

Sharpe Army Depot

Army Cleanup Program

Final

September 2022

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STATEMENT OF PURPOSE

The Installation Action Plan (IAP) provides evidence that the Army is firmly committed to expeditious identification and cleanup of environmental contamination, and that the installation has a credible, organized program to carry out that commitment. The IAP provides an outline of the total multi-year environmental cleanup program for each site with ongoing or future planned restoration activity and includes the (1) environmental restoration requirements, (2) the rationale for the selected technical approach, and (3) foundation to develop corresponding financial needs for each cleanup site.

INSTALLATION OVERVIEW

Installation Name: Sharpe Army Depot

Installation City: Lathrop

Installation County: San Joaquin

Installation State: California

Regulatory Participation - Federal: US Environmental Protection Agency (USEPA)

Regulatory Participation - State: California Department of Toxic Substances Control and Regional Water Quality Control Board

ACRONYMS

Acronym	Definition
1,2,3-TCP	1,2,3-Trichloropropane
AEDB-R	Army Environmental Database - Restoration
CC	Compliance-related Cleanup
CCl4	Carbon Tetrachloride
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
COC	Contaminant of Concern
CPT	Cone Penetrometer Test
Cr6	Hexavalent Chromium
CVWB	Central Valley Regional Water Quality Control Board
DD	Decision Document
ENV	Environmental
ESD	Explanation of Significant Differences
FFA	Federal Facility Agreement
FS	Feasibility Study
GAC	Granulated Activated Carbon
GWTP	Groundwater Treatment Plant
GWTS	Groundwater Treatment System
H&S	Health and Safety
HQAES	Headquarters Army Environmental System
IC	Institutional Controls
IR	Installation Restoration
IRA	Interim Remedial Action
IWTP	Industrial Waste Treatment Plant
KMNO4	Potassium Permanganate
LTM	Long-Term Management
LUC	Land Use Control
MR	Munitions Response
MRSP	Munitions Response Site Prioritization Protocol
NFA	No Further Action
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
PA	Preliminary Assessment
PAH	Polynuclear Aromatic Hydrocarbons
PFAS	Polyfluoroalkyl Substances
PLC	Programmable Logic Controller

Acronym	Definition
QAPP	Quality Assurance Project Plan
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operations)
RACR	Remedial Action Completion Report
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI	Remedial Investigation
RIP	Remedy-in-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
RSL	Regional Screening Level
SCADA	Supervisory Control and Data Acquisition
SI	Site Inspection
SVE	Soil Vapor Extraction
TCE	Trichloroethene
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank
UU/UE	Unlimited Use/Unrestricted Exposure
VFD	Variable Frequency Drive
VOC	Volatile Organic Compound

PHASE TRANSLATION TABLE

HQAES Phase ID	CERCLA Phase	RCRA Phase	RCRA UST Phase
.01	Preliminary Assessment (PA)	RCRA Facility Assessment (RFA)	Initial Site Characterization (ISC)
.02	Site Inspection (SI)	Confirmation Sampling (CS)	Investigation (INV)
.03	Remedial Investigation/ Feasibility Study (RI/FS)	RCRA Facility Investigation/Corrective Measures Study (RFI/CMS)	Corrective Action Plan (CAP)
.04	Remedial Design (RD)	Design (DES)	Design (DES)
.05	Interim Remedial Action (IRA)	Interim Measure (IM)	Interim Remedial Action (IRA)
.06	Remedial Action (Construction) (RA(C))	Corrective Measures Implementation (Construction) (CMI(C))	Implementation (Construction) (IMP(C))
.07	Remedial Action (Operations) (RA(O))	Corrective Measures Implementation (Operations) (CMI(O))	Implementation (Operations) (IMP(O))
.08	Long-Term Management (LTM)	Long-Term Management (LTM)	Long-Term Management (LTM)

PROGRAM SUMMARY

Number of Open Sites with Response Complete/Total Open IR Sites: 6/19

Number of Open Sites with Response Complete/Total Open MR Sites: 0/0

Number of Open Sites with Response Complete/Total Open CC Sites: 0/0

SITE-LEVEL INFORMATION

06806.1001

Legacy ID: SHAD-001 (P1)_SOUTH BALLON AREA, GW PLUM

Alias: #

Regulatory Driver: CERCLA

RIP Date: 9/15/1988

RC Date: 9/15/2052

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 73

RRSE: High

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	2/15/1983
RI/FS:	2/15/1983	3/15/1987
RD:	6/15/1984	3/15/1987
IRA:	--	--
RA(C):	3/15/1987	9/15/1988
RA(O):	3/15/1987	9/15/2052
LTM:	--	--

Site Narrative: The South Balloon Groundwater Treatment System (GWTS) started full time operation in March 1987. In 1993, the OU-1 Record of Decision (ROD) was signed. Long-term operations and remedial optimization continue. In 2002, a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) preliminary site closeout report was completed. In 2005, a decision was made to discontinue off-site discharge and not renew the National Pollutant Discharge Elimination System (NPDES) permit. In 2008, cone penetrometer testing (CPT) investigations were conducted to collect and analyze soil vapor and groundwater data in the North Balloon, Central, and South Balloon areas. These investigations were performed to support remedial decisions to address contaminant of concern (COC) in the vadose zone, and to provide data to support optimization and enhancement of the remedy for COCs in groundwater beneath and down gradient from the installation. The investigation identified elevated trichloroethene (TCE) concentrations in an aquitard between the A and B hydrogeologic zones that will not be effectively remediated with the pump-and-treat system. In 2009, in situ pilot studies were conducted. In 2014, a final OU-1 Explanation of Significant Differences (ESD) was signed that enhanced the pump-and-treat remedy by adding in situ remediation to target volatile organic compound (VOC) concentrations in fine grained soils and also added land use controls (LUC). In 2015, a full-scale in situ remedial action (hydraulic fracturing and potassium permanganate (KMnO4) injection) was conducted in the South Balloon. LUC inspections were performed annually. The remedial action (operations) (RA(O)) phase end dates extend to 2121 based on most recent documented groundwater modeling. The groundwater model is updated annually. Per the OU-1 ROD, groundwater is extracted and treated at the South Balloon Groundwater Treatment Plant (GWTP), which uses air strippers to remove VOCs, to prevent further migration of contaminated groundwater and capture the contaminant plumes. Treated groundwater is discharged to percolation ponds located on the depot. The goal of this remedial action is to restore groundwater to its beneficial reuse. A portion of the plume is also being treated in situ with KMnO4. In FY21, four new monitoring wells were installed in the South Balloon to better define the groundwater plume boundaries, and three new extraction wells were installed on the west side of South Balloon; two of which were installed to treat carbon tetrachloride (CCl4) contamination. The 2021 Groundwater Treatment System Optimization Evaluation recommended the

aging South Balloon GWTS be consolidated with the Central Area and North Balloon GWTSs, that carbon adsorption be used for treatment, and that an alternative power source (i.e., solar) be used. The 2020 Percolation Pond Capacity and Discharge Alternatives Analysis Report recommended a new percolation pond be installed on the east side of the South Balloon, or the existing pond be expanded. Cleanup exit strategy- Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for unlimited use/unrestricted exposure (UU/UE), five-year remedy reviews will continue indefinitely. The two-year monitoring period for the KMnO₄ in situ treatment was completed in 3Q18. Future actions include possible additional in situ injections, preparation of sampling, quality assurance project plan (QAPP), and health and safety (H&S) plans; groundwater monitoring and reporting; GWTS operation and maintenance (O&M) (for the South Balloon areas) and reporting; federal facility agreement (FFA) progress reporting; five-year review reporting and treatment system O&M manual and system updates to include programmable logic controllers (PLC), pumps, supervisory control and data acquisition (SCADA) systems and variable frequency drives (VFD), and a new 60-foot radio tower at the South Balloon GWTP. The Army installed security fences around extraction wells for protection. The cost to complete for FY22 incorporates activities related to the build of a new groundwater treatment plant capable of treating emergent contaminants including perfluorooctanoic acid, perfluorooctane sulfonic acid, 1,2,3-trichloropropane (1,2,3-TCP), and non-volatile COCs.

06806.1002

Legacy ID: SHAD-002 (P2)_S. RUNWAY AREA
GW

Alias: #

Regulatory Driver: CERCLA

RIP Date: 1/15/1994

RC Date: 9/15/2052

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 73

RRSE: Medium

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	--	--
RI/FS:	--	--
RD:	--	--
IRA:	--	--
RA(C):	3/15/1987	9/15/1988
RA(O):	1/15/1994	9/15/2052
LTM:	--	--

Site Narrative: The South Balloon GWTS started full time operation in March 1987. In 1993, the OU-1 ROD was signed. Long-term operations and remedial optimization continue. In 2002, a CERCLA preliminary site closeout report was completed. In 2005, a decision was made to discontinue off-site discharge and not renew the NPDES permit. In 2008, CPT investigations were conducted to collect and analyze soil vapor and groundwater data in the North Balloon, Central, and South Balloon areas. These investigations were performed to support remedial decisions to address COC in the vadose zone, and to provide data to support optimization and enhancement of the remedy for COCs in groundwater beneath and down gradient from the installation. The investigation identified elevated TCE concentrations in an aquitard between the A and B hydro-geologic zones that will not be effectively remediated with the pump-and-treat system. In 2009, in situ pilot studies were conducted. In 2014, a final OU-1 ESD was signed that enhanced the pump-and-treat remedy by adding in situ remediation to target VOC concentrations in fine grained soils and also added LUCs. In 2015, a full-scale in situ remedial action (hydraulic fracturing and KMnO4 injection) was conducted in the South Balloon. LUC inspections were performed annually. The RA(O) phase end dates extend to 2121 based on most recent documented groundwater modeling. The groundwater model is updated annually. Per the OU-1 ROD, groundwater is extracted and treated at the South Balloon GWTP, which uses air strippers to remove VOCs, to prevent further migration of contaminated groundwater and capture the contaminant plumes. Treated groundwater is discharged to percolation ponds located on the depot. The goal of this remedial action is to restore groundwater to its beneficial reuse. A portion of the plume is also being treated in situ with KMnO4. The 2021 Groundwater Treatment System Optimization Evaluation recommended the aging South Balloon GWTS be consolidated with the Central Area and North Balloon GWTSs, that carbon adsorption be used for treatment, and that an alternative power source (i.e., solar) be used. The 2020 Percolation Pond Capacity and Discharge Alternatives Analysis Report recommended a new percolation pond be installed on the east side of the South Balloon, or the existing pond be expanded. Cleanup exit strategy- Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely. The two-year monitoring period for the KMnO4 in situ treatment was completed in 3Q18.

Future actions include possible additional in situ injections, preparation of sampling, QAPP, and H&S plans; groundwater monitoring and reporting; GWTS O&M (for the South Balloon areas) and reporting; FFA progress reporting; five-year review reporting and treatment system O&M manual and system updates to include PLC's, pumps, SCADA systems, VFD's, and a new 60-foot radio tower at the South Balloon GWTP. The Army installed security fences around extraction wells for protection. Cleanup activities are carried under SHAD-001, 06806.1001.

06806.1003

Legacy ID: SHAD-003 (P3)_W. OF BLDG 508 GW

Alias: #

Regulatory Driver: CERCLA

RIP Date: 1/15/1994

RC Date: 9/15/2052

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 73

RRSE: Medium

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	--	--
RI/FS:	--	--
RD:	--	--
IRA:	--	--
RA(C):	3/15/1987	9/15/1988
RA(O):	1/15/1994	9/15/2052
LTM:	--	--

Site Narrative: The South Balloon GWTS started full time operation in March 1987. In 1993, the OU-1 ROD was signed. Long-term operations and remedial optimization continue. In 2002, a CERCLA preliminary site closeout report was completed. In 2005, a decision was made to discontinue off-site discharge and not renew the NPDES permit. In 2008, CPT investigations were conducted to collect and analyze soil vapor and groundwater data in the North Balloon, Central, and South Balloon areas. These investigations were performed to support remedial decisions to address COC in the vadose zone, and to provide data to support optimization and enhancement of the remedy for COCs in groundwater beneath and down gradient from the installation. The investigation identified elevated TCE concentrations in an aquitard between the A and B hydro-geologic zones that will not be effectively remediated with the pump-and-treat system. In 2009, in situ pilot studies were conducted. In 2014, a final OU-1 ESD was signed that enhanced the pump-and-treat remedy by adding in situ remediation to target VOC concentrations in fine grained soils and also added LUCs. In 2015, a full-scale in situ remedial action (hydraulic fracturing and KMnO₄ injection) was conducted in the South Balloon. LUC inspections were performed annually. The RA(O) phase end dates extend to 2121 based on most recent documented groundwater modeling. The groundwater model is updated annually. Per the OU-1 ROD, groundwater is extracted and treated at the South Balloon GWTP, which uses air strippers to remove VOCs, to prevent further migration of contaminated groundwater and capture the contaminant plumes. Treated groundwater is discharged to percolation ponds located on the depot. The goal of this remedial action is to restore groundwater to its beneficial reuse. A portion of the plume is also being treated in situ with KMnO₄. The 2021 Groundwater Treatment System Optimization Evaluation recommended the aging South Balloon GWTS be consolidated with the Central Area and North Balloon GWTSs, that carbon adsorption be used for treatment, and that an alternative power source (i.e., solar) be used. The 2020 Percolation Pond Capacity and Discharge Alternatives Analysis Report recommended a new percolation pond be installed on the east side of the South Balloon, or the existing pond be expanded. Cleanup exit strategy- Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely. The two-year monitoring period for the KMnO₄ in situ treatment was completed in 3Q18. Future actions include possible additional in situ injections, preparation of sampling, QAPP, and H&S

plans; groundwater monitoring and reporting; GWTS O&M (for the South Balloon areas) and reporting; FFA progress reporting; five-year review reporting and treatment system O&M manual and system updates to include PLC's, pumps, SCADA systems, VFD's, and a new 60-foot radio tower at the South Balloon GWTP. The Army installed security fences around extraction wells for protection. Cleanup activities are carried under SHAD-001, 06806.1001.

06806.1004

Legacy ID: SHAD-004 (P4)_CENTRAL AREA 1
(GW)- WEST

Alias: #

Regulatory Driver: CERCLA

RIP Date: 6/15/1995

RC Date: 9/15/2052

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 73

RRSE: Medium

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	2/15/1983
RI/FS:	2/15/1983	11/15/1991
RD:	1/15/1993	2/15/1994
IRA:	--	--
RA(C):	3/15/1987	6/14/1995
RA(O):	6/15/1995	9/15/2052
LTM:	--	--

Site Narrative: Central Area GWTS started full time operation in June 1995. In 1993, the OU-1 ROD was signed. Long-term operations and remedial optimization continue. In 2002, a CERCLA preliminary site closeout report was completed. In 2005, a decision was made to discontinue off-site discharge and not renew the NPDES Permit. In 2008, CPT investigations were conducted to collect and analyze soil vapor and groundwater data in the North Balloon, Central, and South Balloon areas. These investigations were performed to support remedial decisions to address COC in the vadose zone, and to provide data to support optimization and enhancement of the remedy for COCs in groundwater beneath and down gradient from the installation. The investigation identified elevated TCE concentrations in an aquitard between the A and B hydro-geologic zones that will not be effectively remediated with the pump-and-treat system. In 2009, in situ pilot studies were conducted. In 2014, a final OU-1 ESD was signed that enhanced the pump-and-treat remedy by adding in situ remediation to target VOC concentrations in fine grained soils and also added LUCs. In 2015, a full-scale in situ remedial action (hydraulic fracturing and KMnO4 injection) was conducted in the Central Area. LUC inspections were performed annually. The RA(O) phase end dates extend to 2121 based on most recent documented groundwater modeling. The groundwater model is updated annually. Per the OU-1 ROD, groundwater is extracted and treated at the Central Area GWTP, which uses air strippers to remove VOCs, to prevent further migration of contaminated groundwater and capture the contaminant plumes. Treated groundwater is discharged to percolation ponds located on the depot. The goal of this remedial action is to restore groundwater to its beneficial reuse. A portion of the plume is also being treated in situ with KMnO4. Decommissioning of the old A zone infrastructure occurred in FY19. The Army removed old blowers, and the granulated activated carbon (GAC) units which were no longer serving a purpose. Two new extraction wells located off-site west of the installation, were installed in FY19, new conveyance and conduit lines were installed in FY21, and the wells began operating in FY21. Security fencing was installed around Central Area extraction wells in FY20 and FY21. The 2021 Groundwater Treatment System Optimization Evaluation recommended the aging Central Area GWTS be consolidated with the Central Area and North Balloon GWTSs, that carbon adsorption be used for treatment, and that an alternative power source (i.e., solar) be used. Cleanup exit strategy- Because hazardous substances, pollutants, or contaminants will remain

at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely. Future actions include possible re-in situ injections, preparation of sampling, QAPP, and H&S plans; groundwater monitoring and reporting; GWTS O&M (for the Central Area) and reporting; FFA progress reporting; five-year review reporting and treatment system O&M manual and system updates to include PLC's, pumps, SDADA systems, VFD's, and a new 60-foot radio tower at the Centra Area GWTP. Cleanup activities are carried under SHAD-001, 06806.1001.

06806.1005

Legacy ID: SHAD-005 (P5)_CENTRAL AREA 2 GW
WEST P

Alias: #

Regulatory Driver: CERCLA

RIP Date: 6/15/1995

RC Date: 9/15/2052

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 73

RRSE: Medium

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	2/15/1983
RI/FS:	2/15/1983	11/15/1991
RD:	1/15/1993	2/15/1994
IRA:	--	--
RA(C):	3/15/1987	6/14/1995
RA(O):	6/15/1995	9/15/2052
LTM:	--	--

Site Narrative: Central Area GWTS started full time operation in June 1995. In 1993, the OU-1 ROD was signed. Long term operations and remedial optimization continue. In 2002, a CERCLA preliminary site closeout report was completed. In 2005, a decision was made to discontinue off-site discharge and not renew the NPDES Permit. In 2008, CPT investigations were conducted to collect and analyze soil vapor and groundwater data in the North Balloon, Central, and South Balloon areas. These investigations were performed to support remedial decisions to address COC in the vadose zone, and to provide data to support optimization and enhancement of the remedy for COCs in groundwater beneath and down gradient from the installation. The investigation identified elevated TCE concentrations in an aquitard between the A and B hydro-geologic zones that will not be effectively remediated with the pump-and-treat system. In 2009, in situ pilot studies were conducted. In 2014, a final OU-1 ESD was signed that enhanced the pump-and-treat remedy by adding in situ remediation to target VOC concentrations in fine grained soils and also added LUCs. In 2015, a full-scale in situ remedial action (hydraulic fracturing and KMnO4 injection) was conducted in the Central Area. LUC inspections were performed annually. The RA(O) phase end dates extend to 2121 based on most recent documented groundwater modeling. The groundwater model is updated annually. Per the OU-1 ROD, groundwater is extracted and treated at the Central Area GWTP, which uses air strippers to remove VOCs, to prevent further migration of contaminated groundwater and capture the contaminant plumes. Treated groundwater is discharged to percolation ponds located on the depot. The goal of this remedial action is to restore groundwater to its beneficial reuse. A portion of the plume is also being treated in situ with KMnO4. Decommissioning of the old A zone infrastructure occurred in FY19. The Army removed old blowers, and the GAC units which were no longer serving a purpose. Two new extraction wells located off-site west of the installation, were installed in FY19, new conveyance and conduit lines were installed in FY21, and the wells began operating in FY21. Security fencing was installed around Central Area extraction wells in FY20 and FY21. The 2021 Groundwater Treatment System Optimization Evaluation recommended the aging Central Area GWTS be consolidated with the Central Area and North Balloon GWTSS, that carbon adsorption be used for treatment, and that an alternative power source (i.e., solar) be used. Cleanup exit strategy- Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations

exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely. Future actions include possible re-in situ injections, preparation of sampling, QAPP, and H&S plans; groundwater monitoring and reporting; GWTS O&M (for the Central Area) and reporting; FFA progress reporting; five-year review reporting and treatment system O&M manual and system updates to include PLC's, pumps, SCADA systems, VFD's, and a new 60-foot radio tower at the Centra Area GWTP. Cleanup activities are carried under SHAD-001, 06806.1001.

06806.1006

Legacy ID: SHAD-006 (P6)_N. RUNWAY AREA
GW PLUME 6

Alias: #

Regulatory Driver: CERCLA

RIP Date: 6/15/1995

RC Date: 9/15/2052

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 73

RRSE: Medium

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	2/15/1983
RI/FS:	2/15/1983	11/15/1991
RD:	1/15/1993	2/15/1994
IRA:	--	--
RA(C):	3/15/1987	6/14/1995
RA(O):	6/15/1995	9/15/2052
LTM:	--	--

Site Narrative: Central Area GWTS started full time operation in June 1995. In 1993, the OU-1 ROD was signed. Long-term operations and remedial optimization continue. In 2002, a CERCLA preliminary site closeout report was completed. In 2005, a decision was made to discontinue off-site discharge and not renew the NPDES Permit. In 2008, CPT investigations were conducted to collect and analyze soil vapor and groundwater data in the North Balloon, Central, and South Balloon areas. These investigations were performed to support remedial decisions to address COC in the vadose zone, and to provide data to support optimization and enhancement of the remedy for COCs in groundwater beneath and down gradient from the installation. The investigation identified elevated TCE concentrations in an aquitard between the A and B hydro-geologic zones that will not be effectively remediated with the pump-and-treat system. In 2009, in situ pilot studies were conducted. In 2014, a final OU-1 ESD was signed that enhanced the pump-and-treat remedy by adding in situ remediation to target VOC concentrations in fine grained soils and also added LUCs. In 2015, a full-scale in situ remedial action (hydraulic fracturing and KMnO4 injection) was conducted in the Central Area. LUC inspections were performed annually. The RA(O) phase end dates extend to 2121 based on most recent documented groundwater modeling. The groundwater model is updated annually. Per the OU-1 ROD, groundwater is extracted and treated at the Central Area GWTP, which uses air strippers to remove VOCs, to prevent further migration of contaminated groundwater and capture the contaminant plumes. Treated groundwater is discharged to percolation ponds located on the depot. The goal of this remedial action is to restore groundwater to its beneficial reuse. A portion of the plume is also being treated in situ with KMnO4. Decommissioning of the old A zone infrastructure occurred in FY19. The Army removed old blowers, and the GAC units which were no longer serving a purpose. Two new extraction wells located off-site west of the installation, were installed in FY19, new conveyance and conduit lines were installed in FY21, and the wells began operating in FY21. Security fencing was installed around Central Area extraction wells in FY20 and FY21. In FY20, the Central Valley Regional Water Quality Control Board (CVWB) detected 1,2,3-TCP in samples from the North Balloon GWTP effluent and extraction wells. The CVWB requested a waste characterization be conducted in the North Balloon area to investigate 1,2,3-TCP groundwater contamination. The 2021 Groundwater Treatment System Optimization Evaluation recommended the

aging Central Area GWTS be consolidated with the Central Area and North Balloon GWTSs, that carbon adsorption be used for treatment, and that an alternative power source (i.e., solar) be used. Cleanup exit strategy- Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely. Future actions include possible re-in situ injections, preparation of sampling, QAPP, and H&S plans; groundwater monitoring and reporting; GWTS O&M (for the Central Area) and reporting; FFA progress reporting; five-year review reporting and treatment system O&M manual and system updates to include PLC's, pumps, SCADA systems, VFD's, and a new 60-foot radio tower at the Centra Area GWTP. Cleanup activities are carried under SHAD-001, 06806.1001.

06806.1007

Legacy ID: SHAD-007 (P7)_N. BALLOON AREA
PLUME 7 WE

Alias: #

Regulatory Driver: CERCLA

RIP Date: 10/15/1990

RC Date: 9/15/2052

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 73

RRSE: Medium

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	2/15/1983
RI/FS:	2/15/1983	10/15/1990
RD:	6/15/1988	10/15/1990
IRA:	--	--
RA(C):	3/15/1987	10/14/1990
RA(O):	10/15/1990	9/15/2052
LTM:	--	--

Site Narrative: North Balloon GWTS started full-time operation in October 1990. In 1993 the OU-1 ROD was signed. Long-term operations and remedial optimization continue. In 2002, a CERCLA preliminary site closeout report was completed. In 2005, a decision was made to discontinue off-site discharge and not renew the NPDES Permit. In 2008, CPT investigations were conducted to collect and analyze soil vapor and groundwater data in the North Balloon area. These investigations were performed to support remedial decisions to address COC in the vadose zone, and to provide data to support optimization and enhancement of the remedy for COCs in groundwater beneath and down gradient from the installation. The investigation identified elevated TCE concentrations in an aquitard between the A and B hydro-geologic zones that will not be effectively remediated with the pump-and-treat system. In 2009, in situ pilot studies were conducted. In 2014, a final OU-1 ESD was signed that enhanced the pump-and-treat remedy by adding in situ remediation to target VOC concentrations in fine grained soils and also added LUCs. LUC inspections were performed annually. The RA(O) phase end dates extend to 2121 based on most recent documented groundwater modeling. The groundwater model is updated annually. Per the OU-1 ROD, groundwater is extracted and treated at the North Balloon GWTP, which uses air strippers to remove VOCs, to prevent further migration of contaminated groundwater and capture the contaminant plumes. Treated groundwater is discharged to percolation ponds located on the depot. The goal of this remedial action is to restore groundwater to its beneficial reuse. In 2019 the Army completed additional characterization of groundwater in the MW505 Area, which is located to the west-northwest of the depot. In FY21, a new extraction well was installed located off-site, west-northwest of the depot. Security fencing was installed around North Balloon extraction wells in FY19 and FY20. In FY20, the CVWB detected 1,2,3-TCP in samples from the North Balloon GWTP effluent and extraction wells. The CVWB has requested an RI be conducted in the North Balloon area to investigate 1,2,3-TCP contamination. The 2021 Groundwater Treatment System Optimization Evaluation recommended the aging North Balloon GWTS either be operated in transfer mode or be consolidated with the Central Area and North Balloon GWTSs, that carbon adsorption be used for treatment, and that an alternative power source (i.e., solar) be used. Cleanup exit strategy- Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year

remedy reviews will continue indefinitely. Future actions include possible re-in situ injections, preparation of sampling, QAPP, and H&S plans; groundwater monitoring and reporting; GWTS O&M (for the North Balloon areas) and reporting; FFA progress reporting; five-year review reporting and treatment system O&M manual and system updates to include PLC's, pumps, SCADA systems and VFD's. A waste characterization is planned for 1,2,3-TCP once contracted in FY23. Cleanup activities are carried under SHAD-001, 06806.1001.

06806.1008

Legacy ID: SHAD-008 (P8)_N. BALLOON AREA
PLUME 8 EA

Alias: #

Regulatory Driver: CERCLA

RIP Date: 10/15/1990

RC Date: 9/15/2052

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 73

RRSE: Medium

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	2/15/1983
RI/FS:	2/15/1983	10/15/1990
RD:	6/15/1988	10/15/1990
IRA:	--	--
RA(C):	3/15/1987	10/14/1990
RA(O):	10/15/1990	9/15/2052
LTM:	--	--

Site Narrative: North Balloon GWTS started full-time operation in October 1990. In 1993 the OU-1 ROD was signed. Long-term operations and remedial optimization continue. In 2002, a CERCLA preliminary site closeout report was completed. In 2005, a decision was made to discontinue off-site discharge and not renew the NPDES Permit. In 2008, CPT investigations were conducted to collect and analyze soil vapor and groundwater data in the North Balloon area. These investigations were performed to support remedial decisions to address COC in the vadose zone, and to provide data to support optimization and enhancement of the remedy for COCs in groundwater beneath and down gradient from the installation. The investigation identified elevated TCE concentrations in an aquitard between the A and B hydro-geologic zones that will not be effectively remediated with the pump-and-treat system. In 2009, in situ pilot studies were conducted. In 2014, a final OU-1 ESD was signed that enhanced the pump-and-treat remedy by adding in situ remediation to target VOC concentrations in fine grained soils and also added LUCs. LUC inspections were performed annually. The RA(O) phase end dates extend to 2121 based on most recent documented groundwater modeling. The groundwater model is updated annually. Per the OU-1 ROD, groundwater is extracted and treated at the North Balloon GWTP, which uses air strippers to remove VOCs, to prevent further migration of contaminated groundwater and capture the contaminant plumes. Treated groundwater is discharged to percolation ponds located on the depot. The goal of this remedial action is to restore groundwater to its beneficial reuse. In 2019 the Army completed additional characterization of groundwater in the MW505 Area, which is located to the west-northwest of the depot. In FY21, a new extraction well was installed located off-site, west-northwest of the depot. Security fencing was installed around North Balloon extraction wells in FY19 and FY20. In FY20, the CVWB detected 1,2,3-TCP in samples from the North Balloon GWTP effluent and extraction wells. The CVWB has requested a waste characterization be conducted in the North Balloon area to investigate 1,2,3-TCP contamination. The 2021 Groundwater Treatment System Optimization Evaluation recommended the aging North Balloon GWTS either be operated in transfer mode or be consolidated with the Central Area and North Balloon GWTSs, that carbon adsorption be used for treatment, and that an alternative power source (i.e., solar) be used. Cleanup exit strategy- Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for

UU/UE, five-year remedy reviews will continue indefinitely. Future actions include possible re-in situ injections, preparation of sampling, QAPP, and H&S plans; groundwater monitoring and reporting; GWTS O&M (for the North Balloon areas) and reporting; FFA progress reporting; five-year review reporting and treatment system O&M manual and system updates to include PLC's, pumps, SCADA systems and VFD's. A waste characterization is planned for 1,2,3-TCP once contracted in FY23. Cleanup activities are carried under SHAD-001, 06806.1001.

06806.1009

Legacy ID: SHAD-011 (S3)_BLDG S-119 PAINT
BOOTH, S-

Alias: #

Regulatory Driver: CERCLA

RIP Date: 7/9/1998

RC Date: 8/9/1998

RC Reason: Other

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 42

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	3/15/1983
RI/FS:	2/15/1983	11/15/1983
RD:	6/15/1994	10/15/1994
IRA:	--	--
RA(C):	11/15/1994	7/8/1998
RA(O):	7/9/1998	8/9/1998
LTM:	8/10/1998	9/30/2052

Site Narrative: This site contained lead and chromium contaminated soil from painting operations. In July 1998, a soil removal was completed. On Sept. 29, 1999, a draft final remedial action report was submitted. The regulatory agencies concurred, and the document became final. LUCs (signs) were posted in December 1999. This signage of possible hazards in areas of potential contamination represents institutional controls that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. In 2011 the OU-2 ROD amendment formally instituted the LUC's and burrowing owl monitoring at this site. LUC inspections are completed annually. The top six inches of soil were excavated to meet the lead and chromium ROD industrial cleanup levels. However, SHAD-011 and three other sites were not investigated for hexavalent chromium (Cr6). A waste characterization was performed in FY19. Results showed Cr6 and some lead was present above the lead cleanup goal in the soil. Participants in the FFA for the Sharpe Facility are requiring delineation of Cr6 and lead contamination to industrial screening levels (6.2 mg/kg for Cr6 and 320 mg/kg for lead) at this site to support the assertion that the respective remedy documented in the OU2 ROD is protective of human health. Delineation of Cr6 and lead was completed at this site in FY21. Cleanup exit strategy- Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely. LUCs are anticipated to be required in an LTM phase at this site. Based on the outcome of contaminant delineation, a remedial action and a potential ESD may be required to address the Cr6 and new lead cleanup levels. Further excavation of soils may be required. Cleanup activities for SHAD-034, SHAD-038 and SHAD-044 are captured under this site.

06806.1010

Legacy ID: SHAD-034 (S26)_OPEN DUMP FOR
BLDG 170-18

Alias: #

Regulatory Driver: CERCLA

RIP Date: 1/15/2007

RC Date: 9/15/2011

RC Reason: All Required Cleanup(s) Completed

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 42

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	2/15/1983
RI/FS:	2/15/1983	11/15/1994
RD:	1/15/1996	8/15/1997
IRA:	--	--
RA(C):	8/15/1997	1/15/2007
RA(O):	9/15/2005	9/15/2011
LTM:	9/15/2011	12/11/2052

Site Narrative: A soil removal per the OU-2 ROD was completed and a draft final remedial action report was submitted in September 1999. That report became final in September 2000. In 2005, based on recommendations in the five-year review report and draft response completion plan, a decision was made to re-open this site to perform a remedial action on contamination remaining under the railroad track, eliminating the need for institutional controls (IC) at this site. In FY07, a soil removal action was completed. On Oct. 26, 2007, a remedial action report was submitted to FFA agencies. In 2011 the OU-2 ROD amendment formally instituted the LUC's and burrowing owl monitoring at this site. LUC inspections are completed annually. A waste characterization was performed in FY19. Results showed Cr6 and some lead was present above the lead cleanup goal in the soil. Participants in the FFA for the Sharpe Facility are requiring delineation of Cr6 and lead contamination to industrial screening levels (6.2 mg/kg for Cr6 and 320 mg/kg for lead) at this site to support the assertion that the respective remedy documented in the OU-2 ROD is protective of human health. Cleanup exit strategy- Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely. Land use controls are anticipated to be required in an LTM phase at this site after the additional delineation of this site planned for FY22. Based on the outcome from this delineation, a potential ESD may be required to address the Cr6 and new lead cleanup levels. Further excavation of soils may be required. Cleanup activities for SHAD-034, SHAD-038 and SHAD-044 are captured under SHAD-011.

06806.1011

Legacy ID: SHAD-036 (S28)_S. BALLOON
SLUDGE DISP AR

Alias: #

Regulatory Driver: CERCLA

RIP Date: 8/15/1998

RC Date: 8/15/2025

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 42

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	2/15/1983
RI/FS:	2/15/1983	11/15/1994
RD:	9/15/1995	8/15/1997
IRA:	--	--
RA(C):	8/15/1997	7/15/1998
RA(O):	8/15/1998	8/15/2025
LTM:	--	--

Site Narrative: Former industrial landfill with disposal trenches and burn pits in the 1950s through 1970s. Used solvents were disposed of at this site. The 1996 OU2 ROD identified this as an Installation Restoration Program site. A soil vapor extraction (SVE) system was installed in 1998 and operated from September 1998 through December 2001. Modeling showed the residual TCE mass would not pose an unacceptable threat to groundwater and economic evaluation concluded that operational costs would greatly exceed remediation costs in 2002. Regulatory agencies concurred and the SVE system was decommissioned. In 2011, a risk assessment was conducted based on new vapor intrusion concerns during five-year review and determined residual TCE mass posed an unacceptable risk to groundwater and human health. In FY16, LUCs were implemented at the site. SVE is underway at this site to reduce the risk posed by VOCs in the soil, prevent further degradation of groundwater, and minimize aquifer cleanup time by reducing the mass of VOCs that reach groundwater. Thirty soil vapor extraction wells were installed in 2016. Operations began in October 2016 and continued until June 2021, when a six-month rebound study was initiated to determine if additional SVE is necessary. The rebound study was completed in January 2022. Continued SVE is required due to rebound of TCE concentrations at two wells. Cleanup exit strategy- Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely. SVE will cease when OU-2 ROD cleanup standards are met, and a preliminary risk evaluation of residual soil vapor concentrations indicates that residual VOC soil vapor concentrations allow for UU/UE or a cost evaluation determines that commercial/industrial use with LUCs is more cost effective. LUCs are in place. LUC inspections are completed annually.

06806.1012

Legacy ID: SHAD-038 (S30)_SBA BURN PITS
GRID S3, S-

Alias: #

Regulatory Driver: CERCLA

RIP Date: 12/15/1999

RC Date: 12/15/1999

RC Reason: Other

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 42

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	2/15/1983
RI/FS:	2/15/1983	3/15/1996
RD:	4/15/1996	8/15/1997
IRA:	--	--
RA(C):	8/15/1997	12/15/1999
RA(O):	--	--
LTM:	1/15/2000	9/15/2052

Site Narrative: This site was designated as a metals (lead and chromium) site in the OU-2 ROD. Fieldwork during the remedial design phase determined that the quantities of metals contamination was very low and did not warrant removal. LUCs (signs) were posted in December 1999. This signage of possible hazards in areas of potential contamination represents ICs that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. In 2011 the OU-2 ROD amendment formally instituted the LUC's at this site. LUC inspections are completed annually. Lead and total chromium in soil were previously investigated at this site, but hexavalent chromium was not. A waste characterization was performed in FY19. Results showed hexavalent chromium and some lead was present above the lead cleanup goal in the soil. Participants in the FFA for the Sharpe Facility are requiring delineation of hexavalent chromium and lead contamination to industrial screening levels (6.2 mg/kg for Cr6 and 320 mg/kg for lead) at this site to support the assertion that the respective remedy documented in the OU2 ROD is protective of human health. Delineation of Cr6 and lead was completed at this site in FY20. Cleanup exit strategy- Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely. LUCs are anticipated to be required in an LTM phase at this site. Based on the outcome from contaminant delineation, a potential ESD may be required to address the Cr6 and new lead cleanup levels. Further excavation of soils may be required. Cleanup activities for SHAD-034, SHAD-038 and SHAD-044 are captured under SHAD-011.

06806.1013

Legacy ID: SHAD-041 (S33)_BURN PITS GRID AC-
W5, SBA

Alias: #

Regulatory Driver: CERCLA

RIP Date: 3/30/2024

RC Date: 3/30/2024

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 42

RRSE: Low

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	2/15/1983
RI/FS:	2/15/1983	11/30/2022
RD:	12/1/2022	12/31/2023
IRA:	--	--
RA(C):	1/1/2024	3/30/2024
RA(O):	--	--
LTM:	4/1/2024	3/31/2054

Site Narrative: This site was designated as a metals (lead and chromium) site in the OU-2 ROD. Field investigation during the site inspection phase determined that concentrations were so small removal was not warranted. LUCs (signs) were posted in December 1999. This signage of possible hazards in areas of potential contamination represents institutional controls that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. In 2011 the OU-2 ROD amendment formally instituted the LUCs at this site. LUC inspections are completed annually. In 2012 low level radiation was detected at this site. A remedial investigation/feasibility study to investigate and characterize the nature and extent of contamination in the soil at SHAD-041 including hexavalent and total chromium, total lead, polychlorinated biphenyls, polychlorinated dibenzodioxin/furans, total petroleum hydrocarbons as gasoline, diesel and motor oil (total petroleum hydrocarbons (TPH)-g, TPH-d and TPH-m), VOCs, and Radium 226, was completed in 2019. In FY22, a proposed plan and decision document are expected to be finalized. As part of the future removal action, the regulatory agencies requested the Army investigate possible groundwater contamination due to the depths of contaminated soils. LUCs are in place. Five-year reviews will continue. Cleanup exit strategy- Removal of contaminated soils and address potential groundwater contamination. Regulatory agencies have entered into an informal dispute with the Army over the California Toxicity Rule for lead and applicable or relevant and appropriate requirements. The Army is pursuing a non-time critical removal action, documentation only. A future contract will address the soil removal, estimated at 7,000 cubic yards.

06806.1014

Legacy ID: SHAD-042 (S34)_RUNWAY PONDS (P-5A)

Alias: #

Regulatory Driver: CERCLA

RIP Date: 6/15/2010

RC Date: 9/15/2017

RC Reason: All Required Cleanup(s) Completed

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 42

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	2/15/1983
RI/FS:	2/15/1983	3/15/1996
RD:	4/15/1996	1/15/2010
IRA:	--	--
RA(C):	8/15/1997	4/15/2010
RA(O):	6/15/2010	9/15/2017
LTM:	9/15/2017	9/15/2052

Site Narrative: Site P-5A was originally designated as a TCE SVE site. During the site inspection phase, it was determined that the amount of TCE in the soil did not pose a risk to the groundwater, so no further action (NFA) was recommended. This was documented in the NFA sites remedial action report. In 2006, increasing groundwater monitoring concentrations and soil vapor exceeding 350 parts per billion by volume determined that additional source mass delineation was required and SVE or other remedial action. The magnitude of TCE concentrations present in the soil and groundwater made Site P-5A a top priority for implementing source-control measures. Construction of a SVE system was completed in FY10. The system operated from April 2010 through March 2014 and was shut down for rebound. Based on rebound sampling results, a draft remedial action completion report (RACR) was prepared in FY15 that recommended site closure for UU/UE; however, US Environmental Protection Agency did not accept the risk assessment and would only evaluate UU/UE status using screening levels. In FY16, the RACR was finalized to document the remedy has met ROD cleanup standards for groundwater protection. In 2011 the OU-2 ROD amendment formally instituted the LUCs at this site. The LUC area was reduced in FY17 via a memo to the site file. Cleanup exit strategy- Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely. LUC inspections are completed annually.

06806.1015

Legacy ID: SHAD-044 (S36)_SBA SLUDGE
DISPOSAL LF AR

Alias: #

Regulatory Driver: CERCLA

RIP Date: 12/15/1999

RC Date: 12/15/1999

RC Reason: Other

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 42

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	2/15/1983
RI/FS:	2/15/1983	3/15/1996
RD:	4/15/1996	8/15/1997
IRA:	--	--
RA(C):	8/15/1997	12/15/1999
RA(O):	--	--
LTM:	1/15/2000	9/15/2052

Site Narrative: This site was designated as an OU-2 metals site. Fieldwork was conducted during the remedial design phase. This site was documented in NFA remedial action report. Lead and total chromium in soil were previously investigated at this site, but hexavalent chromium was not. A waste characterization was performed in FY19. Results showed hexavalent chromium and some lead was present above the lead cleanup goal in the soil. Participants in the FFA for the Sharpe Facility are requiring delineation of hexavalent chromium and lead contamination to industrial screening levels (6.2 mg/kg for Cr6 and 320 mg/kg for lead) at this site to support the assertion that the respective remedy documented in the OU-2 ROD is protective of human health. Cleanup Exit Strategy- Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely. LUCs are anticipated to be required in an LTM phase at this site after the additional delineation of this site in FY22. Based on the outcome from this delineation, a potential ESD may be required to address the Cr6 and new lead cleanup levels. Further excavation of soils may be required. Cleanup activities for SHAD-034, SHAD-038 and SHAD-044 are captured under SHAD-011.

06806.1016

Legacy ID: SHAD-136 UST12_RA OF FORMER UST SITE

Alias: #

Regulatory Driver: CERCLA

RIP Date: 10/15/2002

RC Date: 9/15/2004

RC Reason: All Required Cleanup(s) Completed

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 42

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	2/15/1983
RI/FS:	2/15/1983	11/15/1994
RD:	1/15/1997	6/15/2002
IRA:	1/15/1990	3/15/1995
RA(C):	6/15/2002	10/15/2002
RA(O):	10/15/2002	9/15/2004
LTM:	1/15/2013	9/15/2052

Site Narrative: SHAD-136 is a former diesel underground storage tank (UST) site. A final UST alternatives report was submitted to the CVWB in September 2003. Monitored natural attenuation is the selected remedy for groundwater. Monitoring wells MW459A and MW483A were monitored through 3Q17. Well MW483A was decommissioned in 2017 as part of the soil removal action, and MW459A is still present but not used at this time. Excavation of free product in the soil from approximately nine feet to 20 feet below ground surface was conducted in 1Q18. The Army requested a low-threat closure through the CVWB in 2Q18. Approval of low-threat closure was expected to occur in 2018, the Army was given verbal concurrence, and a formal closure letter was received on May 12, 2020. LUCs are in place and inspected annually. Cleanup exit strategy- Continue LUCs and annual inspections. Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely.

06806.1017

Legacy ID: SHAD-148 S-148_SPILL SITE SOUTH
OF BLDG

Alias: #

Regulatory Driver: CERCLA

RIP Date: 12/1/2027

RC Date: 12/1/2027

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 42

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/15/1980	12/15/1980
SI:	2/15/1980	2/15/1983
RI/FS:	5/10/2019	11/30/2025
RD:	12/1/2025	11/30/2026
IRA:	--	--
RA(C):	12/1/2026	11/30/2027
RA(O):	12/1/2027	12/31/2028
LTM:	1/1/2029	1/1/2058

Site Narrative: SHAD-148 was initially placed under the UST program due to a hydrocarbon odor detected during trenching in 1996. The site never contained a UST, but a historical surface release of liquids prompted soil, soil gas, and groundwater investigations. In 2014, TPH and TPH-related compounds were detected, but met the CVWB UST low-threat closure criteria and the CVWB concurred. However, polynuclear aromatic hydrocarbons (PAH) concentrations in soil and groundwater exceeded regional screening levels (RSL). The 2016 Site Characterization concluded that VOCs, TPH, and metals concentrations in soil do not warrant a response action; however, PAH and dieldrin concentrations in shallow soil exceeded industrial and residential RSLs, requiring a response action. Groundwater concentrations of metals and PAHs exceeded tap water RSLs and maximum contaminant levels, but a source for metals detected at concentrations greater than RSLs in groundwater was not indicated by the soil data. Cleanup exit strategy- Further characterization is needed to evaluate PAH and dieldrin concentrations greater than US Environmental Protection Agency RSLs and Department of Toxic Substances Control risk-based screening levels in soil, as well as the extent of metals and PAH concentrations above their USEPA tap water RSLs and risk-based screening levels per the California Code of Regulations, Title 22, Section 69021, and to support the selection of a response action. An RI/FS is underway in FY21-22. A ROD amendment may be required for OU-1 (groundwater).

06806.1018

Legacy ID: SHAD-153 P-1H_SHAD-153 CARBON
TETRACHL

Alias: #

Regulatory Driver: CERCLA

RIP Date: 8/14/2020

RC Date: 9/15/2052

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 42

RRSE: Low

MRSPP: N/A

Phase	Start	End
PA:	3/15/2007	3/15/2008
SI:	3/15/2012	3/15/2014
RI/FS:	4/15/2014	6/15/2019
RD:	--	--
IRA:	--	--
RA(C):	6/16/2019	8/13/2020
RA(O):	8/14/2020	9/15/2052
LTM:	--	--

Site Narrative: During a 2007-2008 CPT investigation, groundwater samples collected from extraction well EWC4 indicated the presence of a VOC plume. Hydro Punch sampling at CP1174 and CP1354 indicated that CCl₄, tetrachloroethene, and TCE exceeded their respective aquifer cleanup levels. The uniqueness of these findings (contaminants and concentrations) suggested this was a possible source area; however, no A Zone groundwater samples or vadose zone vapor samples had been collected to confirm this possibility. In 2009, the monitoring well MW326 cluster was installed to monitor CCl₄, tetrachloroethene, and TCE in the A, B, C, and D groundwater zones. All contaminants have continued to exceed alternate concentration limits in the B and C zones, while none are present at elevated levels in the D zone; however, only CCl₄ is consistently present at elevated levels in the A zone. Furthermore, when groundwater levels are high and reach the vadose zone, the CCl₄ concentrations are also elevated, and decrease as groundwater levels lower. This trend suggested contamination in the vadose zone acting as a secondary source. In 2013, a preliminary CCl₄ investigation found elevated concentrations in both shallow groundwater and soil vapor in the MW326 well cluster area. The soil vapor results suggested a possible residual CCl₄ source in the vadose zone. In FY17 a waste characterization study concluded there was no residual CCl₄ mass present in the soil or vadose zone. In FY19 a follow-up waste characterization study confirmed the findings from FY17. SHAD-153 was removed as an OU-2 site via a memo to the site file dated Aug. 13, 2020. NFA was achieved through the memo to the file. Two groundwater extraction wells were installed in FY21, one in the A zone and one in the C zone, to improve capture of CCl₄ groundwater contamination under groundwater sites in the South Balloon area of SHAD-001, 002, & 003. Cleanup exit strategy- Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely. Remaining groundwater contamination underneath the site will continue to be addressed under the OU1 ROD as a groundwater contamination site and cleanup activities are carried under SHAD-001, 06806.1001.

06806.1039

Legacy ID: SHAD-154_PFAS

Alias: #

Regulatory Driver: CERCLA

RIP Date: 12/1/2028

RC Date: 12/1/2028

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 73

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	5/21/2018	6/24/2019
SI:	6/25/2019	2/15/2024
RI/FS:	8/31/2022	12/1/2028
RD:	--	--
IRA:	--	--
RA(C):	--	--
RA(O):	--	--
LTM:	--	--

Site Narrative: Site created to account for all polyfluoroalkyl substances (PFAS) costs at the installation. A preliminary assessment/site inspection is underway to identify all releases of PFAS to the environment. Site inspection was completed in Summer 2020 and is currently in draft with contractor awaiting Army review. The Army is currently working on a contract action for the remedial investigation phase. Cleanup exit strategy – To be determined based on results from site inspection.

SITE SUMMARY

SITE CLOSEOUT SUMMARY

HQAES ID	Site ID	Site Closeout Date
06806.1019	SHAD-009 (S1)_BLDG TS-47 PEST CONTROL ST	4/15/2000
06806.1020	SHAD-010 (S2)_BLDG T-50 PESTICIDE STORAG	2/15/1990
06806.1021	SHAD-012 (S4)_BLDG S-197 AREA PAINT BOOTH	2/15/1990
06806.1022	SHAD-013 (S5)_BLDG T-36 PAINT BOOTH PS#2	2/15/1990
06806.1023	SHAD-014 (S6)_BLDG 170 AREA	2/15/1990
06806.1024	SHAD-015 (S7)_BLDG 173 AREA SANDBLAST BO	9/15/1996
06806.1025	SHAD-016 (S8)_BLDG 174 AREA	6/15/1991
06806.1026	SHAD-017 (S9)_BLDG 669 AREA WASH RACK	9/15/1994
06806.1027	SHAD-018 (S10)_BLDG T-184, ABV GRD DIP T	9/15/1994
06806.1028	SHAD-019 (S11)_BLDG 211 & 205 PAINT STRI	6/15/1991
06806.1029	SHAD-020 (S12)_HOLDING/OXI PONDS(FAC 400	3/15/1999
06806.1030	SHAD-021 (S13)_BLDG 391 FIRE TNG AREA, P	9/15/2011
06806.1031	SHAD-022 (S14)_BLDG 442 AREA SUMP/PUMP S	2/15/1990
06806.1032	SHAD-023 (S15)_BLDG 483, 482 HM STORAGE	2/15/1990
06806.1033	SHAD-024 (S16)_BLDG 484 HAZMAT STORAGE	2/15/1990
06806.1034	SHAD-025 (S17)_BLDG 485 HAZMAT STORAGE	2/15/1990
06806.1035	SHAD-026 (S18)_BURNING PITS GRID S18 SBA	12/15/1980
06806.1036	SHAD-027 (S19)_BLDG 488 AREA WASH APRON	2/15/1990
06806.1037	SHAD-028 (S20)_BLDG 635 FLAMMABLE STORAG	2/15/1990
06806.1038	SHAD-029 (S21)_BLDG 642 FLAMMABLE STORAG	2/15/1990
06806.1040	SHAD-031 (S23)_BLDG 657 AREA	6/15/1991
06806.1041	SHAD-032 (S24)_BLDG 659 AREA WASH RACK	6/15/1991
06806.1042	SHAD-033 (S25)_BLDG 691 HAZMAT STORAGE	2/15/1990
06806.1043	SHAD-035 (S27)_NORTH BALLOON AREA OIL DU	12/15/1993
06806.1044	SHAD-037 (S29)_SBA BURN PITS A	11/15/1994
06806.1045	SHAD-039 (S31)_BLDG 179 GROUND STAINS	6/15/1991
06806.1046	SHAD-040 (S32)_SOLVENT STORAGE YARD T-40	6/15/1991
06806.1047	SHAD-043 (S35)_FMR WSTE STORAGE AREA GRI	12/15/2013
06806.1048	SHAD-045 (S37)_BURIED HELICOPTER GRID BM	2/15/1990
06806.1049	SHAD-046 (S38)_BURIED BOXCAR OF RATIONS	2/15/1990
06806.1050	SHAD-047 (PS1)_S-49 PEST CONTROL SHOP	1/15/1990
06806.1051	SHAD-048 (PS2)_BLDG T-53/36 PAINT SHOP S	6/30/1996
06806.1052	SHAD-049 (PS3)_BLDG 171 HEAVY EQUIP. MAI	2/15/1990
06806.1053	SHAD-050 (PS4)_BLDG 404 SUMP, (UST 46)	9/15/2005
06806.1054	SHAD-051 (PS5)_BLDG 655 CARE & MAINT FAC	11/15/1994
06806.1055	SHAD-052 (PS6)_BLDG 649 CARE/PRES AREA P	12/15/2013
06806.1056	SHAD-053 (PS7)_ACID NEUTRAL,(LS)PIT BLDG	9/15/1994
06806.1057	SHAD-054 (PS8)_SBA SAND BLAST WASTE AREA	9/15/1994
06806.1058	SHAD-055 (PS9)_STORM DRAIN LINES (OLD) T	6/15/1991
06806.1059	SHAD-056 PS10_OPEN STORAGE AREA GRID E37	9/15/1994

HQAES ID	Site ID	Site Closeout Date
06806.1060	SHAD-057 PS11_OPEN STORAGE AREA BY IWTP	2/15/1990
06806.1061	SHAD-058 PS12_OPEN STORAGE AREA GRID BA	2/15/1990
06806.1062	SHAD-059 PS13_OPEN STORAGE AREA GRID BC2	9/15/1994
06806.1063	SHAD-060 PS14_OPEN STORAGE AS37-163,P-2B	9/15/2012
06806.1064	SHAD-061 (A1)_BLDG T-9 PHOTO SHOP	2/15/1990
06806.1065	SHAD-062 (A2)_BLDG T-9 PHOTO SHOP	2/15/1990
06806.1066	SHAD-063 (A3)_BLDG T-24E BLACKSMITH SHOP	2/15/1990
06806.1067	SHAD-064 (A4)_BLDG S-41 METAL,PLUMB & PA	2/15/1990
06806.1068	SHAD-065 (A5)_BLDG S-42 CARPENTRY & META	2/15/1990
06806.1069	SHAD-066 (A6)_BLDG S-44 METAL & WELDING	2/15/1990
06806.1070	SHAD-067 (A7)_BLDG T-54 SIGN SHOP	2/15/1990
06806.1071	SHAD-068 (A8)_BLDG 100 REPRODUCTION	2/15/1990
06806.1072	SHAD-069 (A9)_BLDG 308 REPRO SEC	2/15/1990
06806.1073	SHAD-070 (A10)_BLDG T-101 RAIL CAR MAINT	6/15/1991
06806.1074	SHAD-071 (A11)_BLDG 103 DUPLICATING SHOP	2/15/1990
06806.1075	SHAD-072 (A12)_BLDG T-113/112 WASH RACK	6/15/1991
06806.1076	SHAD-073 (A13)_BLDG T-115 METAL SHOP AND	2/15/1990
06806.1077	SHAD-074 (A14)_BLDG T-116/T-118 VEHICLE	6/15/1991
06806.1078	SHAD-075 (A15)_BLDG 121,245 PUMPHOUSE &	2/15/1990
06806.1079	SHAD-076 (A16)_BLDG T127 AREA VEHICLE MA	6/15/1991
06806.1080	SHAD-077 (A17)_BLDG 646/647 AREA	6/15/1991
06806.1081	SHAD-078 (A18)_BLDG S135 FIRE STATION	2/15/1990
06806.1082	SHAD-079 (A19)_BLDG 172 HEAVY EQUIP. ENG	2/15/1990
06806.1083	SHAD-080 (A20)_BLDG 178 HEAVY EQUIP. MAI	2/15/1990
06806.1084	SHAD-081 (A21)_BLDG 179 HEAVY EQUIP. MAI	2/15/1990
06806.1085	SHAD-082 (A22)_BLDG 180 RADIATOR REPAIR	6/15/1991
06806.1086	SHAD-083 (A23)_BLDG 181 AREA	2/15/1990
06806.1087	SHAD-084 (A24)_BLDG 186 ENGINE TEST SUMP	3/15/1997
06806.1088	SHAD-085 (A25)_BLDG 197 AREA	2/15/1990
06806.1089	SHAD-086 (A26)_BLDG 198 AREA	2/15/1990
06806.1090	SHAD-087 (A27)_BLDG 646 ELECTRICAL HYDRA	9/15/1994
06806.1091	SHAD-088 (A28)_BLDG T 199 WASH RACK AREA	12/15/2013
06806.1092	SHAD-089 (A29)_BLDG 217 / 210 WASH RACKS	2/15/1990
06806.1093	SHAD-090 (A30)_BLDG 219 COCOONING SHED	2/15/1990
06806.1094	SHAD-091 (A31)_BLDG 227 VEHICLE MAINTENA	6/15/1991
06806.1095	SHAD-092 (A32)_BLDG 281/282 LOW LEVEL RA	2/15/1990
06806.1096	SHAD-093 (A33)_BLDG 283 LOW LEVEL RAD MA	2/15/1990
06806.1097	SHAD-094 (A34)_BLDG 284 LOW LEVEL RAD MA	2/15/1990
06806.1098	SHAD-095 (A35)_BLDG 286 AREA PRINT SHOP	2/15/1990
06806.1099	SHAD-096 (S36)_BLDG 211 AREA	2/15/1990
06806.1100	SHAD-097 (S37)_BLDG 218 AREA	2/15/1990
06806.1101	SHAD-098 (S38)_BLDG 305 AREA	2/15/1990

HQAES ID	Site ID	Site Closeout Date
06806.1102	SHAD-099 (S39)_BLDG 308 AREA	2/15/1990
06806.1103	SHAD-100 (A40)_BLDG 370-380 GAS STATION	3/15/1996
06806.1104	SHAD-101 (A41)_BLDG 386 PARTS CLEANING	2/15/1990
06806.1105	SHAD-102 (A42)_BLDG 389 AREA NORTH OF GA	9/15/1994
06806.1106	SHAD-103 (A43)_BLDG 403 AREA	9/15/1994
06806.1107	SHAD-104 (A44)_BLDG 408 LOW LEVEL RAD MA	2/15/1990
06806.1108	SHAD-105 (A45)_BLDG 411 LOW LEVEL RAD MA	2/15/1990
06806.1109	SHAD-106 (A46)_BLDG 486 AREA	2/15/1990
06806.1110	SHAD-107 (A47)_BLDG 508 AREA	2/15/1990
06806.1111	SHAD-108 (A48)_BLDG 585 AREA	2/15/1990
06806.1112	SHAD-109 (S49)_BLDG 586 AREA	2/15/1990
06806.1113	SHAD-110 (A50)_BLDG 611 AREA NON-DESTRUC	2/15/1990
06806.1114	SHAD-111 (A51)_BLDG 612/614 AREA	2/15/1990
06806.1115	SHAD-112 (A52)_BLDG 613 ENGINE TEST FACI	2/15/1990
06806.1116	SHAD-113 (A53)_CONTAINER NEXT TO BLDG 64	2/15/1990
06806.1117	SHAD-114 (A54)_CATCH BASINS GRID BO65-BM	2/15/1990
06806.1118	SHAD-115 (A55)_SHED EQUIP MAINT (SO BLDG	2/15/1990
06806.1119	SHAD-116 (A56)_RUNWAY EXTENSION WASTE PO	2/15/1990
06806.1120	SHAD-117 (A57)_BLDG 649 GROUND STAIN A57	9/15/1994
06806.1121	SHAD-118 (A58)_BLDG 649 GROUND STAIN A58	9/15/1994
06806.1122	SHAD-119 (A59)_BLDG 649 GROUND STAIN A59	9/15/1994
06806.1123	SHAD-120 (A60)_GROUND STAIN A60	9/15/1994
06806.1124	SHAD-121 (A61)_BLDG 649 GROUND STAIN A61	9/15/1994
06806.1125	SHAD-122 (A62)_BLDG 649 GROUND STAIN A62	9/15/1994
06806.1126	SHAD-123 (A63)_BLDG 649 GROUND STAIN A63	9/15/1994
06806.1127	SHAD-124 (A64)_BLDG 649 GROUND STAIN A64	6/15/1991
06806.1128	SHAD-125 (A65)_BLDG 649 GROUND STAIN A65	6/15/1991
06806.1129	SHAD-126 (A66)_BLDG 649 GROUND STAIN A66	6/15/1991
06806.1130	SHAD-127 (A67)_BLDG 649 GROUND STAIN A67	6/15/1991
06806.1131	SHAD-128 (A68)_BLDG 649 GROUND STAIN A68	6/15/1991
06806.1132	SHAD-129 (A69)_BLDG 649 GROUND STAIN A69	6/15/1991
06806.1133	SHAD-130 (A70)_BLDG 649 GROUND STAIN A70	6/15/1991
06806.1134	SHAD-131 (A71)_BLDG 649 GROUND STAIN A71	6/15/1991
06806.1135	SHAD-132 (A72)_BLDG 649 GROUND STAIN A72	6/15/1991
06806.1136	SHAD-133 (A73)_BLDG 649 GROUND STAIN A73	6/15/1991
06806.1137	SHAD-134 (A74)_BLDG 649 GROUND STAIN A74	6/15/1991
06806.1138	SHAD-135 (A75)_BLDG 649 GROUND STAIN A75	6/15/1991
06806.1139	SHAD-137 UST5_RA FORMER UST SITE BY BL	9/15/2002
06806.1140	SHAD-138 UST15_RA FORMER UST SITE BY	9/15/2002
06806.1141	SHAD-139 UST17_RA OF FORMER UST SITE	9/15/2003
06806.1142	SHAD-140 UST18_RA OF FORMER USTS BY B	9/15/2003
06806.1143	SHAD-141 UST34_RA OF FORMER UST SITE	9/15/2003

HQAES ID	Site ID	Site Closeout Date
06806.1144	SHAD-142 UST73_RA OF FORMER UST SITE	9/30/2004
06806.1145	SHAD-143 UST49_RA OF FORMER UST SITE	3/15/1995
06806.1146	SHAD-144 UST55_RA OF FORMER UST BY BL	1/15/1980
06806.1147	SHAD-145 B162_BLDG 162 VOC	8/15/1997
06806.1148	SHAD-146 S-146_OLD SPILL AREA BETWEEN	9/15/2002
06806.1149	SHAD-147 B-613_FORMER AST BY 613 & UST	8/15/2015
06806.1150	SHAD-149 UST69_O/W SEPARATOR SUMP BY	4/15/1998
06806.1151	SHAD-150 UST89_O/W SEPARATOR SUMP IN	9/15/1997
06806.1152	SHAD-151 F-137_SHARPE WELL #2, FACILIT	3/15/2002
06806.1153	SHAD-152 B-199_SOIL CONTAMINATION NO.S	9/15/2003
06806.1154	SHAD-030 (S22)_BLDG 647,643 FLAMMABLE ST	2/15/1990

COMMUNITY INVOLVEMENT

Technical Review Committee Establishment Date:	N/A
Restoration Advisory Board (RAB) Establishment Date:	N/A
RAB Adjournment Date:	N/A
RAB Adjournment Reason:	N/A
Reasons for Not Establishing RAB:	No sufficient, sustained community interest in a RAB has been expressed by the community
RAB Date of Solicitation from Community:	N/A
RAB Results of Solicitation:	N/A
Current Technical Assistance for Public Participation (TAPP):	N/A
TAPP Title:	N/A
Potential TAPP:	N/A
Administrative Record Location:	N/A
Information Repository Location:	N/A
Community Involvement Plan (Date Published):	05/18/2018

FIVE-YEAR / PERIODIC REVIEW SUMMARY

Status	Start Date	End Date	Plans Narrative	Actions Narrative	Results Narrative
Completed	Oct. 23, 2017	Sept. 17, 2020	Evaluate extraction well capture zones and addition of new extraction wells and delineate plumes.	The report was due Sept. 20, 2019, but was delayed due to regulatory objections to the protectiveness of the lead cleanup goal.	Extraction well capture zones are evaluated annually, and new extraction wells recommended based on those results. Six new extraction wells were installed in 2020-2022 to improve capture. Five new monitoring wells were installed in 2021 to improve plume delineation.
Planned	Sept. 30, 2022	Sept. 30, 2024			