. The SI evaluated suspected areas of interest that have documentation of historical a release or past activities indicative of a likely historical release. Based on the recommendations of the installation-wide SI, site-specific RIs are described below.
26	Various PFAS Sites	FLETRAGRU Fire Fighting Training Area, PFAS Release				PFAS detected in soil and groundwater above screening levels in the installation-wide SI. RI phase will also include an evaluation of the 2019 AFFF release during the barge fire at a nearby location. RI Planning effort initiated in 2024
26	Various PFAS Sites	JBPHH Various Fire Stations, PFAS Release				Currently plan to initiate RI planning effort in 2024-2025.
26	Various PFAS Sites	JBPHH Buildings 1613 and 1721, PFAS Release				Currently plan to initiate planning effort in 2024-2025.
26	Various PFAS Sites	Red Hill, PFAS Release				Currently plan to initiate planning effort in 2024-2025.
26	Various PFAS Sites	Potential PFAS Areas of Interest				Potential areas of interest include Bldg 68 (b) (3) [redacted] Manana, Bldg 680 (b) (3) (B) [redacted], Subase (b) (3) and Bldg 54 Former Hangar, Ford Island. Development of work plans initiated in 2024.
26	Various PFAS Sites	Potential PFAS in Pearl Harbor Sediment				Sediment sampling is planned for select locations in Pearl Harbor where a confirmed PFAS release has been identified in soil or groundwater at an upland site, and there is a direct pathway from the upland site to the harbor. Development of work plans initiated in 2024.

NOTES:

AECOM AECOM Technical Services Inc
AM Action Memorandum
AMEC AMEC, formerly Ogden Environmental and Energy Services
ANL Argonne National Laboratories
ATSDR Agency for Toxic Substances and Disease Registry
ATT Aqua Terra Technologies
AVGAS Aviation Gasoline
BERA Baseline Ecological Risk Assessment
Bldg Building
BOA Basic Ordering Agreement
CDF Combined Disposal Facility
COCs Contaminants of Concern
COPC Contaminants of Potential Concern
CNO Chief of Naval Operations
CPEC Contaminants of Potential Ecological Concern
DAWSON Dawson Group, Inc
DOH Department of Health
DQO Data Quality Objectives
DNAPL Dense Non-Aqueous Phase Liquid

TABLE D-3
ACTIVE SITE BACKGROUND SUMMARY
PEARL HARBOR NAVAL COMPLEX

DRMO	Defense Reutilization Marketing Office
DRMR	Defense Reutilization Marketing Region
E&E	Ecology and Environment
EE/CA	Engineering Evaluation/Cost Analysis
EPA	Environmental Protection Agency
ERCE	ERC Environmental and Energy Services, Co
ERTAT	Ecological Risk Technical Assistance Team
ESE	Engineering Science and Engineering
FS	Feasibility Study
FSP	Field Sampling Plan
GII	Geokinetics International, Inc
GIS	Geographic Information System
GSA	Geographical Study Area
GW	Groundwater
HLA	Harding Lawson & Associates
HRS	Hazard Ranking System
HSP	Health and Safety Plan
HW/HM	Hazardous Waste/Hazardous Material
IAS	Initial Assessment Study
IRP	Installation Restoration Program
IT	IT Corp, formerly OHM, now Shaw
KJC	Kennedy, Jenks, Chilton
LNAPL	Light, Non-Aqueous Phase Liquid
LUC	Land Use Control
MFA	Masa Fujioka and Associates
MW	Monitoring Well
NAS	Naval Air Station
NAVBASE	Naval Base
NEESA	Naval Energy and Environmental Support Activity
NEHC	Navy Environmental Health Center
NEX	Navy Exchange
NFA	No Further Action
NFESC	Navy Facilities Engineering Service Center
NISMO	Naval Sea Systems Inactive Ships On-Site Maintenance Office
NPDES	National Pollutant Discharge Elimination System
NSY	Naval Shipyard
NTCRA	Non-Time Critical Removal Action
Ogden	Ogden Environmental and Energy Services, now called AMEC
O&M	Operations and Maintenance
OHM	OHM Remediation Services Corp , now called Shaw
PA	Preliminary Assessment
PAHs	Polycyclic Aromatic Hydrocarbons
PCAS	Post-Construction Award Services
PCB	Polychlorinated Biphenyls
PCE	Tetrachloroethene
PHNC	Pearl Harbor Naval Complex
PRC	PRC Environmental
PRG	Preliminary Remediation Goal
PP	Proposed Plan
PRL	Potential Release Location
PWC	Public Works Center
QAP	Quality Assurance Project Plan
RA	Remedial Action
RAA	Remedial Action Area
RADD	Removal Action Decision Document
RCRA	Resource Conservation Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RSE	Removal Site Evaluation
RVR	Remediation Verification Report
SAP	Sampling and Analysis Plan
SC	Site Closeout
SERA	Screening Ecological Risk Assessment
SHAW	Shaw Environmental and Infrastructure, formerly IT Corp
SI	Site Inspection
SITE	Superfund Innovative Technology Evaluation
SLTH	Sunn, Low, Tom and Hara
SMDP	Scientific Management Decision Point
SSR	Site Summary Report
SUBASE	Submarine Base
SVE	Soil Vapor Extraction
SWMU	Solid Waste Management Unit
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank
VC	Vinyl Chloride
VTU	Vapor Transfer Unit
UTF	Upper Tank Farm
VOCs	Volatile Organic Compounds
WP	Work Plan

SITE	DOCUMENT	P=Primary; S=Secondary	Deadline/ Target Date	Actual Date DRAFT Submitted	Negotiated Draft Final Deadline Date	Calculated Draft Final Date (120 days + Draft Target) Delete if date is negotiated	Actual Date DRAFT FINAL Submitted	Deadline/ Target Date	Actual Date DRAFT Submitted	Target Date (30 + 60 days from submittal of draft doc)	Calculated Final document Deadline (60 days after comment resolution)	Actual Final Primary and Secondary document
MRP - Electrical Component Disposal Area	RI Report	P	9/30/2021	8/24/2021								
MRP - Electrical Component Disposal Area	FS Report	P										
MRP - Electrical Component Disposal Area	PP	P										
MRP - Electrical Component Disposal Area	ROD	P										
MRP - West Loch Burning Pit	RI Report (Phase VI)	P	9/17/2024	10/10/2024								
MRP - West Loch Burning Pit	FS Report	P	7/1/2025			9/29/2025						
MRP - West Loch Burning Pit	PP	P	9/30/2025			1/28/2026						
MRP - West Loch Burning Pit	ROD	P	5/6/2026			9/3/2026						
Waipio Peninsula - Sandblast Grit	RI Report	P	5/30/2015	6/26/2015								
Waipio Peninsula - Sandblast Grit	FS Report	P										
Waipio Peninsula - Sandblast Grit	PP	P										
Waipio Peninsula - Sandblast Grit	ROD	P										
West Loch - Vehicle Maintenance Fac	RI Work Plans	P	3/7/2011	2/24/2011		7/5/2011						12/1/2011
West Loch - Vehicle Maintenance Fac	Addendum RI Work Plans	P			10/28/2011							1/1/2014
West Loch - Vehicle Maintenance Fac	RI/FS Report	P	3/15/2013	2/22/2013	4/5/2014		7/1/2014					11/25/2014
West Loch - Vehicle Maintenance Fac	PP	P	9/13/2013	12/19/2014	1/11/2014							7/24/2015
West Loch - Vehicle Maintenance Fac	ROD	P	12/31/2015	12/31/2015	2/29/2016		4/27/2016				3/30/2017	4/1/2017
Red Hill PFAS	PFAS RI WPs	P	6/28/2024	6/21/2024	2/28/2025							
Red Hill PFAS	PFAS RI Report	P	TBD									
Red Hill PFAS	FS	P	TBD									
Red Hill PFAS	PP	P	TBD									
Red Hill PFAS	ROD	P	TBD									
JBPHH Various Fire Stations	PFAS RI WPs	P	7/30/2026			10/31/2026						
JBPHH Various Fire Stations	PFAS RI Report	P	10/31/2027			1/31/2028						
JBPHH Various Fire Stations	FS	P	8/31/2028									
JBPHH Various Fire Stations	PP	P	5/31/2029			9/30/2029						
JBPHH Various Fire Stations	ROD	P	2/28/2030			7/31/2030						
Halawa-Main Gate Storm Drains	B660, and B674)	P	9/5/2013	9/11/2013	8/18/2017		10/12/2017				5/30/2025	
Halawa-Main Gate Storm Drains	RI/FS Phase 2a Report (B449)	P	10/20/2014	10/14/2014	11/15/2021		11/3/2021				12/30/2023	
Halawa-Main Gate Storm Drains	and B674)	P	4/30/2025		9/30/2025						12/30/2025	
Halawa-Main Gate Storm Drains	B660, and B674)	P	5/30/2026		10/30/2026						1/30/2026	
Halawa-Main Gate Storm Drains	FS (B472, B651, B660, and B674)	P	3/30/2027		8/30/2027						11/30/2027	
Halawa-Main Gate Storm Drains	PP (B472, B651, B660, and B674)	P	1/30/2028		5/30/2028						8/30/2028	
Halawa-Main Gate Storm Drains	ROD (B472, B651, B660, and B674)	P	9/30/2028		2/29/2029						5/29/2029	
Halawa-Main Gate Storm Drains	PP (B449)	P	5/30/2025		9/30/2025						12/30/2025	
Halawa-Main Gate Storm Drains	ROD (B449)	P	2/28/2026		7/30/2026						10/30/2026	
NSY Sites-NAVSHIPYD Storm Drain	RI Addendum WP	P	4/30/2025		9/30/2025						10/30/2026	
NSY Sites-NAVSHIPYD Storm Drain	RI Addendum Report	P	5/30/2026		10/30/2026						12/30/2026	
NSY Sites-NAVSHIPYD Storm Drain	FS	P	3/30/2027	1/22/2018	8/30/2027						11/30/2027	
NSY Sites-NAVSHIPYD Storm Drain	PP	P	1/30/2028		5/30/2028						8/30/2028	
NSY Sites-NAVSHIPYD Storm Drain	ROD	P	9/30/2028		2/29/2029						5/29/2029	
LNAPL and PCBs on Groundwater	Revised RI Report	P	12/6/2019	9/10/2020	6/21/2021		7/29/2021				11/14/2021	1/7/2022
LNAPL and PCBs on Groundwater	FS	P	9/30/2025	1/24/2023	1/28/2026						4/30/2026	
LNAPL and PCBs on Groundwater	PP	P	9/30/2026		1/28/2027						4/30/2027	
LNAPL and PCBs on Groundwater	ROD	P	9/30/2027		1/28/2028						4/30/2028	
LNAPL and PCBs on Groundwater	RAWP	P	9/30/2028		1/28/2029						4/30/2029	
LNAPL and PCBs on Groundwater	RACR	P	9/30/2029		1/28/2030						4/30/2030	
PWC Former Ind Waste Treatment Plant	PFAS RI Addendum WP	P	7/30/2020	10/13/2020	NA							7/16/2021
PWC Former Ind Waste Treatment Plant	PFAS RI Addendum WP Update	P	1/31/2025					5/1/2025			7/31/2025	
PWC Former Ind Waste Treatment Plant	PFAS RI Addendum Report	P	9/30/2025									

SITE	DOCUMENT	P=Primary; S=Secondary	Deadline/ Target Date	Actual Date DRAFT Submitted	Negotiated Draft Final Deadline Date	Calculated Draft Final Date (120 days + Draft Target) Delete if date is negotiated	Actual Date DRAFT FINAL Submitted	Deadline/ Target Date	Actual Date DRAFT Submitted	Target Date (30 + 60 days from submittal of draft doc)	Calculated Final document Deadline (60 days after comment resolution)	Actual Final Primary and Secondary document
PWC Former Ind Waste Treatment Plant	FS	P	9/30/2026									
PWC Former Ind Waste Treatment Plant	Revised PP	P	6/30/2027									
PWC Former Ind Waste Treatment Plant	Revised ROD	P	12/31/2027									
Pearl City Peninsula-Fuel Annex	RVR	S						3/16/2020		6/14/2020	8/13/2020	5/21/2020
Pearl City Peninsula-Fuel Annex	RI Addendum 2	P	10/31/2025			2/28/2026					6/30/2026	
Pearl City Peninsula-Fuel Annex	FS	P	1/31/2027			5/31/2027					9/30/2027	
Pearl City Peninsula-Fuel Annex	PP	P	2/28/2028			6/30/2028					10/31/2028	
Pearl City Peninsula-Fuel Annex	ROD	P	3/31/2029			7/31/2029					11/30/2029	
Makalapa Crater	RI Addendum	P	3/15/2021	2/2/2021	4/30/2025							
Makalapa Crater	FS Report	P	10/15/2025		2/28/2026							
Makalapa Crater	PP	P	7/30/2026		10/30/2026							
Makalapa Crater	ROD	P	2/28/2027		10/15/2027							
Various PFAS Sites NPL	PA	S						7/1/2021	7/1/2021	12/30/2023		12/27/2023
Various PFAS Sites NPL	SI Work Plan	S						7/1/2021	7/1/2021	12/30/2023		12/28/2023
Various PFAS Sites NPL	SI Report	S						11/30/2023	11/21/2023	12/30/2024		
Various Transformers PHNC	RI Addendum Work Plan	P	4/30/2018	5/30/2018	4/30/2026							
Various Transformers PHNC	RI Addendum	P	4/30/2027		9/30/2027							
Various Transformers PHNC	FS Report	P	1/30/2028		6/30/2028							
Various Transformers PHNC	PP	P	10/30/2028		1/30/2029							
Various Transformers PHNC	ROD	P	4/30/2029		10/30/2029							
Waipio Peninsula - Former Oahu Sugar Pesticide Mixing Area	RI/FS (Sediment)	P	2/28/2021	2/25/2021	NA							
Waipio Peninsula - Former Oahu Sugar Pesticide Mixing Area	RI Work Plan (Terrestrial)	P	4/30/2025		10/30/2025							
Waipio Peninsula - Former Oahu Sugar Pesticide Mixing Area	RI	P	7/30/2026		12/30/2026							
Waipio Peninsula - Former Oahu Sugar Pesticide Mixing Area	FS	P	4/30/2027		9/30/2027							
Waipio Peninsula - Former Oahu Sugar Pesticide Mixing Area	PP	P	1/30/2028		5/30/2028							
Waipio Peninsula - Former Oahu Sugar Pesticide Mixing Area	ROD	P	9/30/2028		3/30/2029							
FLETRAGRU Richardson FF Trn Area (PFAS)	RI WP	P	6/30/2025		11/30/2025							
FLETRAGRU Richardson FF Trn Area (PFAS)	RI	P	10/30/2026		3/30/2027							
FLETRAGRU Richardson FF Trn Area (PFAS)	FS	P	7/30/2027		12/30/2027							
FLETRAGRU Richardson FF Trn Area (PFAS)	PP	P	3/30/2028		11/30/2028							
FLETRAGRU Richardson FF Trn Area (PFAS)	ROD	P	2/28/2029		8/30/2029							
Potential PFAS AOIs (B68 Manana Fire Sta, 54 Ford Is, 680 Subase Fire Sta)	Tech Memo Work Plan	S						3/30/2025		7/30/2025		
Potential PFAS AOIs (B68 Manana Fire Sta, 54 Ford Is, 680 Subase Fire Sta)	Tech Memo Report	S						4/30/2026		8/30/2026		
Potential PFAS in Pearl Harbor Sediment	Tech Memo Work Plan	S						6/30/2025		10/30/2025		
Potential PFAS in Pearl Harbor Sediment	Tech Memo Report	S						7/30/2026		11/30/2026		
PH Regional Sediment	Remedial Design Package	P	6/14/2018	6/14/2018	11/16/2018		3/18/2019					10/18/2019
PH Regional Sediment	Treatability Study Report	S						5/31/2019	6/18/2019	11/4/2019		3/30/2020
PH Regional Sediment	Remedial Action Work Plan & Environmental Monitoring and Management Plan	P	4/7/2020	4/7/2020	7/15/2020	8/5/2020	7/15/2020				9/29/2020	10/1/2020
PH Regional Sediment	Dredge Material Evaluation Work Plan for DU N-4 and DU E-2	S						1/31/2020	1/31/2020			3/31/2020
PH Regional Sediment	Dredge Material Evaluation Report for DU N-4 and DU E-2	S						3/4/2021	3/4/2021			TBD
PH Regional Sediment	Amendment 1 - Remedial Action Work	S	9/13/2021	9/13/2021			10/22/2021					8/25/2022
PH Regional Sediment	Amendment 2 - Remedial Action Work	S							9/26/2023			10/20/2023
PH Regional Sediment	Long-Term Monitoring Work Plan	P	12/14/2022	12/14/2022	2/3/2024		2/3/2024				11/30/2024	
PH Regional Sediment	Report (iRACR)	P	2/2/2024	4/1/2024	N/A	N/A	N/A				11/30/2024	
Building 8 Site	Revised Draft RI Report	P			7/23/2021						3/8/2022	
Building 8 Site	FS	P	9/30/2025	1/6/2023	1/28/2026						4/30/2026	
Building 8 Site	PP	P	9/30/2026		1/28/2027						4/30/2027	
Building 8 Site	ROD	P	9/30/2027		1/28/2028						4/30/2028	
Building 8 Site	RAWP	P	9/30/2028		1/28/2029						4/30/2029	
Building 8 Site	RACR	P	9/30/2029		1/28/2030						4/30/2030	

SITE	DOCUMENT	P=Primary; S=Secondary	Deadline/ Target Date	Actual Date DRAFT Submitted	Negotiated Draft Final Deadline Date	Calculated Draft Final Date (120 days + Draft Target) Delete if date is negotiated	Actual Date DRAFT FINAL Submitted	Deadline/ Target Date	Actual Date DRAFT Submitted	Target Date (30 + 60 days from submittal of draft doc)	Calculated Final document Deadline (60 days after comment resolution)	Actual Final Primary and Secondary document
Former Pearl City Junction	LUC WP	P	12/30/2026									
Former Sump Plating Tank at B67, NSY	SI Report	S	11/30/2020					8/31/2020		11/29/2020	1/28/2021	11/25/2020
Bldg 1613 and 1721 PFAS Release	PFAS RI WPs	P	11/30/2024									
Bldg 1613 and 1721 PFAS Release	PFAS RI Report	P	3/31/2026									
Bldg 1613 and 1721 PFAS Release	FS	P	1/31/2027									
Bldg 1613 and 1721 PFAS Release	PP	P	10/31/2027									
Bldg 1613 and 1721 PFAS Release	ROD	P	7/31/2028									
PHNC Subsurface Oil - Remedial Action Areas #12	PP	P	2/29/2016	1/12/2016	3/31/2025							
PHNC Subsurface Oil - Remedial Action Areas #12	ROD	P	8/29/2025		11/28/2025							
Waipio Peninsula - CDA	Revised PP	P	10/30/2029		2/28/2030							
Waipio Peninsula - CDA	ROD	P	6/30/2030		12/30/2030							
PWC Bldg X24	RI Work Plans	P	12/26/2019			2/3/2020		5/8/2020		8/3/2020	9/17/2020	5/22/2020
PWC Bldg X24	RI Report	P	2/10/2021	1/15/2021	Skipped to Final per agreement				3/17/2021	9/6/2021	10/21/2021	4/26/2021
PWC Bldg X24	FS	P	12/30/2025		5/30/2026							
PWC Bldg X24	PP	P	10/30/2026		2/28/2027							
PWC Bldg X24	ROD	P	7/30/2027		2/28/2028							
Area Near Former UST BP-1, Bishop Pt	ROD	P	10/15/2017	7/7/2017	12/30/2025						4/30/2026	
NSY Sites - Transportation Yard	Revised ROD	P			11/30/2017		9/25/2017				3/31/2025	
NSY Sites - Transportation Yard	RAWP LUCs	P	6/30/2025		10/31/2025							
NSY Sites - Transportation Yard	RACR	P	1/30/2026		6/30/2026							
NSY Sites-Bldg 394	LUC Boundary Evaluation WP Update	S	11/30/2021	12/13/2021	NA		NA					
NSY Sites-Bldg 394	LUC Boundary Evaluation Tech Memo	S	4/30/2025		7/30/2025							
NSY Sites-Bldg 394	Revised ROD	P	2/28/2016	12/16/2015	12/31/2025							
NSY Sites-Bldg 394	RA WP LUCs	P	4/30/2026		7/31/2026							
NSY Sites-Bldg 394	RACR	P	11/30/2026		2/28/2027							
Waipio Peninsula - CDA	RI Addendum WP	P	12/30/2025		6/30/2026							
Waipio Peninsula - CDA	RI Addendum Report	P	12/30/2027		6/30/2028							
Waipio Peninsula - CDA	FS Revision 1 Report	P	12/30/2028		6/30/2029							
Aiea Laundry OU	Comprehensive RI/FS	P	3/26/2015	NA	9/26/2015		6/25/2015				11/4/2017	9/28/2017
Aiea Laundry OU	Abbreviated Work Plan	P	2/28/2022	4/11/2022			NA				2/3/2023	
Aiea Laundry OU	Preschool Investigation Tech Memo	S						2/2/2026				
Aiea Laundry OU	PP	P	1/24/2017	9/7/2016								
Aiea Laundry OU	Revised PP	P	2/2/2027			6/2/2027					9/30/2027	
Aiea Laundry OU	ROD	P	6/1/2028			9/29/2028					9/29/2029	
Pearl City Peninsula Burn Area/Landfill*	FS WP	P	4/28/2025			8/26/2025					11/24/2025	
Pearl City Peninsula Burn Area/Landfill*	FS Report	P	9/30/2013	9/11/2013		12/15/2015	10/1/2015					
Pearl City Peninsula Burn Area/Landfill*	Revised FS Report	P	6/22/2027			10/20/2027					1/18/2028	
Pearl City Peninsula Burn Area/Landfill*	PP	P	4/17/2028			8/15/2028					11/13/2028	
Pearl City Peninsula Burn Area/Landfill*	ROD	P	3/13/2029			7/11/2029					7/11/2030	
Red Hill Oily Waste Disposal Pit Site	Site Assessment Work Plan	P	5/31/2020	8/5/2020								3/27/2021
Red Hill Oily Waste Disposal Pit Site	Site Assessment Report	P	12/29/2025								4/28/2026	

*FUDS Determination

Summary Table of FY24 Quarterly Update Changes to Appendix A - SMP Schedule (As of 24 October 2024)

				Target DRAFT	Target DRAFT FINAL/FINAL	Revised DRAFT	Revised DRAFT FINAL/F NAL	EPA CONCURRENCE REFERENCE	DOH CONCURRENCE REFERENCE
SITE	**DOCUMENT**	**D=Draft DF=Draft Final**	**P=Primary S=Secondary**	**Deadline/ Target Date**	**Deadline/ Target Date**	**Revised Deadline/ Target Date**	**Revised Deadline/Target Date**		
Various Transformers PHNC	RI Addendum Work Plan	DF	P	NA	4/30/2025	NA	4/30/2026	Email from C. Lichens (10/10/24)	Email from A. Hutto (10/10/24)
Various Transformers PHNC	RI Addendum	D/DF	P	4/30/2026	9/30/2026	4/30/2027	9/30/2027	Email from C. Lichens (10/10/24)	Email from A. Hutto (10/10/24)
Various Transformers PHNC	FS Report	D/DF	P	1/30/2027	6/30/2027	1/30/2028	6/30/2028	Email from C. Lichens (10/10/24)	Email from A. Hutto (10/10/24)
Various Transformers PHNC	PP	D/DF	P	10/30/2027	1/30/2028	10/30/2028	1/30/2029	Email from C. Lichens (10/10/24)	Email from A. Hutto (10/10/24)
Various Transformers PHNC	ROD	D/DF	P	4/30/2028	10/30/2028	4/30/2029	10/30/2029	Email from C. Lichens (10/10/24)	Email from A. Hutto (10/10/24)
Potential PFAS AOIs (B68 Manana Fire Sta, 54 Ford Is, 680 Subase	Tech Memo Work Plan	D/RTC	S	1/30/2025	5/30/2025	3/30/2025	7/30/2025	Email from C. Lichens (10/10/24)	Email from A. Hutto (10/10/24)
Potential PFAS AOIs (B68 Manana Fire Sta, 54 Ford Is, 680 Subase	Tech Memo Report	D/RTC	S	2/28/2026	6/30/2026	4/30/2026	8/30/2026	Email from C. Lichens (10/10/24)	Email from A. Hutto (10/10/24)
Potential PFAS in Pearl Harbor Sediment	Tech Memo Work Plan	D/RTC	S	NA	NA	6/30/2025	10/30/2025	Email from C. Lichens (10/10/24)	Email from A. Hutto (10/10/24)
Potential PFAS in Pearl Harbor Sediment	Tech Memo Report	D/RTC	S	NA	NA	7/30/2026	11/30/2026	Email from C. Lichens (10/10/24)	Email from A. Hutto (10/10/24)
Former Pearl City Junction	LUC WP	D	P	12/30/2026	NA	NA	NA	Email from C. Lichens (10/17/24)	Email from A. Hutto (10/17/24)
Red Hill PFAS	PFAS RI WPs	DF	P	NA	10/30/2024	NA	2/28/2024	Email from C. Lichens (10/17/24)	Email from A. Hutto (10/17/24)
Red Hill PFAS	PFAS RI Report	D/DF	P	6/30/2025	9/30/2025	TBD	TBD	Email from C. Lichens (10/17/24)	Email from A. Hutto (10/17/24)
Red Hill PFAS	FS	D/DF	P	4/30/2026	7/30/2026	TBD	TBD	Email from C. Lichens (10/17/24)	Email from A. Hutto (10/17/24)
Red Hill PFAS	PP	D/DF	P	1/1/2027	5/31/2027	TBD	TBD	Email from C. Lichens (10/17/24)	Email from A. Hutto (10/17/24)
Red Hill PFAS	ROD	D/DF	P	10/31/2027	2/28/2028	TBD	TBD	Email from C. Lichens (10/17/24)	Email from A. Hutto (10/17/24)
PWC Bldg X24	FS	D/DF	P	12/30/2024	5/30/2025	12/30/2025	5/30/2026	Email from C Lichens 10/8/24	Email from A. Hutto 10/8/24
PWC Bldg X24	PP	D/DF	P	10/30/2025	2/28/2026	10/30/2026	2/28/2027	Email from C Lichens 10/8/24	Email from A. Hutto 10/8/24
PWC Bldg X24	ROD	D/DF	P	7/30/2026	2/28/2027	7/30/2027	2/28/2028	Email from C Lichens 10/8/24	Email from A. Hutto 10/8/24
NSY Sites-Bldg 394	LUC Boundary Evaluation Tech Memo	D/DF	S	12/31/2024	3/31/2025	4/30/2025	7/30/2025	Email from C Lichens 10/16/24	Email from A. Hutto 10/16/24
NSY Sites-Bldg 394	Revised ROD	D/DF	P	NA	3/31/2025	NA	12/31/2025	Email from C Lichens 10/16/24	Email from A. Hutto 10/16/24
NSY Sites-Bldg 394	RA WP LUCs	D/DF	P	7/31/2025	12/31/2025	4/30/2026	7/31/2026	Email from C Lichens 10/16/24	Email from A. Hutto 10/16/24
NSY Sites-Bldg 394	RACR	D/DF	P	4/30/2026	7/31/2026	11/30/2026	2/28/2027	Email from C Lichens 10/16/24	Email from A. Hutto 10/16/24
Pearl City Peninsula Burn Area/Landfill*	FS WP	D/DF	P	9/30/2024	1/28/2025	4/28/2025	8/26/2025	Email from C. Lichens (10/24/24)	Email from A. Hutto (10/24/24)
Pearl City Peninsula Burn Area/Landfill*	Revised FS Report	D/DF	P	11/24/2024	3/24/2027	6/22/2027	10/20/2027	Email from C. Lichens (10/24/24)	Email from A. Hutto (10/24/24)
Pearl City Peninsula Burn Area/Landfill*	PP	D/DF	P	9/20/2027	1/18/2028	4/17/2028	8/15/2028	Email from C. Lichens (10/24/24)	Email from A. Hutto (10/24/24)
Pearl City Peninsula Burn Area/Landfill*	ROD	D/DF	P	8/15/2028	12/13/2028	3/13/2029	7/11/2029	Email from C. Lichens (10/24/24)	Email from A. Hutto (10/24/24)

Table of Contents

Table of Contents 1
Report Submittal for HEER Office (Assessment and Remediation Related Reports; NOT Written Release Notification Forms; NOT HEPCRA TIER II Forms) 2
(Submission #: HQ7-E806-M5AAY, version 1) 2
Details 2
Form Input 2
1. Site Information 2
2. Report Information (Subject) 3
3. Upload Report and Supplemental Information 3
Attachments 3
Status History 3
Audit 4
Processing Steps 4

Report Submittal for HEER Office (Assessment and Remediation Related Reports; NOT Written Release Notification Forms; NOT HEPCRA TIER II Forms)

version 1.3

(Submission #: HQ7-E806-M5AAY, version 1)

Details

Submitted	10/25/2024 (0 days ago) by Rachel Gilhooly
Submission ID	HQ7-E806-M5AAY
Submission Reason	New
Status	Accepted

Form Input

1. Site Information

Enter the Site Name and iHEER ID if Provided

The Site Name/iHEER ID will appear on all correspondence, and official files.

Site Name and iHEER ID (if provided)
Site Management Plan

Is this a new Site/Project?
No

Name of Assigned HEER Project Manager
SDAR Supervisor

Contractor/Consultant's Name
Rachel Gilhooly

Affiliation of Contractor/Consultant/Person Submitting Report
NAVFAC HI

Address of Submitter

400 Marshall Rd
JBPHH, HI 96860

Phone Number of Submitter
808-471-4609

e-mail Address of Submitter
rachel.a.gilhooly.civ@us.navy.mil

Potential Responsible Party's (PRP's) Name
NAVFAC HI

PRP Address

400 Marshall Rd
JBPHH, HI 96860

e-mail Address of PRP
jocelyn.tamashiro.civ@us.navy.mil

Phone Number of PRP
808-471-3865

Provide the Site Address

The site address is the physical address of the facility.

Address of Facility

400 Marshall Rd
JBPHH, HI 96860

TMK(s) of the Site (no dashes, no colon). Enter in following Form: DZSPPPppp; D=District, Z=Zone, P=Plat, p=parcel
NONE PROVIDED

Site Project Coordinates - Click on map to show location of contamination
21.352050193241567,-157.93067693710327

2. Report Information (Subject)

Subject/Title
Site Management Plan Update for the Pearl Harbor Naval Complex, October 2024, Joint Base Pearl Harbor-Hickam, Hawaii

Date of Document
October 2024

Revision or Version Number
NONE PROVIDED

3. Upload Report and Supplemental Information

Upload Report & Supplemental Information
PH SMP Annual FY24_EPA_DOH ltr 00453.pdf - 10/25/2024 02:30 PM
Encl (2) PH_SMP_Annual_Submittal_FY24_Redacted.pdf - 10/25/2024 02:31 PM
Comment
NONE PROVIDED

Attachments

Date	Attachment Name	Context	Confidential?	User
10/25/2024 2:31 PM	Encl (2) PH_SMP_Annual_Submittal_FY24_Redacted.pdf	Attachment	No	Rachel Gilhooly
10/25/2024 2:30 PM	PH SMP Annual FY24_EPA_DOH ltr 00453.pdf	Attachment	No	Rachel Gilhooly

Status History

	User	Processing Status
10/16/2024 2:10:04 PM	Rachel Gilhooly	Draft
10/25/2024 2:32:49 PM	Rachel Gilhooly	Submitting
10/25/2024 2:33:01 PM	Rachel Gilhooly	Submitted
10/25/2024 2:34:30 PM	Mayara Silva	Accepted

Audit

Event	Event Description	Event By	Event Date
Send Email	Step Completed on Submission HQ7-E806-M5AAY in the e-Permitting System email was sent to rosa.iu@doh.hawaii.gov.	Rachel Gilhooly	10/25/2024 2:33 PM
Send Email	Step Completed on Submission HQ7-E806-M5AAY in the e-Permitting System email was sent to marsha.mealey@doh.hawaii.gov.	Rachel Gilhooly	10/25/2024 2:33 PM
Send Email	Step Completed on Submission HQ7-E806-M5AAY in the e-Permitting System email was sent to joslynne.camlin@doh.hawaii.gov.	Rachel Gilhooly	10/25/2024 2:33 PM
Send Email	Step Completed on Submission HQ7-E806-M5AAY in the e-Permitting System email was sent to mayara.silva@doh.hawaii.gov.	Rachel Gilhooly	10/25/2024 2:33 PM

Processing Steps

Step Name	Assigned To/Completed By	Date Completed
Form Submitted	Rachel Gilhooly	10/25/2024 2:33:01 PM