

FY2013

TRIPLER ARMY MEDICAL CENTER
Army Defense Environmental Restoration Program
Installation Action Plan

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Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multiyear cleanup program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern (AOC), and proposes a comprehensive, installation-wide approach, along with the costs and schedules associated with conducting investigations and taking the necessary remedial actions (RA).

In an effort to coordinate planning information between the restoration manager, the US Army Environmental Command (USAEC), Tripler Army Medical Center (TAMC), the executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules, and tentative budgets for all major Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

Acronyms

AEDB-CC	Army Environmental Database - Compliance-related Cleanup
AEDB-R	Army Environmental Database - Restoration
AOC	Area of Concern
BTEX	Benzene, Toluene, Ethyl benzene, and Xylene
CC	Compliance-related Cleanup
COPC	Contaminants of Potential Concern
CR	Compliance Restoration
CTC	Cost-to-Complete
DD	Decision Document
DERA	Defense Environmental Restoration Account (currently called ER,A)
DERP	Defense Environmental Restoration Program
ER,A	Environmental Restoration, Army
FRA	Final Remedial Action
FS	Feasibility Study
FY	Fiscal Year
HAR	Hawaii Administrative Rules
HDOH	Hawaii Department of Health
IAP	Installation Action Plan
IMCOM-Pacific	Installation Management Command, Pacific Region
IR	Installation Restoration
IRA	Interim Remedial Action
IRP	Installation Restoration Program
ISC	Initial Site Characterization
K	thousand
LF	Landfill
LTM	Long-Term Management
LUC	Land Use Controls
MEDCOM	Medical Command
MMRP	Military Munitions Response Program
MR	Munitions Response
N/A	Not Applicable
NFA	No Further Action
NFRAP	No Further Response Action Planned
NPL	National Priorities List
ODUSD(I&E)	Office of the Deputy Under Secretary of Defense for Installations and Environment
PA	Preliminary Assessment
PBA	Performance-Based Acquisition
POL	Petroleum, Oil and Lubricants
PP	Proposed Plan
RA	Remedial Action
RA(C)	Remedial Action (Construction)
RAB	Restoration Advisory Board
RC	Response Complete
RD	Remedial Design
RI	Remedial Investigation

Acronyms

RIP	Remedy-in-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
RSL	Regional Screening Level
SHWB	Solid and Hazardous Waste Branch
SI	Site Inspection
SRM	Sustainment, Renovation, and Modernization
TAMC	Tripler Army Medical Center
TAPP	Technical Assistance for Public Participation
TBA	Tertiary-Butyl Alcohol
TPH	Total Petroleum Hydrocarbons
TRC	Technical Review Committee
USACE	US Army Corps of Engineers
USAEC	US Army Environmental Command
USAG-HI	US Army Garrison - Hawaii
USATHAMA	US Army Toxic and Hazardous Materials Agency (currently called USAEC)
UST	Underground Storage Tank

Installation Information

Installation Locale

Installation Size (Acreage): 367

City: Honolulu

County: Honolulu

State: Hawaii

Other Locale Information

Tripler Army Medical Center is located four-and-a-half miles northwest of downtown Honolulu on the island of Oahu, Hawaii. The military-operated hospital and support facilities cover an area of 367 acres that varies in elevation from 190 to 665 feet. It is located on the southwestern end of the Koolau Mountain Range on moderate to steeply sloping land between Moanalua and Kamananui Streams.

Installation Mission

TAMC's mission is to:

- Promote, sustain and enhance service member health
- Provide a trained and ready medical force in support of full spectrum operations with a culture of safety
- Deliver leading edge, high quality and compassionate health services to warriors, military families and veterans.

Lead Organization

IMCOM

Lead Executing Agencies for Installation

USAEC

Regulator Participation

State Hawaii Department of Health (HDOH)

National Priorities List (NPL) Status

TRIPLER ARMY MEDICAL CENTER is not on the NPL

Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status

Installation is in the process of determining interest in establishing a RAB.

Installation Program Summaries

IRP

Primary Contaminants of Concern: Dioxins/Dibenzofurans, Other (Dieldrin), Other (Lead)

Affected Media of Concern: Groundwater

CR

Primary Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Affected Media of Concern: Groundwater, Soil

5-Year / Periodic Review Summary

5-Year / Periodic Review Summary

Status	Start Date	End Date	End FY
Planned	201801	201808	2018

5-Year / Periodic Review Details

Associated ROD/DD Name	Sites
TAMC-02 Landfill (SW Border)	TAMC-02

Land Use Control (LUC) Summary

LUC Title: TAMC-02 Restrictions

Site(s): TAMC-02

ROD/DD Title: TAMC-02 Landfill (SW Border)

Location of LUC

TAMC-02 is a former unauthorized dump located in the southwestern edge of the installation.

Land Use Restriction: Landfill restriction - Prohibit activities that would impact the LF cap (or cover system) and drainage system, Landfill restriction - Prohibit excavation on LF cap or cover system, Landfill restriction - Restrict access to the site, Landfill restriction - Restrict construction of buildings that may interfere with LF cap or cover system, Landfill restriction - Restrict plantings that interfere LF cap or cover system (roots that penetrate the cap or cover system), Landfill restriction - Restrict vehicular traffic, Media specific - Prohibit activities that results in contact with contaminated sediments, Media specific restriction - Prohibit groundwater extraction that interferes with Remedial Action system, Media specific restriction - Prohibit, or otherwise manage excavation, Media specific restriction - restrict withdrawal or use of groundwater w/out treatment, Restrict land use - No residential use

Types of Engineering Controls: Fences, Signs

Types of Institutional Controls: Dig Permits, Restrictions on Groundwater Withdrawal, Restrictions on land use, Zoning

Date in Place: 200812

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200812

LUC Enforcement: Annual Inspections, 5 Year Reviews, Other

Contaminants: DIOXINS/DIBENZOFURANS, METALS, PESTICIDES

Additional Information

N/A

Cleanup Program Summary

Installation Historic Activity

Tripler Army Medical Center is an active US Army Medical Facility. This facility serves the active and retired members of the Armed Services and their dependents, pets, US Coast Guard, Commissioned Corps of the Coast and Geodetic Survey, Commissioned Corps of the Public Health Service, Veterans Administration Beneficiaries, and other eligible personnel authorized by Army Regulation 40-3.

Tripler Army Medical Center was originally constructed in 1907 at Fort Shafter. Following World War II, the existing facilities were determined inadequate to serve patient needs. In 1944, a new site was selected and construction began at its present location. In 1948, the new facilities were complete, and Tripler Army Medical Center became the largest medical facility of its time. In 1997, the Veterans' Administration also built a center for the aging on the sub-installation and is in the process of constructing an addition to the existing hospital to provide service to veterans.

The land uses of the area surrounding this sub-installation are residential and recreational (golf course) on the west, Aliamanu Military Reservation (a military housing installation) on the southwest across the H-1 Freeway, and the Red Hill naval housing area and fuel storage area, and Kaiser Permanente Moanalua Medical Center to the northwest across Moanalua Stream. To the north lie the heavily forested areas of the Koolau Mountain Range.

Installation Program Cleanup Progress

IRP

Prior Year Progress: Long-term management (LTM) will continue for TAMC-02 (landfill).

Future Plan of Action: Continue LTM for TAMC-02 (landfill).

CR

Prior Year Progress: LTM is expected to commence at CCTAMC0001 in fiscal year (FY)2013.

Future Plan of Action: LTM is expected to commence at CCTAMC0001 in FY2013. The cost-to-complete (CTC) estimate for CCTAMC0001 includes LTM for 30 years (FY2013-FY2042).

TRIPLER ARMY MEDICAL CENTER
Army Defense Environmental Restoration Program
Installation Restoration Program

IRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 8/7

Installation Site Types with Future and/or Underway Phases

1 Landfill
(TAMC-02)

Most Widespread Contaminants of Concern

Dioxins/Dibenzofurans, Other (Dieldrin), Other (Lead)

Media of Concern

Groundwater

Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
TAMC-05	UST @ BLDG 113 (WSC #8)	IRA	WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS	1993
TAMC-01	BLD 114 PESTICIDE UST (WSC #6)	FRA	WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS	1995
TAMC-03	BLD 114 PESTICIDE STG (WSC #7)	FRA	WASTE REMOVAL - SOILS	1995
TAMC-04	UST BLDG 125 POL LEAK (WSC #18)	IRA	WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS	1995
TAMC-05	UST @ BLDG 113 (WSC #8)	IRA	WASTE REMOVAL - SOILS	1995
TAMC-06	OLD TRANSFORMER SUBSTATION	FRA	WASTE REMOVAL - SOILS	1995
TAMC-07	UST WING B	FRA	WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS	1995
TAMC-11	UST BLDG 145 (AAFES)	FRA	WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS	1995
TAMC-02	TAMC LANDFILL (SW BORDER)	FRA	CAPPING	2002
TAMC-02	TAMC LANDFILL (SW BORDER)	FRA	DRAINAGE CONTROLS	2002

Duration of IRP

Date of IRP Inception: 198306

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 200709/200205

Date of IRP completion including Long Term Management (LTM): 204309

IRP Contamination Assessment

Contamination Assessment Overview

Initial investigations at Tripler Army Medical Center were conducted from 1983 through 1984 as part of the Army's installation assessment program. No significant sources of contamination were identified and no further action (NFA) was recommended.

In August 1990, the US Army Toxic and Hazardous Materials Agency (USATHAMA) conducted an assessment to establish baseline data for potential waste sites. Waste sites were broadly defined as locations from which hazardous constituents might be released into the environment, regardless of whether the material is nonhazardous or hazardous waste. The report identified 19 potential hazardous waste sites at Tripler Army Medical Center. Although the report did not differentiate between sites that are eligible for Defense Environmental Restoration Account (DERA) funds under the installation restoration program (IRP), it did form the basis of sites listed in the Army Environmental Database - Restoration (AEDB-R) database.

Since 1992, the US Army Corps of Engineers (USACE), Pacific Ocean Division has been conducting investigations and removals at various sites identified in the USATHAMA property report. These sites include AEDB-R sites TAMC-01 through TAMC-07. The primary contaminants of concern were POL, heavy metals, and pesticides. No further response action planned (NFRAP) was recommended for sites TAMC-01, TAMC-03, TAMC-05, TAMC-06, and TAMC-07 following expedited removal actions. Removal of contaminated soils at TAMC-11 was completed in 1999.

In June 1994, the US Army Environmental Hygiene Agency conducted a preliminary assessment (PA) on the remaining sites identified in the USATHAMA property report. The purpose of the PA was to determine the potential threat to human health and the environment and to identify any waste sites needing a site inspection (SI) that would be DERA eligible. The PA recommended NFRAP RC for all of the remaining sites; however after review of the PA recommendations, several sites were added to the list requiring further investigation.

The remedial investigation (RI) for the former unsanctioned dump site (TAMC-02) was completed in May 1998. The feasibility study (FS) report was finalized in February 1999. The remedial design (RD)/ RA project was initiated in 1999, and the design was completed in 2000.

In late 2003, a series of large storms washed out a portion of a storm drainage system located adjacent to TAMC-02. Some of the protective synthetic liner and soil cover were exposed along the edge of the site. Repairs and improvements to the storm drainage system were performed in two phases (Phase I and Phase II). Both phases of the storm drainage repairs and improvements are complete. Phase II construction was completed in late 2007. The decision document (DD) for the site was signed in December 2008.

The RI of the former building 125 underground storage tank (UST) (TAMC-04) site was initiated in 1999. An RI report was completed and submitted to the HDOH. The HDOH accepted the RI on Oct. 7, 2007. An NFA letter was received from the HDOH in July 2008.

Cleanup Exit Strategy

TAMC-02 has LTM requirements currently planned through 2043, to include groundwater monitoring and site cap maintenance. Current LUC for TAMC-02 include digging and land use restrictions.

IRP Previous Studies

1984	Title	Author	Date
	Installation Assessment of US Army Support Command, Hawaii, Installations - Volume I: Fort Shafter and Sub-installations: Tripler Army Medical Center, Fort Kamehameha, and Kapalama Military Reservation, Oahu, Hawaii, Report No. 338	Environmental Science and Engineering, Inc.	JAN-1984
	Installation Assessment of US Army Support Command, Hawaii. Prepared for the US Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, Maryland	Roy F. Weston, Inc.	JAN-1984
1990	Property Report. Prepared for US Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, Maryland	Roy F. Weston, Inc.	JAN-1990
1992	Testing for Polychlorinated Biphenyl Contamination, Tripler Army Medical Center, Honolulu, Oahu, Hawaii. Prepared for US Army Corps of Engineers, Pacific Ocean Division, Fort Shafter, Hawaii	Brewer Environmental Services	AUG-1992
1993	Chemical Data Acquisition Plan for Remediation of Pesticide Contaminated Soil at Building 114, Tripler Army Medical Center, Oahu, Hawaii. Prepared for US Army Corps of Engineers, Pacific Ocean Division, Fort Shafter, Hawaii by Ocean Division, Fort Shafter, Hawaii	Clayton Environmental Consultants	NOV-1993
	Remediation Action Work Plan for Remediation of Pesticide Contaminated Soil at Building 114, Tripler Army Medical Center, Oahu, Hawaii. Prepared for US Army Corps of Engineers, Pacific Ocean Division, Fort Shafter, Hawaii by Ocean Division, Fort Shafter, Hawaii	Clayton Environmental Consultants	NOV-1993
1994	Site Assessment No. 38-26-K28U-94, Waste Sites at Army Properties, Hawaii. Prepared for USARPAC and USAG-HI	U.S. Army Environmental Hygiene Agency	JAN-1994
1995	Final Interim Preliminary Assessment Report Various Sites at Tripler Army Medical Center, Honolulu, Oahu, Hawaii, for US Army Engineer District Honolulu	Dames & Moore	DEC-1995
1996	Preliminary Field Screening Investigation, Tripler Army Medical Center Unapproved dump site, Oahu, Hawaii. Prepared for US Army Garrison, Hawaii	Brewer Environmental Services	OCT-1996
1998	Comprehensive Field Investigation, Tripler Army Medical Center Landfill, Oahu, Hawaii. Prepared for US Army Garrison, Hawaii	Brewer Environmental Services	MAY-1998
1999	Remedial Alternatives and Feasibility Study, Tripler Army Medical Center Landfill, Oahu, Hawaii. Prepared for US Army Garrison, Hawaii	Brewer Environmental Services	FEB-1999
2000	Tripler Army Medical Center Landfill Final Closure Specifications	Environmental Chemical Corporation	AUG-2000

IRP Previous Studies

Year	Title	Author	Date
2004	Erosion Control Assessment of Closed Landfill, Tripler Army Medical Center	Parsons, Brinckerhoff, Quade, and Douglas, Inc.	JUL-2004
	Site Characterization and Risk Assessment, Former Building 125 USTs, Tripler Army Medical Center, Oahu, Hawaii. Prepared for US Army, Garrison, Hawaii	Edward K. Noda and Associates	JUL-2004
2005	Final Emergency Response Action Completion Report (TAMC-02), Tripler Army Medical Center, Oahu, Hawaii. Prepared for: US Army Environmental Center, Aberdeen Proving Grounds, Maryland	Versar, Inc.	OCT-2005
2006	Geotechnical Engineering Exploration FY05 Project, Drainage Improvements. Tripler Army Medical Center, Oahu, Hawaii. Prepared for R.M. Towill Corporation and US Army Corps of Engineers, Honolulu Engineer District	Geolabs, Inc.	JAN-2006
	Drainage Improvements: Tripler Army Medical Center Landfill, Oahu, Hawaii. Prepared for US Army Corps of Engineers, Honolulu Engineer District	R.M. Towill Corporation.	FEB-2006
	Final Project Work Plan, Landfill Liner Restoration, Tripler Army Medical Center, Oahu, Hawaii. Prepared for US Army Corps of Engineers.	Myounghee Noh and Associates	OCT-2006
2007	Final Remedial Investigation Report for Former Building 125 UST Site (TAMC-04)	Versar, Inc.	SEP-2007
2008	Letter Report, Phase II Drainage Improvements, Tripler Army Medical Center, Site 02, Oahu, Hawaii	Environmental Chemical Corporation	JAN-2008
	Decision Document for Tripler Army Medical Center Landfill, Site 02, Oahu, HI	ECC	DEC-2008
2012	Decision Document to Support No Further Action. Site TAMC-06 (Old Transformer Substation), TAMC, Oahu, Hawaii	CH2 MHill	NOV-2012

TRIPLER ARMY MEDICAL CENTER
Installation Restoration Program
Site Descriptions

Site ID: TAMC-02

Site Name: TAMC LANDFILL (SW BORDER)

STATUS

Regulatory Driver: CERCLA

RRSE: HIGH

Contaminants of Concern: Dioxins/Dibenzofurans, Other (Lead), Pesticides

Media of Concern: Groundwater, Soil

Phases	Start	End
PA.....	198306.....	198408
SI.....	198306.....	198408
RI/FS.....	199210.....	199809
RD.....	199811.....	200009
RA(C).....	199811.....	200205
LTM.....	200209.....	204309

RIP Date: N/A

RC Date: 200205

SITE DESCRIPTION

Site TAMC-02 is a former unsanctioned dump located in the southwestern section of Tripler Army Medical Center. Available historic records indicate that the commencement date of the dump site is unknown; however, past research has shown that the unlined site (3.2 acres) was used from approximately 1947 through 1974, and could have been as early as 1944. The area was quarried prior to dumping operations, and early use of the site was associated with hospital construction activities conducted from 1944 through 1947. During later years, the dump site reportedly received incinerator ash, laboratory wastes, oil/solvent, and other waste items from Tripler Army Medical Center, as well as nearby military post, Fort Shafter. The dump site is approximately 450 feet long, north to south, and varies in width from 250 to 310 feet east to west. The wastes were placed on grade, or in shallow trenches, which were covered with soil. Maximum thickness of the wastes has been documented at 28 feet.

In 2002, a landfill cap was constructed at TAMC-02. The landfill cap consists of (from top to bottom): six inches of vegetative soil; 1.5 feet of cover soil; a geocomposite drainage layer; a 40-millimeter textured geomembrane barrier layer; and imported fill. The cap was designed to prevent significant infiltration into the dump wastes and prevent any erosion from washing contaminated soils off the site. The dump site surface was re-graded to direct surface flow to the west and south and to provide a flatter, smoother surface. The steep side slopes were cut back to flatter slopes. These grading improvements were made to reduce erosion and allow easier access. Surface water drainage control structures were installed at the site to control the surface water flows.

In late 2003, a series of large storms washed out part of an adjacent storm drain system and eroded the southwestern edge of the unapproved dump site cap, exposing the membrane liner. Phase I reconstruction of the drainage channel was conducted in November 2005. This phase was designed as an interim solution and intended to address the most critical areas of the drainage channel.

A performance-based acquisition (PBA) contract was awarded in September 2006. Under the PBA, Phase II construction of the storm drainage system was completed in late 2007, which included a more comprehensive re-construction and repair of the drainage channel. The PBA covers LTM requirements. The PBA will end in 2016.

The site is currently in LTM and CTC estimates are fixed by contract for post closure LTM through December 2014. In December 2008, the DD for the site was approved and signed by the US Army Garrison-Hawaii commander, and the HDOH. Additional LUC restrictions for TAMC-02 include fencing, signage, and prohibition of excavation. A RAB solicitation last occurred for this site FY2011.

The first five-year review for TAMC-02 was conducted in FY13. The review found no major issues with the implemented remedy. Also, discontinuation of all groundwater sampling was recommended. The next five-year review will be conducted in FY18.

CLEANUP/EXIT STRATEGY

Site ID: TAMC-02
Site Name: TAMC LANDFILL (SW BORDER)

Implementation of LTM is ongoing at the site and will continue through 2043. The LTM includes regular inspection and maintenance of the site cap, groundwater monitoring, and drainage channel maintenance on a semiannual basis. LUC restrictions are in place which include fencing, signage, and digging restrictions. A semiannual LTM report is prepared and submitted to HDOH. A five-year review will be conducted in FY14. The LTM funding is tracked under the PBA contract.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
TAMC-01	BLD 114 PESTICIDE UST (WSC #6)	199412	Remediation of Pesticide Contaminated Soil at Building 114, Tripler Army Medical Center, Oahu, Hawaii, Clayton Environmental Consultants, 1994; NFA letter from HDOH dated 12-22-95
TAMC-03	BLD 114 PESTICIDE STG (WSC #7)	199603	Remediation of Pesticide Contaminated Soil at Building 114, Tripler Army Medical Center, Oahu, Hawaii, Clayton Environmental Consultants, 1994; NFA letter from HDOH dated 12-22-95
TAMC-04	UST BLDG 125 POL LEAK (WSC #18)	200709	The RI (2007) determined that no RAs were needed at the site. An NFA letter was received in 2008.
TAMC-05	UST @ BLDG 113 (WSC #8)	199510	Long Term Release Response Report, Tripler Army Medical Center, Site 113-9, 10 & SP, Removal of USTs at Various US Army Facilities, Hawaii, 1995
TAMC-06	OLD TRANSFORMER SUBSTATION	201212	Decision Document to Support No Further Action Site TAMC-06, (Old Transformer Substation), Tripler Army Medical Center, Oahu, Hawaii. November 2012
TAMC-07	UST WING B	199412	NFA based on the report titled "Removal of Underground Fuel Storage Tanks, Various US Army Facilities, HI - Tripler Army Medical Center Final Closure Report Wing B 001-A" by Morrison Knudsen Corporation.
TAMC-11	UST BLDG 145 (AAFES)	199412	NFA based on the report titled "Removal of Underground Fuel Storage Tanks, Various US Army Facilities, HI - Tripler Army Medical Center Site Assessment Tank Site 145-3" by Morrison Knudsen Corporation.

IRP Schedule

Date of IRP Inception: 198306

Past Phase Completion Milestones

1984

PA (TAMC-02 - TAMC LANDFILL (SW BORDER), TAMC-04 - UST BLDG 125 POL LEAK (WSC #18), TAMC-06 - OLD TRANSFORMER SUBSTATION)
 SI (TAMC-02 - TAMC LANDFILL (SW BORDER), TAMC-06 - OLD TRANSFORMER SUBSTATION)

1990

RFA (TAMC-01 - BLD 114 PESTICIDE UST (WSC #6))
 ISC (TAMC-05 - UST @ BLDG 113 (WSC #8))
 SI (TAMC-03 - BLD 114 PESTICIDE STG (WSC #7))
 INV (TAMC-05 - UST @ BLDG 113 (WSC #8))
 PA (TAMC-03 - BLD 114 PESTICIDE STG (WSC #7))

1993

SI (TAMC-04 - UST BLDG 125 POL LEAK (WSC #18))

1994

ISC (TAMC-07 - UST WING B)

1995

RA(C) (TAMC-03 - BLD 114 PESTICIDE STG (WSC #7), TAMC-06 - OLD TRANSFORMER SUBSTATION)
 INV (TAMC-11 - UST BLDG 145 (AAFES))
 ISC (TAMC-11 - UST BLDG 145 (AAFES))
 IRA (TAMC-04 - UST BLDG 125 POL LEAK (WSC #18), TAMC-05 - UST @ BLDG 113 (WSC #8))
 CMI(C) (TAMC-01 - BLD 114 PESTICIDE UST (WSC #6))
 CAP (TAMC-05 - UST @ BLDG 113 (WSC #8))
 IMP(C) (TAMC-07 - UST WING B, TAMC-11 - UST BLDG 145 (AAFES))
 CS (TAMC-01 - BLD 114 PESTICIDE UST (WSC #6))

1998

RI/FS (TAMC-02 - TAMC LANDFILL (SW BORDER))

2000

RD (TAMC-02 - TAMC LANDFILL (SW BORDER))

2002

RA(C) (TAMC-02 - TAMC LANDFILL (SW BORDER))

2007

RI/FS (TAMC-04 - UST BLDG 125 POL LEAK (WSC #18))

Projected Phase Completion Milestones

See attached schedule

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

Site ID	Site Name	ROD/DD Title	ROD/DD Date
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Final RA(C) Completion Date: 200205

Schedule for Next Five-Year Review: 2018

Estimated Completion Date of IRP at Installation (including LTM phase): 204309

TRIPLER ARMY MEDICAL CENTER IRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
TAMC-02	TAMC LANDFILL (SW BORDER)	LTM						

TRIPLER ARMY MEDICAL CENTER
Army Defense Environmental Restoration Program
Compliance Restoration

CR Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 2/1

Installation Site Types with Future and/or Underway Phases

1 Soil Contamination After Tank Removal
(CCTAMC0001)

Most Widespread Contaminants of Concern

Petroleum, Oil and Lubricants (POL)

Media of Concern

Groundwater, Soil

Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
CCTAMC000 3	TAMC 137 Central Plant	FRA	WASTE REMOVAL - SOILS	2011
CCTAMC000 1	TAMC 145 UST Site	FRA	WASTE REMOVAL - SOILS	2013

Duration of CR

Date of CR Inception: 199911

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201301/201301

Date of CR completion including Long Term Management (LTM): 204209

CR Contamination Assessment

Contamination Assessment Overview

Environmental restoration activities at the Tripler Army Medical Center include the IRP and the Military Munitions Program (MMRP). On Dec. 29, 2008, the Office of the Deputy Under Secretary of Defense for Installations and Environment (ODUSD I&E) issued an interim policy for Defense Environmental Restoration Program (DERP) eligibility that rescinded the 1986 eligibility date for the IRP and the 2002 eligibility date for the MMRP. This made many sites previously addressed in the Army's Compliance-related Cleanup (CC) program eligible for the DERP. Sites that are now eligible for the MMRP have been migrated from Army Environmental Database - Compliance-related Cleanup (AEDB-CC) and given the naming convention of other munitions response (MR) sites. The newly eligible non-MR type sites are considered to be Installation Restoration (IR) sites; however, the newly eligible sites are being coded as Compliance Restoration (CR) in AEDB-R to distinguish them from the original IR sites and IR metrics.

Cleanup Exit Strategy

Petroleum impacted soils have been removed at the CCTAMC0001 TAMC 145 UST Site and LTM is expected for at least 30 years.

CR Previous Studies

	Title	Author	Date
2009	Remedial Investigation Report Building 144/145 Remedial Investigation TAMC, Oahu, Hawaii	Element Environmental LLC	AUG-2009
2010	Site Characterization Report CCTAMC0001 TAMC 144-145 UST Site Hawaii Phase II MMRP Compliance Related Cleanup, Oahu, Hawaii	Weston Solutions, Inc.	DEC-2010
2011	Final UST Closure Report CCTAMC0003 TAMC 137 UST Site Facility ID No. 9-102014 Hawaii Phase II MMRP CR Cleanup Oahu, Hawaii	Weston Solutions, Inc.	FEB-2011
2012	Final Remedial Action Completion Report & Environmental Hazard Evaluation CCTAMC0001 TAMC 144-145 UST Site Hawaii Phase II Compliance Related Cleanup, Oahu, HI	Weston Solutions, Inc	SEP-2012

TRIPLER ARMY MEDICAL CENTER

Compliance Restoration

Site Descriptions

Site ID: CCTAMC0001
Site Name: TAMC 145 UST Site

STATUS

Regulatory Driver: RCRA
Contaminants of Concern: Petroleum, Oil and Lubricants (POL)
Media of Concern: Groundwater, Soil

Phases	Start	End
ISC.....	199911.....	200304
INV.....	200305.....	201011
DES.....	201003.....	201106
IMP(C).....	201101.....	201301
LTM.....	201301.....	204209

RIP Date: N/A
RC Date: 201301

SITE DESCRIPTION

TAMC 145 UST Site is a former gas station (buildings 144/145) which was in operation from 1980 to 1998. Three USTs were installed on-site in 1980: TAMC 145-1 (10,000 gallons), TAMC 145-2 (3,000 gallon), and TAMC-145-3 (3,000-gallons). UST 145-3 was taken out of service and removed in 1994; USTs 145-1 and 145-2 were removed in 1999. The buildings and all existing above- and below- ground equipment were removed in 2001. Currently the site is an open, unpaved area. Four previous investigations (1994, 1998, 2002, and 2008) were conducted at the site to delineate the extent of contaminated soil and perched groundwater which were encountered during the tank removals. Contaminants of potential concern (COPC) include total petroleum hydrocarbons (TPH)-GPO, benzene, toluene, ethylbenzene, xylene (BTEX), naphthalene, and tertiary-butyl alcohol (TBA).

Four previous investigations (1994, 1998, 2002, and 2008) were conducted at the site to delineate the extent of contaminated soil and perched groundwater which were encountered during the tank removals. COPC include TPH-GPO, BTEX, naphthalene, and TBA. Weston Solutions, Inc. (Weston) conducted a facility investigation at the site and submitted a Site Characterization Report in December 2010. Soil borings and groundwater sampling were used to delineate the extent of soil contamination to bedrock, and assess the potential migration of contaminants to the basal aquifer. The site characterization report recommended source removal and the installation of an impermeable barrier to prevent leaching to groundwater. The corrective measures study and implementation are fully funded under a PBA contract.

HDOH has given an email concurrence to issuing an NFA letter for this site. The letter is currently being drafted at HDOH and is expected to be sent to the Army within the next two to three months.

CLEANUP/EXIT STRATEGY

RIP/RC was achieved by January 2013 and has already been funded. LTM is required starting in FY13.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
CCTAMC0003	TAMC 137 Central Plant	201102	DOH No Further Action at UST TAMC 137-3 (Facility ID NO. 9-102014), Tripler Army Medical Center, Oahu, Hawaii Letter addressed February 9, 2011 and Final UST Closure Report CCTAMC0003 TAMC 137 UST Site Facility ID No. 9-102014 Hawaii Phase II MMRP CR Cleanup Oahu, Hawaii. February, 2011

CR Schedule

Date of CR Inception: 199911

Past Phase Completion Milestones

2000

ISC (CCTAMC0003 - TAMC 137 Central Plant)

2003

ISC (CCTAMC0001 - TAMC 145 UST Site)

2010

DES (CCTAMC0003 - TAMC 137 Central Plant)

INV (CCTAMC0003 - TAMC 137 Central Plant)

2011

IMP(C) (CCTAMC0003 - TAMC 137 Central Plant)

DES (CCTAMC0001 - TAMC 145 UST Site)

INV (CCTAMC0001 - TAMC 145 UST Site)

Projected Phase Completion Milestones

See attached schedule

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

To Be Determined

Final RA(C) Completion Date: 201301

Schedule for Next Five-Year Review: 2018

Estimated Completion Date of CR at Installation (including LTM phase): 204209

TRIPLER ARMY MEDICAL CENTER CR Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
CCTAMC0001	TAMC 145 UST Site	LTM						

Community Involvement

Technical Review Committee (TRC): None

Community Involvement Plan (Date Published): TBD

Restoration Advisory Board (RAB): No

Reason Not Established: Installation is in the process of determining interest in establishing a RAB.

Additional Community Involvement Information

A community involvement plan has not been developed. A RAB was solicited in FY10. The USAG-HI solicited interest in a RAB in the Honolulu Star-Advertiser on July 24, 25, and 26, 2011, but no sustained interest was received from the community. USAG-HI plans to solicit interest in FY2013.

Administrative Record is located at

Directorate of Public Works
948 Santos Dumont Ave, Bldg. 105
Wheeler AAF, Schofield Barracks, HI 96857-5013

Information Repository is located at

Salt Lake / Moanalua Public Library
3225 Salt Lake Blvd.
Honolulu, HI 96818
(808) 831-6831

Current Technical Assistance for Public Participation (TAPP):N/A

TAPP Title: N/A

Potential TAPP: N/A

