US Army Garrison Ansbach

Army Cleanup Program

Installation Action Plan Final

June 2024

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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.

ACRONYMS

Acronym	Definition
AAFES	Army Air Force Exchange Service
ACP	Access Control Point
AFFF	Aqueous Film-Forming Foam
AHC	Aromatic Hydrocarbons
ARLOC	Area Location
BBODSCHG	Bundes-Bodenschutz-Gesetz Federal Soil Protection Act
BBODSCHV	Bundes-Bodenschutz-Verordnung Federal Soil Protection Ordinance
BGS	Below Ground Surface
BLDG	Building
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CC	Compliance-related Cleanup
CHC	Chlorinated Hydrocarbon
CTC	Cost to Complete
CRL	Cleanup Restoration & Liabilities
DNAPL	Dissolved Non-Aqueous Phase Liquid
DODI	Department of Defense Instruction
DPW	Directorate of Public Works
DUCS	Database of USAREUR Contaminated Sites
ENA	Enhanced Natural Attenuation
ENV	Environmental
EPR	Environmental Program Requirements
FRA	Final Remedial Action
FS	Feasibility Study
FSS	Fire Suppression System
FY	Fiscal Year
GAC	Granular Activated Carbon
HN	Host Nation
HRS	Hazard Ranking System
IA	Impact Area
IAP	Installation Action Plan
IAW	In Accordance With
ID	Identification
IR	Installation Restoration
IRA	Interim Remedial Action
L	liter

Acronym	Definition
LEC	Lead Environmental Component
LNAPL	Light Non-Aqueous Phase Liquid
LTM	Long-Term Management
m	meter
m^2	square meter
mg/kg	milligram per kilogram
mg/m^3	milligram per cubic meter
MNA	Monitored Natural Attenuation
MOGAS	Motor Gasoline
MR	Munitions Response
MRSPP	Munitions Response Site Prioritization Protocol
MTBE	Methyl Tertiary Butyl Ether
NA	Not Applicable
NATO	North Atlantic Treaty Organization
NE	Northeast
NFA	No Further Action
NPL	National Priorities List
NW	Northwest
O&M	Operations and Maintenance
PA	Preliminary Assessment
PAH	Polycyclic Aromatic Hydrocarbon
PCE	Perchloroethylene
PFAS	Pre- and Polyfluoroalkyl Substances
PFC	Perfluorinated Compound
PFHxS	Perfluorohexanesulfonic Acid
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
POL	Petroleum, Oil, and Lubricants
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operations)
RAB	Restoration Advisory Board
RC	Response Complete
RD	Remedial Design
RI	Remedial Investigation
RIP	Remedy-in-Place
RRSE	Relative Risk Site Evaluation
SC	Site Closeout

Acronym	Definition
SI	Site Inspection
SOFA	Status of Forces Agreement
SRM	Sustainment, Restoration, and Maintenance
SRM	Sustainable Readiness Model
TBD	To Be Determined
TCE	Trichloroethylene
TPH	Total Petroleum Hydrocarbons
ug/L	microgram per Liter
USAG	US Army Garrison
USAREUR	US Army Europe
UST	Underground Storage Tank
WHG	Wasserhaushaltsgesetz

PHASE TRANSLATION TABLE

CERCLA Phase	RCRA Phase	RCRA UST Phase
Preliminary Assessment (PA)	RCRA Facility Assessment (RFA)	Initial Site Characterization (ISC)
Site Inspection (SI)	Confirmation Sampling (CS)	Investigation (INV)
Remedial Investigation/ Feasibility Study (RI/FS)	RCRA Facility Investigation/Corrective Measures Study (RFI/CMS)	Corrective Action Plan (CAP)
Remedial Design (RD)	Design (DES)	Design (DES)
Interim Remedial Action (IRA)	Interim Measure (IM)	Interim Remedial Action (IRA)
Remedial Action (Construction) (RA(C))	Corrective Measures Implementation (Construction) (CMI(C))	Implementation (Construction) (IMP(C))
Remedial Action (Operations) (RA(O))	Corrective Measures Implementation (Operations) (CMI(O))	Implementation (Operations) (IMP(O))
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: 0/0

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

Number of Open Sites with Response Complete/Total Open CC Sites: 0/7

SITE-LEVEL INFORMATION

GE07H - Barton Barracks

Installation Name: US Army Garrison Ansbach

Installation City: Ansbach

5577A.1001_CCAN115_GE07H_Bldg 5265 Gas Station

Env Site ID: CCAN115

Cleanup Site: GE07H_Bldg 5265 Gas Station

Alias: NBAN115

Regulatory Driver: DODI

RIP Date: 7/31/2010

RC Date: 9/30/2054

RC Reason: Not assigned

SC Date: 9/30/2054

Program: Compliance-related Cleanup

Subprogram: CC

NPL Status: No

Hazardous Ranking Score: 0

RRSE: N/A

MRSPP: N/A

Phase	Start	End
PA:	10/31/2000	9/30/2001
SI:	10/31/2001	3/31/2002
RI/FS:	4/30/2002	4/30/2007
RD:	3/31/2007	4/30/2008
IRA:	- -	- -
RA(C):	5/31/2008	6/30/2010
RA(O):	7/31/2010	9/30/2054
LTM:	- -	- -

Site Narrative: SITE LOCATION AND DESCRIPTION

1. Location- The site is a filling station that is located at Bldg. 5265 in the NE portion of Barton Barracks (ARLOC GE07H) between Bldg. 5284 and Bldg. 5259. The site is located adjacent to the NE boundary of the ARLOC.

2. Physical Layout/Site Use- The site is a mostly paved operational filling station that is comprised of a small attendant building (Bldg. 5265) two fuel dispensers, and four 25,000 L USTs installed in 2001.

CONCEPTUAL SITE MODEL

1. Release Description- Leaking USTs that were installed in 1980 and replaced in 2001 resulted in contaminated soil and groundwater.

2. Media Impacted- POL, PAH, BTEX, and MTBE contaminated groundwater.

3. Nature and Extent of Contamination- The maximum groundwater contaminant concentrations prior to remediation along with their Bavarian Level 2 Guidance Values (Stufe-2-Wert) in parentheses are as follows- POL 2,000 ug/L (1,000 ug/L), PAH 130 ug/L (2 ug/L), BTEX 8,600 ug/L (100 ug/L), and MTBE 2,200 ug/L (100 ug/L). The aerial extent of POL, PAH, BTEX, and MTBE on post groundwater contamination prior to remediation was approximately 10,000 m^2. In October 2023, TPH concentrations ranged between non-detect and 2.5 mg/L, which exceeds the Level 2 threshold of 1 mg/L. BTEX was detected in all wells during the October 2023 event with a maximum concentration of 2,720 ?g/L, which exceeds the Level 2 threshold of 100 ?g/L. The depth to groundwater ranges between 1.5 to 11.5 m with an average depth of 5.5 m and flows in a northeasterly direction.

4. Receptors- In Germany the groundwater itself is a protected receptor in accordance with German regulations.

REMEDIAL OBJECTIVE

1. Long-Term Closeout Strategy- MNA to reduce contaminant concentrations in groundwater.

2. Achievable Remedial Action Objective- Reduce POL, PAH, BTEX, and MTBE in groundwater to concentrations below Bavarian Level 2 Guidance Values.

3. Specific Regulatory Standards and Legal Drivers- The Code of Practice No. 3.8/1 released by the Bavarian Office for Water Management (LfW 2001).

4. Remediation Methods Planned or Being Conducted- MNA is underway for an indefinite period of time.

5. Response Complete- Will be achieved when concentrations remain below the Bavarian Level 2 Threshold Values.

6. Site Closure- Barton Barracks is enduring and not expected to close anytime soon. The closeout date, therefore, is set 30 years in the future.

7. Host Nation Involvement- The HN environmental authorities are the municipal Ansbach Environment Agency (Umweltamt Stadt Ansbach) and the Bavarian State Water Management Office (Wasserwirtschaftsamt Ansbach). The HN Water Board is aware of this site and may be contacted for closure after RA(O).

PHASE SCHEDULE

1. Current Phase Objective- MNA in RAO to reduce contaminant concentrations in groundwater below Bavarian Level 2 Guidance Values.

2. Milestones- RIP (7/31/2010), RC (9/30/2054), Site Closeout (09/30/2054).

SCHEDULE & BUDGET CHANGES

1. Schedule- The RC, RAO, and SCO dates were each extended by one year during the Spring 2024 datacall.

2. Budget- The CTC for this site in Spring 2024 is TBD.

HISTORICAL SITE ACTIVITIES

The site was developed in 1935 by and for the German Army. The site has been used by the U.S. since 1945. The filling station investigation area consists of a small office building (Bldg. 5265), two fuel dispensers, and four USTs with a capacity of 25,000 L each. Two of the tanks are used for the storage of diesel fuel and two for gasoline. During a site construction project in 2001 to replace four 25,000L USTs (ANENV03425-Upgrade Gas Station) high levels of contamination in the soil and groundwater were found. A corrosion leak was detected at the northeastern fuel UST and signs of fuel spillage during refilling operations of the other USTs were detected. A total of 1,286 tons of petroleum contaminated soil was excavated up to the technically feasible depth (i.e. max. depth where excavation pit is still stable) of 3.9 m bgs. Minor amounts of contaminated soil were left in place primarily at the bottom of the excavation pits. An SI performed in 2001, reported BTEX in the groundwater at concentrations up to 2,211 ug/L, exceeding the applicable HN 100 ug/L limit requiring corrective action. During a follow-on investigation in 2003, the following contaminants were found in groundwater downgradient of the gas station- POL (up to 2,000 ug/L), BTEX (up to 3,455 ug/L), PAH (up to 100.35 ug/L), and MTBE (up to 45 ug/L). POL, PAH, and BTEX in the groundwater exceed the Bavarian Level-2-Values. Groundwater contaminant migration off-post was confirmed and delineated during this study. An FS, including a pilot test, was started in August 2005. This study focused on an assessment of the efficacy of implementing in-situ bioremediation. As the groundwater contamination plume extends into off-post regions, the HN (City of Ansbach) filed a claim against the US government. This claim was validated by USACSEUR. Off-post in-situ remediation started in 2008 and was discontinued in 2013 after the measure was considered as unsuccessful since contaminant concentrations were not significantly reduced. The final report for the off-post remedial action was submitted to HN in February 2014 (German only). On-post remedial action started in 2008 after the completion of a successful pilot test study, which was conducted as part of the

remedial design in 2006/07 (Report submitted in April 2007). The on-post remedial measure proved to be partially successful, as contaminants were significantly reduced, even though residual TPH and BTEX contamination above threshold values was left in place in some sections, especially around the wells PTA1 and at MW6. Subsequently to the abandonment of the off-post measure in 2013, the on-post remedial action was ceased in Spring 2014. Final closure report was submitted in May 2014. Groundwater monitoring has been underway at the site since October 2014. The site was previously included in the EPR under DUCS number NBAN115.

PROJECT APPROVAL

The project is required per IAW DoDI 4715.08 (1 Nov 13), Encl. 3, Par 1e (international agreement). The requirements are imposed by the BBodSchG (Bundes-Bodenschutz-Gesetz/ Federal Soil Protection Act) and the BBodSchV (Bundes-Bodenschutz-Verordnung/ Federal Soil Protection Ordinance. Pursuant to Art 53 of the Supplementary Agreement to the NATO SOFA [a binding international agreement within the meaning of DODI 4715.08, Encl. 3, par 1e (2)(b)], the US is to apply the provisions of these laws where applicable. A Decision Document was prepared, which recommended enhanced biodegradation as the selected remedial alternative.

GE43T - Ansb Army Heliport

Installation Name: GE43T- Ansb Army Heliport

Installation City: Ansbach

5652A.1004_CCAN117_GE43T_PFAS_Bldg 5823 Fmr Fuel

Env Site ID: CCAN117

Cleanup Site: GE43T_PFAS_Bldg 5823 Fmr Fuel

Alias: #

Regulatory Driver: DODI

RIP Date: 10/16/2034

RC Date: 9/30/2064

RC Reason: Not assigned

SC Date: 9/30/2064

Program: Compliance-related Cleanup

Subprogram: CC

NPL Status: No

Hazardous Ranking Score: 0

RRSE: N/A

MRSPP: N/A

Phase	Start	End
PA:	9/30/2008	10/31/2008
SI:	11/30/2008	9/30/2009
RI/FS:	10/31/2009	10/15/2028
RD:	10/16/2028	10/15/2030
IRA:	- -	- -
RA(C):	10/16/2030	10/15/2034
RA(O):	10/16/2034	9/30/2064
LTM:	- -	- -

Site Narrative: **As of Spring 2013, CCAN018 was discontinued and is now being funded and tracked under this site that has been identified as the source area for CCAN018.

SITE LOCATION AND DESCRIPTION

1. Location- CCAN117 is located in the northeastern portion of Ansbach Army Heliport (ARLOC GE43T), and is centered on a former fuel and lubricants storage facility (Bldg. 5823).

2. Physical Layout/Site Use- The site is improved with Bldgs 5823 (Service Credit Union), 5824 (Community Bank), and 5987 (Thrift Shop) and adjacent motor pools. The site is mainly paved with concrete and asphalt.

CONCEPTUAL SITE MODEL

1. Release Description- Undocumented handling losses associated with the past operation of the fuel and lubricants storage facility is the source of the contamination. CHCs and BTEX are the main contaminants of concern. PAHs and PFAS have also been detected. There are four main CHC Impact Areas (IA) from discrete releases; including IA1A/IA1B near bldg. 5987, IA2 at the northern edge of bldg. 5824, IA3 located 50m east of IA1, and IA4 at bldg. 5807. A known AFFF release occurred near the site in 2007. PFAS are present in soil and groundwater.

2. Media Impacted- Soil, soil vapor, and groundwater. CHCs in groundwater are the main driver for remediation. PFAS impacts have also been detected in groundwater; however, the source is not associated with this site.

3. Nature and Extent of Contamination- Investigations performed in 2012 identified PAHs at 43.0 ug/L, BTEX at 1,080 ug/L, and CHCs at 5,350 ug/L which exceeded their respective Bavarian Level 1 Values (Stufe-1-Wert) of 0.2 ug/L, 20 ug/L, and10 ug/L. In 2016 AHC was detected at a maximum concentration of 950 ug/L. Remedial Investigations performed from FY15 to FY19 discovered several CHC source areas based on chemical fingerprints and concentration gradients. IA1A, IA2, and IA3 are primarily comprised of PCE. IA1B is mostly TCE, and IA4 is TCE and CT. CHCs have been found in the upper “A” aquifer, and the

lower “B” aquifer, as well as in the vadose zone. CHC source area concentrations have been detected as high as 3,390 ug/L in groundwater. PFAS contamination was found across the site, a source has not yet been identified. The highest concentration of combined PFOS, PFOA, and PFHxS were detected in GWM13 (1.92 ug/L). The plume is generally migrating in a northerly direction. CHC concentrations at downgradient well GWM14 were detected at 43 ug/L. The RI found that the CHC plume does not contribute to groundwater at production well Brunnen 1 (BR-1) as previously thought. The depth range of PAH/BTEX contamination is between 1.4 to 4.7 m bgs. CHCs are as deep as 12 m bgs. The groundwater table is located between 4.0 - 5.0 m bgs and flows to the north. The aerial extent of the plume could exceed 70,000 m^2.

4. Receptors- Potential downgradient receptors include the Hirnbach Creek and downstream fish ponds.

REMEDIAL OBJECTIVE

1. Long-Term Closeout Strategy- Reduce CHC, BTEX, PFAS, and PAH below Bavarian Level 2 Guidance Values or another target value agreed to by the HN regulators (100 ug/L, if technically feasibly with reasonable expenditure may be a possibility).

2. Achievable Remedial Action Objective- Reduce contaminants in groundwater through soil vapor extraction (SVE), multi-phase extraction (MPE), and air sparging (AS) followed by MNA.

3. Specific Regulatory Standards and Legal Drivers- The Code of Practice No. 3.8/1 released by the Bavarian Office for Water Management (LfW 2001) serves as the main basis for evaluating contaminant concentrations for CHC, BTEX, PAH, and AHC. For PFAS, the Preliminary Guideline for the Assessment of PFAS Contaminations published by the Bavarian Environmental Agency in August 2017 provides regulatory standards.

4. Remediation Methods Planned or Being Conducted- A fully-funded RI/FS was completed in FY19 which recommended an enhanced natural attenuation (ENA) Pilot Test on IA-1 and IA-2. During the FY24 datacall, it was determined that the pilot test was partially successful, and that ENA will not be a possible remedial solution. Since the pilot study was not entirely successful, the RI/FS phase will continue so that additional characterization and remedy selection may take place. It is currently expected that remediation will include SVE, MPE, and AS followed by MNA.

5. Response Complete- Will be achieved when groundwater contamination has been reduced below Bavarian Level 2 Values or a less stringent value agreed to by the HN.

6. Site Closure- Following receipt of a HN closure letter after remediation is complete.

7. Host Nation Involvement- The HN environmental authorities for the site are the municipal Ansbach Environment Agency (Umweltamt Ansbach) and the Bavarian State Water Management Office (Wasserwirtschaftsamt Ansbach). The HN authorities are aware of this site and will be contacted for their concurrence that NFA is appropriate following remediation.

PHASE SCHEDULE

1. Current Phase Objective- Further characterization and remedy selection in the RI/FS phase are necessary since the pilot study concluded that ENA will not be a possible remedial solution.

2. Milestones- RIP (10/16/2034), RC (09/30/2064), Site Closeout (09/30/2064)

SCHEDULE & BUDGET CHANGES

1. Schedule- During the Spring 2024 datacall, the RI/FS end date was extended by four years. The RC was extended from one year to two and the RAC was extended from one year to four. Start and end dates of all subsequent phases shifted accordingly.

2. Budget- The CTC for this site in Spring 2024 is TBD.

HISTORICAL SITE ACTIVITIES

The site has been used by the U.S. since 1945. Prior to U.S. control, the site was constructed between 1935-1938 by and for the German Air force. An investigation was conducted at the site by a contractor in October 2008 in response to strong petroleum odors observed during earthworks south of Bldg. 5823. Soil, soil gas, and groundwater samples were analyzed for BTEX and PAH. BTEX concentrations in soil were found up to 150 mg/kg (RKS 8). Maximum BTEX concentrations in soil gas ranged between 1840-3615 mg/m³ and BTEX in groundwater was detected at 1,400 ug/L. PAH concentrations in perched groundwater were detected at 30 ug/L. The detected concentrations exceeded the Bavarian Level-2 values. Historic research conducted by USAG Ansbach in October 2008, indicates that in the past a fuel and lubricants storage facility operated near the present location of Building 5823. Garrison officials believe that the past operation of this fuel and lubricants storage facility is the source of the current soil and groundwater contamination; however, the 2008 investigation did not completely delineate the vertical or horizontal extent of impacts. Therefore, an additional remedial investigation was conducted in 2010 (Final Report RI/FS near Bldg 5823, May 2011) which included the installation of four groundwater monitoring wells (P2-P5) and 15 additional percussion borings (RKS 9 to RKS 23). The study identified differing contamination patterns in two separate groundwater aquifers. Minor BTEX and high CHC concentrations of up to 759 ug/L were encountered in the upper (or shallow) groundwater aquifer sampled at monitoring well P2, whereas the deeper (or main) groundwater aquifer sampled at P3, P4, and P5 did not show any relevant BTEX and only a minor CHC contamination. Altogether, the study identified three separate impact zones- 1) POL-derived BTEX/TPH contamination in the vicinity of RKS 8/ Monitoring Well P2, 2) CHC groundwater contamination at well P2, and 3) BTEX/TPH impact at southern installation boundary. Further RI/FS activities documented in the June 2013 RI/FS report found substantially higher CHC concentrations in the area around P5. These concentrations (>5 ppm in GMW-31) may represent the CHC source area for CCAN117 and CCAN018. Monitoring Well P5 next to GWM31 was removed and sealed in 2013. P5 was connecting the shallow aquifer with higher CHC concentrations (developed by GWM31) with the deeper main aquifer with lower CHC concentrations. A Remedial Investigation/Feasibility Study was performed from FY15 to FY19 as a multi-site investigation of CCAN117, 121, and 126. The RI/FS was undertaken to assess the nature and extent of CHCs which are widespread through much of USAG Ansbach. The objective of the RI/FS was to characterize the source areas and comingled CHC plumes and better understand the groundwater flow regime. Four discrete Impact Areas were identified, which will be targeted for remediation. The site was not included in the DUCs program. Garrison spill-response archives document an AFFF/PFAS release of unknown extent in 2007 as a result of sprinkler system malfunction at a nearby aircraft hangar 5807 in 2007. The AFFF release is unrelated to the fuel and lubricants storage facility associated with CCAN117.

PROJECT APPROVAL

The project is required per IAW DoDI 4715.08 (1 Nov 13), Encl. 3, Par 1e (international agreement). The requirements are imposed by the BBodSchG (Bundes-Bodenschutz-Gesetz/ Federal Soil Protection Act) and the BBodSchV (Bundes-Bodenschutz-Verordnung/ Federal Soil Protection Ordinance. Pursuant to Art 53 of the Supplementary Agreement to the NATO SOFA [a binding international agreement within the meaning of DODI 4715.08, Encl. 3, par 1e (2)(b)] the US is to apply the provisions of these laws where applicable. A Decision Document will be prepared and LEC consulted after the RI/FS.

5652A.1007_CCAN121_GE43T_PFAS_ACP North of B14

Env Site ID: CCAN121

Cleanup Site: GE43T_PFAS_ACP North of B14

Alias: #

Regulatory Driver: DODI

RIP Date: 4/16/2028

RC Date: 9/30/2058

RC Reason: Not assigned

SC Date: 9/30/2058

Program: Compliance-related Cleanup

Subprogram: CC

NPL Status: No

Hazardous Ranking Score: 0

RRSE: N/A

MRSPP: N/A

Phase	Start	End
PA:	7/31/2009	8/31/2009
SI:	9/1/2009	6/30/2010
RI/FS:	7/1/2010	4/15/2026
RD:	4/16/2026	4/15/2027
IRA:	6/16/2010	2/15/2016
RA(C):	4/16/2027	4/15/2028
RA(O):	4/16/2028	9/30/2058
LTM:	- -	- -

Site Narrative: SITE LOCATION AND DESCRIPTION

1. Location- The site is located near the ACP north of highway B-14 in Ansbach Army Heliport (ARLOC GE43T). The site is located adjacent to the ARLOC boundary that borders highway B-14.

2. Physical Layout/Site Use- The site is a former AAFES gas station near Bldgs 5906 and 5907. The site is mainly paved with concrete and asphalt.

CONCEPTUAL SITE MODEL

1. Release Description- The past operation of the fueling station is the likely source of the BTEX contaminated soil and groundwater. The fueling station had three USTs with capacities of 30,000 L, 16,000 L, and 16,000 L used for the storage of MOGAS and diesel fuel removed in November 2021.

2. Media Impacted- TPH and BTEX contaminated soil and groundwater is present at concentrations requiring remediation. LNAPL (up to 30 cm thick) has been detected prior to the IRA. PFAS has also been detected at various locations across the site in groundwater.

3. Nature and Extent of Contamination- BTEX in soil and groundwater is the primary driver at the site. In FY21, the maximum BTEX concentration was 389.0 ug/L while in In FY20, the maximum BTEX concentration was 122.0 ug/L, both are above the Level 2 Value of 100 ug/L. PFAS contamination was found across the site a source has not yet been identified. The highest concentration of combined PFOS, PFOA, and PFHxS were detected in GWM24 (2.08 ug/L). Perched groundwater is located between 2.5-3.0 m bgs. The primary aquifer is located about 10 m bgs. Primary groundwater flow is to the north.

4. Receptors- Potential downgradient receptors include the Hirnbach Creek, downstream fish ponds, and GW Production Well Brunnen 1.

REMEDIAL OBJECTIVE

1. Long-Term Closeout Strategy- It is expected that groundwater monitoring as MNA will be performed indefinitely following the SRM tank removal and soil excavation project. At the request of the HN, additional active soil remediation will also be conducted.

2. Achievable Remedial Action Objective- Remove source material and tanks using SRM funds, followed by MNA to monitoring degradation of contaminants in groundwater.

3. Specific Regulatory Standards and Legal Drivers- The Code of Practice No. 3.8/1 released by the Bavarian Office for Water Management (LfW 2001) serves as the basis for evaluating contaminant concentrations.

4. Remediation Methods Planned or Being Conducted- A groundwater pump & treat system was operated under the IRA phase. After an efficiency evaluation in 2016 it was turned off at the request of the HN. The Host Nation is requiring quarterly groundwater monitoring until submittal of the remedial concept; monitoring is being performed in the RI/FS phase. Removal of the three USTs including excavation of surrounding sandfill and a significant amount of petroleum contaminated soil occurred in FY22 In a letter dated 30 November 2022, The HN stated that further active soil remediation through excavation is needed in addition to groundwater monitoring. The FRA will be determined after a data gap investigation is completed and additional soil samples are collected; however, the most probable scenario will be additional soil excavation and continuation of the quarterly groundwater monitoring program indefinitely.

5. Response Complete- Will be achieved when groundwater contamination has been reduced below Bavarian Level 2 Values or a less stringent value agreed to by the HN.

6. Site Closure- Will be achieved once the remedial objectives (yet to be established) have been met as determined by concentrations in groundwater.

7. Host Nation Involvement- The HN environmental authorities are the Umweltamt Ansbach and the Wasserwirtschaftsamt Ansbach. The HN authorities are aware of this site and will be contacted for their concurrence that NFA is appropriate.

PHASE SCHEDULE

1. Current Phase Objective- Groundwater monitoring in RI/FS until the SRM UST removal project is evaluated and final remedy selected.

2. Milestones- RIP (04/16/2028), RC (09/30/2058), Site Closeout (09/30/2058)

SCHEDULE & BUDGET CHANGES

1. Schedule- During the FY24 datacall, the RI/FS end date was extended by two years. All subsequent phase start and end dates were shifted as a result.

2. Budget- The CTC for this site in Spring 2024 is TBD.

HISTORICAL SITE ACTIVITIES

Soil contamination was discovered in the vicinity of the Bismarck ACP in July 2009 during construction work associated with the installation of a sewer system. In response to this discovery, an environmental investigation of soil, soil gas, and shallow groundwater was conducted in April 2010 and documented in a report dated June 2010. BTEX concentrations in soil gas samples RKS 3, RKS 4, and RKS 6 exceeded the Threshold Value 1 (10 mg/m^3) by 40 to 800 times. The Threshold Value 2 (100 mg/m^3) was exceeded in the soil gas samples taken at 2.00 m bgs by around 4 times. The soil gas samples from the deeper areas showed an exceedance of 50 to 80 times of Threshold Value 2. The water samples from RKS 3 and RKS 6 showed no exceedances of the test values for hydrocarbons PAH and CHC. However, the BTEX concentrations in RKS 3 and RKS 6 exceeded the threshold value according to BBodSchV (20 ug/L) by a factor of 12 and 5 respectively. Also, the samples exceeded the threshold value according to LfW 2001

(100 ug/L). In all soil gas and water samples of RKS 3, RKS 4, and RKS 6 the most frequently detected parameter is benzene (70% to 100% of the contamination). This is a strong indicator for a typical gasoline contamination. The vertical and horizontal extent of contamination was not completely delineated in the April 2010 investigation. A supplemental RI/FS conducted in FY11 and FY12 advanced the delineation of the petroleum-impacted area. Additionally, it confirmed the presence of LNAPL as well as CHCs in groundwater (Final report May 2013). After a HN request, pump and treat operation started in June 2014 as an interim remedial action at the well with the highest BTEX contamination in groundwater, which is GWM 22. The goal of the IRA was to contain the plume and to prevent further spreading. The pump and treat IRA operated for 2 years before the HN granted their concurrence that the process was not effectively reducing contaminant concentrations due to low permeability and low concentrations. A base-wide RI/FS was conducted in FY18 to understand the widespread CHC contamination. The RI/FS concluded that CCAN121 is not a CHC source and the BTEX plume is of limited extent. PFAS were detected in groundwater at the site. The site is not considered a source of PFAS. The USTs and soil removal was completed as part of an SRM project in FY22. The site was not included in the DUCS program.

PROJECT APPROVAL

The project is required per IAW DoDI 4715.08 (1 Nov 13), Encl. 3, Par 1e (international agreement). The requirements are imposed by the BBodSchG (Bundes-Bodenschutz-Gesetz/ Federal Soil Protection Act) and the BBodSchV (Bundes-Bodenschutz-Verordnung/ Federal Soil Protection Ordinance. Pursuant to Art 53 of the Supplementary Agreement to the NATO SOFA [a binding international agreement within the meaning of DODI 4715.08, Encl. 3, par 1e (2)(b)] the US is to apply the provisions of these laws where applicable. A Decision Document will be prepared in FY22 and LEC consulted after the RI/FS.

5652A.1009_CCAN125_GE43T_PFAS_Brunnen 1/Collector

Env Site ID: CCAN125

Cleanup Site: GE43T_PFAS_Brunnen 1/Collector

Alias: #

Regulatory Driver: DODI

RIP Date: 11/3/2030

RC Date: 9/30/2060

RC Reason: Not assigned

SC Date: 9/30/2060

Program: Compliance-related Cleanup

Subprogram: CC

NPL Status: No

Hazardous Ranking Score: 0

RRSE: N/A

MRSPP: N/A

Phase	Start	End
PA:	1/31/2001	2/28/2001
SI:	2/28/2001	1/31/2006
RI/FS:	1/31/2006	4/15/2025
RD:	4/16/2025	10/31/2026
IRA:	- -	- -
RA(C):	11/1/2026	11/2/2030
RA(O):	11/3/2030	9/30/2060
LTM:	- -	- -

Site Narrative: SITE LOCATION AND DESCRIPTION

1. Location- The site is mainly located in the northern portion of Ansbach Army Heliport (ARLOC GE43T) north of highway B14. The original location was limited to the northern ARLOC boundary in the peripheral areas of the installation. There, the old waterworks of the installation is located including two service water production wells, which are referred to in the name of the site. Today, this area is considered only the downgradient portion of a CHC groundwater plume. Based on the 2019 results of a multisite RI/FS, the plume extends from the vicinity of the Dining Facility (Bldg 5814) to the area of the old waterworks (Bldg 5864), with an anticipated source zone near Bldg 5814. The plume extends approximately 500 m with an estimated maximum width of 200 m in the central portion, triggering the CHC level-2 guidance value.

2. Physical Layout/Site Use- The installation is used as a helicopter base with associated facilities. The CC site spreads from a mostly sealed area north of the airfield, which was developed in the 1930s, to forested sections at the northern installation boundary with interspersed grassland and limited pavement/concrete.

CONCEPTUAL SITE MODEL

1. Release Description- The exact date and quantity of release is unknown. The source area is near well GWM125-16 near building 9033.

2. Media Impacted- CHC contaminated groundwater is present at the site. PFAS has also been detected at various locations across the site in groundwater.

3. Nature and Extent of Contamination- According to the April 2023 RI Report, the main source of the CHC plume has been identified in the area south of Building 9033. Maximum CHC concentrations of 19.2 mg/L (GWM125-16) and 21.4 mg/L (GWM125-18) were identified in groundwater samples collected immediately downgradient of the main source area. The CHC plume extends from the source area (near GWM125-16) past the Brunnen 1 well located 600 m to the north. Source area concentrations have been

detected up to 18,100 ug/L for PCE (perchloroethylene), which suggests the likely presence of DNAPL. Concentrations at the Brunnen 1 well have been measured up to 315 ug/L, exceeding the Bavarian Level 2 Guidance Value of 40 ug/L. Nearly all samples analyzed for the 2023 RI report exceed the insignificant threshold values for PFHxS and PFOS, with the sum of PFAS identified between 0.28 and 3.8µg/L. The highest concentration of combined PFOS, PFOA, and PFHxS previously detected was in GWM21 (1.71 ug/L). Groundwater is located between 0 m (near the collector well in the source area of Hirnbach creek) and 10.5 m bgs and flows in a northeasterly direction.

4. Receptors- In Germany, the groundwater itself is a protected receptor. Potential downgradient receptors include the Hirnbach Creek and downstream fish ponds.

REMEDIAL OBJECTIVE

1. Long-Term Closeout Strategy- SVE/MPE/AS is the recommended remedial solution to reduce CHC concentrations in groundwater.

2. Achievable Remedial Action Objective- During the Spring 2024 datacall, the remedial action was changed from ENA to SVE/MPE/AS followed by MNA for an indefinite 30 years.

3. Specific Regulatory Standards and Legal Drivers- The Code of Practice No. 3.8/1 released by the Bavarian Office for Water Management (LfW 2001) serve as the main basis for evaluating contaminant concentrations.

4. Remediation Methods Planned or Being Conducted- RI/FS is currently ongoingto investigate feasibility of remedial options. It is expected that the final remedial alternative will be two years of SVE/MPE/AS followed by MNA for an indefinite 30 years.

5. Response Complete- Will be achieved when groundwater contamination has been reduced below Bavarian Level 2 Values or a less stringent value agreed to by the HN.

6. Site Closure- The site will be closed following receipt of a HN closure letter.

7. Host Nation Involvement- The HN environmental authorities for the site are the municipal Ansbach Environment Agency (Umweltamt Stadt Ansbach) and the Water Management Office (Wasserwirtschaftsamt Ansbach).

PHASE SCHEDULE

1. Current Phase Objective- A fully funded RI/FS is underway to delineate and characterize CCAN125. After the RI/FS, the SVE/MPE/AS system will be designed (RD) in FY25, constructed (RAC) in FY27 and FY28 and operated (RAC) in FY29 and FY30. MNA will take place beginning in FY31 for an indefinite 30 years in the RA(O) phase.

2. Milestones- RIP (11/03/2030), RC (09/30/2060), Site Closeout (09/30/2060)

SCHEDULE & BUDGET CHANGES

1. Schedule- One and a half years were added to the RI/FS and RD end date during the Spring 2024 datacall.

2. Budget- The CTC for this site in Spring 2024 is TBD.

HISTORICAL SITE ACTIVITIES

The site has been used by the U.S. since 1945. During past investigations performed as part of CCAN018, elevated CHC concentrations were repeatedly detected in groundwater monitoring wells at various locations within Katterbach Kaserne (maximum CHC concentration of 828.2 ug/l) as well as in the groundwater extraction wells and the collector well of a water production facility. Originally, this facility comprised four groundwater extraction wells (Brunnen 1-4) and the shallow collector well accumulating water from the nearby Hirnbach spring. The produced water is collected in three underground water

reservoirs (cisterns) before being supplied as industrial service water. Out of the four deep extraction wells, only one is still operated (Brunnen 1). The water produced from the two remaining wells (Brunnen 1 and the collector well) is now being treated by two GAC filters before entering the reservoirs. When the pumps from the collector well are not in operation the spring water discharges directly through an overflow to the local creek Hirnbach. In 2007, the inlet into the creek was equipped with a cascade system, allowing the CHCs to off gas from the spring water before the water enters the creek. In 2009, three rounds of groundwater sampling were performed at Brunnen 1, GWM 4, and the collector well. The results confirmed previously detected CHC concentrations of up to approximately 200 ug/L at Brunnen 1 when operating the system and at approximately 100 ug/L at the collector well. It was concluded that the CHC source was located some 10 m upgradient or cross-gradient of Brunnen 1. An attempt to localize and identify the source area was requested by the HN authorities. During the subsequent additional RI (Final Report Dec 2011), a three-phased approach was performed to further characterize and identify the potential source area of known CHC groundwater contamination at extraction well Brunnen 1 consisting of a soil gas investigation, a pump test at Brunnen 1, and installation of three groundwater monitoring wells including groundwater sampling. During the pumping test, CHC concentrations reached a maximum of 176 ug/L after 180 minutes of pumping. The new monitoring wells GWM 19 and GWM 20 delineated the CHC impact zone to the north with a maximum CHC concentration of 3.1 ug/L. In the cross-gradient new well, GWM 21 CHC was identified at a concentration of 80.1 ug/l corresponding with the Brunnen 1 concentrations ranging from 28.2 to 176 ug/L within the 2011 RI study. A separate water quality sampling was contracted through DPW O&M and revealed CHC concentrations of up to 315 ug/L for the Brunnen 1 water in 2011. A multisite RI/FS was conducted from FY15 to FY19 to understand the widespread CHC contamination. The RI/FS identified the approximate CHC source area, which is now considered to be located 600m upgradient from Brunnen 1. Due to the significant exceedance of the step-2 values for CHC, a remediation of both the source area as well as the plume is required. Corrective action is also required to reduce the discharge of CHC via collector well into the surface water (Hirnbach). The site was not included in the DUCs program.

PROJECT APPROVAL

The project is required per IAW DoDI 4715.08 (1 Nov 13), Encl. 3, Par 1e (international agreement). The requirements are imposed by the BBodSchG (Bundes-Bodenschutz-Gesetz/ Federal Soil Protection Act), the BBodSchV (Bundes-Bodenschutz-Verordnung/ Federal Soil Protection Ordinance, and the WHG (Federal Water Management Act). Pursuant to Art 53 of the Supplementary Agreement to the NATO SOFA [a binding international agreement within the meaning of DODI 4715.08, Encl. 3, par 1e (2)(b)], the US is to apply the provisions of these laws where applicable. A Decision Document will be prepared and LEC consulted prior to remediation.

5652A.1010_CCAN126_GE43T_PFAS_FFTP South Bldg 5809

Env Site ID: CCAN126

Cleanup Site: GE43T_PFAS_FFTP South Bldg 5809

Alias: #

Regulatory Driver: DODI

RIP Date: 12/1/2027

RC Date: 9/30/2057

RC Reason: Not assigned

SC Date: 9/30/2057

Program: Compliance-related Cleanup

Subprogram: CC

NPL Status: No

Hazardous Ranking Score: 0

RRSE: N/A

MRSPP: N/A

Phase	Start	End
PA:	2/29/2016	2/29/2016
SI:	2/29/2016	6/30/2016
RI/FS:	11/30/2016	12/1/2025
RD:	12/2/2025	12/1/2026
IRA:	6/16/2016	11/30/2027
RA(C):	12/1/2026	12/1/2027
RA(O):	12/1/2027	9/30/2057
LTM:	- -	- -

Site Narrative: SITE LOCATION AND DESCRIPTION

1. Location- The site is located in the NW portion of Ansbach Army Heliport (ARLOC GE43T), about 125 meters from the NW ARLOC boundary. Bldg 5809 is located about 75 meters north.

2. Physical Layout/Site Use- The site consists of two old fire training pit areas that are referred to as the Eastern Training Area and Western Training Area. The Eastern Training Area is 320 m² and the Western Training Area is 1,500 m² as identified on aerial imagery from the early 1980's. Today, both areas consist of concrete and asphalted areas and manicured grassland with no trees.

CONCEPTUAL SITE MODEL

1. Release Description- The use of the area as a fire training area for decades has resulted in elevated PFAS eluate soil results. The site impacts are likely contributing to nearby groundwater drainage that discharges to the Katterbach Creek.

2. Media Impacted- Soil eluate contain PFAS at concentrations that exceed the HN threshold values. A substantial threat to groundwater is likely based upon the results.

3. Nature and Extent of Contamination- In FY17, PFOS was the most commonly detected PFAS component, with a maximum concentration of 5.7 ug/L, and has the largest lateral extent in unsaturated soil. An area of at least 2,700 m is contaminated with PFOS at levels exceeding the Bavarian level-2 threshold of 0.4 ug/L. The inner area around the "Old FFTP" contaminated with PFOS >1.5 ug/L can be is estimated to be approximately 1,300 m2. Groundwater at site and the adjacent (downgradient) area to the north-northwest is impacted with PFAS at levels above the preliminary Bavarian level-1 thresholds. The observed total PFAS concentrations range from 6.0 to 17 ug/L. The maximum PFAS concentration in groundwater of 16.8 ug/L was observed in well GWM77 in May 2019. The depth of PFAS impacts range from 0 - 2.9 m. Groundwater was encountered during the 2019 RI/FS at depths between 7.0 – 7.5 m. Groundwater flow is directed to the north towards Katterbach Creek.

4. Receptors- In Germany, the groundwater itself is a protected receptor. In addition, the PFAS surface soil detections pose a potential health risk to future on site workers. Based on the findings from the 2016 surface water feasibility study, groundwater from the site discharges towards Katterbach Creek. Sensitive receptors are located along the creek such as a fish farm in Obereichenbach.

REMEDIAL OBJECTIVE

1. Long-Term Closeout Strategy- Delineate PFAS contaminated soil and groundwater and prevent exposure to receptors. A carbon filtration system operating as an IRA treats existing groundwater drainage before discharge to the Katterbach Creek. Soil remediation will be needed in the future to remove source material. The need for a second carbon filtration system to treat another groundwater drainage line was identified during the Spring 2021 datacall.

2. Achievable Remedial Action Objective- Prevent discharge of PFAS into the Katterbach Creek.

3. Specific Regulatory Standards and Legal Drivers- For evaluating PFAS contamination in particular, the Code of Practice No. 3.8/1, is used by the regulators in Bavaria in combination with Leitlinien zur vorläufigen Bewertung von PFC-Verunreinigungen in Wasser und Boden - Status July 2022“ – (Guidance for the preliminary evaluation of PFAS-contaminations in water and soil - version July 2022), published by the Bavarian Environmental state authority.

4. Remediation Methods Planned or Being Conducted- An activated carbon water treatment system operating in IRA to prevent discharge of PFAS into the Katterbach Creek. The final remedial action is being evaluated; however, is expected to include soil removal and continued operation of the drainage water treatment systems.

5. Response Complete- Will be achieved when groundwater contamination has been reduced below respective Bavarian Guidance Values for PFAS in groundwater or a less stringent value agreed to by the HN.

6. Site Closure- Will be achieved following receipt of a HN closure letter.

7. Host Nation Involvement- The HN environmental authorities for the site are the municipal Ansbach Environment Agency (Umweltamt Stadt Ansbach) and the Bavarian State Water Management Office (Wasserwirtschaftsamt Ansbach), who are aware of the site.

PHASE SCHEDULE

1. Current Phase Objective- An RI/FS is currently underway to refine the extent of PFAS contaminated soil and groundwater. Concurrent with the RI/FS, a carbon treatment system is being operated in the IRA phase to prevent discharge of PFAS to the Katterbach Creek.

2. Milestones- RIP (12/01/2027), RC (09/30/2057), Site Closeout (09/30/2057)

SCHEDULE & BUDGET CHANGES

1. Schedule- During the Spring 2024 one year was added to the RI/FS and all subsequent phases.

2. Budget- The CTC for this site in Spring 2024 is TBD.

HISTORICAL SITE ACTIVITIES

Two old fire training pit areas, referred to as the Eastern Training Area and Western Training Area have been identified south of building 5850 and west of building 5516. Historical research found evidence that PFAS containing firefighting foam had previously been used in the Eastern Training Area. No historical information was found relating PFAS use to the Western Training Area. Investigations were conducted in January 2016 to test soil eluate for the presence of PFAS at both former fire training pits. No previous investigations have ever been conducted at these former fire training pits. A total of 6 soil Borings were advanced down to a depth of 3.9 m. Overall, 22 soil samples were collected and 12 were submitted for

laboratory analysis of PFAS in soil eluate. Groundwater was not encountered in any of the six borings. The soil eluate results were compared to Bavarian Level 1 and 2 values. In the Western Training Area, all detected PFAS were well below Bavarian Level 2 values. The maximum PFOS concentration in the Western Training Area was 0.14 ug/L below the Level 1 value of 0.23 ug/L as valid in 2016. In April 2017, the PFOS level 1 value was tightened to 0.1 ug/L. The detected PFAS concentrations in the Western Training Area are considered acceptable and no further investigation is needed on this portion of the site. The results from the Eastern Training Area revealed PFAS at concentrations that pose a substantial threat to groundwater. In five of six samples PFOS ranged from 1.2 to 5.6 ug/L, exceeding the Bavarian Level 2 value of 1.0 ug/L as valid in 2016. In April 2017, the PFOS level 2 value was tightened to 0.4 ug/L. Additionally, the Sum of PFOS + PFOA + PFHxS ranged from 2.17 to 11.77 ug/L, exceeding the 2016-Bavarian Level 2 value of 1.0 ug/L. Investigations were also performed to determine if PFAS are present in the surface water drainage system that discharges to the Katterbach Creek. A number of PFAS samples collected from the drainage network found PFOS concentrations up to 6.4 ug/L. The December 2019 RIFS report identified PFAS concentrations in groundwater ranging from 6 to 17 ug/L with a maximum concentration of 16.8 ug/L. Since the Katterbach Creek is fed by drainage groundwater collected on-post nearby the CC site it can be anticipated that the elevated PFAS concentration in the creek is partially sourced by the contamination at this CC site. Other downstream sources might add to the PFAS load of the creek water. Further downstream, the water of the creek is used by a fish farm producing trout for local restaurants. Samples taken from trout meat by HN show elevated PFOS concentrations compared to Bavarian background values. To treat water before discharge to the Katterbach creek, a surface water carbon treatment system was installed in FY16. This system will be operated concurrent with the underway RI/FS being performed to delineate the Eastern Training Area and evaluate groundwater. During the Spring 2021 datacall, the need for a second carbon treatment system was identified. The system will treat water from a separate line, which also receives sump water from a nearby hangar. It is expected that the FRA will include operation of the two carbon treatment systems and excavation of source material. The site was never included in the DUCs database.

PROJECT APPROVAL

The project is required per IAW DoDI 4715.08 (1 Nov 13), Encl. 3, Par 1e (international agreement). The requirements are imposed by the BBodSchG (Bundes-Bodenschutz-Gesetz/ Federal Soil Protection Act) and the BBodSchV (Bundes-Bodenschutz-Verordnung/ Federal Soil Protection Ordinance. Pursuant to Art 53 of the Supplementary Agreement to the NATO SOFA [a binding international agreement within the meaning of DODI 4715.08 Encl. 3, par 1e (2)(b)], the US is to apply the provisions of these laws where applicable. A Decision Document will be prepared and LEC consulted after the RI/FS. A Decision Document was prepared in FY20 which recommended hydraulic plume control. An additional Decision Document will be prepared for the second activated carbon system treating sump water discharging to the Katterbach Creek and for the soil excavations.

5652A.1011_CCAN104_GE43T_PFAS_Bldg 5508/Hangar 5

Env Site ID: CCAN104

Cleanup Site: GE43T_PFAS_Bldg 5508/Hangar 5

Alias: NBAN104

Regulatory Driver: DODI

RIP Date: 5/1/2027

RC Date: 9/30/2056

RC Reason: Not assigned

SC Date: 9/30/2056

Program: Compliance-related Cleanup

Subprogram: CC

NPL Status: No

Hazardous Ranking Score: 0

RRSE: N/A

MRSPP: N/A

Phase	Start	End
PA:	10/31/2014	10/31/2014
SI:	11/30/2014	3/31/2015
RI/FS:	4/1/2015	4/30/2025
RD:	5/1/2025	4/30/2026
IRA:	3/15/2020	4/30/2026
RA(C):	5/1/2026	4/30/2027
RA(O):	5/1/2027	9/30/2056
LTM:	- -	- -

Site Narrative: SITE LOCATION AND DESCRIPTION

1. Location- The site is located in the SW portion of Ansbach Army Heliport (ARLOC GE43T), with the center of the anticipated source about 15 m within 80 m of the western ARLOC boundary. Building 5508 (Hangar 5) is located about 200 m to the north.

2. Physical Layout/Site Use- The central former firefighting training pit consists of a rectangular concrete pad 210 m^2 in size that served to prevent ignitable material from migrating into subsurface soil during training activities. The area surrounding this concrete pad consists of manicured grassland with no trees.

CONCEPTUAL SITE MODEL

1. Release Description- The use of the area as a fire training area for decades has resulted in PFAS contaminated soil and groundwater. Fuels were used to light tires/wood on fire then extinguished with PFAS containing agents.

2. Media Impacted- Soil and groundwater contain PFAS at concentrations that exceed the HN threshold values.

3. Nature and Extent of Contamination- Groundwater monitoring conducted in June 2022 showed maximum total PFAS concentrations in the middle and downgradient portion of the plume at GWM01- and GWM70 (52.5 and 59.2 µg/L, respectively). Based on data from pumping tests, it is estimated that total PFAS concentrations in the extracted groundwater are likely to range between approximately 20 and 45 µg/L. Nine wells were sampled for PFAS during events in August/September 2017, November 2018, and May 2019. PFAS up to 22 ug/L was detected in GWM40 during the September 2017 sampling round. During the November 2018 sampling round, the wells GWM37 and GWM70 mark the plume center with PFAS concentrations on the order of 33 – 35 ug/L. In May 2019, total PFAS up to 29 ug/L were detected in well GWM70. The area and volume of PFAS contaminated soil and groundwater is currently being refined during the ongoing RI/FS. The depth range of PFAS impacts detected in soil leachate ranges from 0-8 m. Perched groundwater is located at 2.5 m and the main water table is at

about 10 m. Based on the broader topography, groundwater is expected to flow mainly west, however the groundwater table readings at the nine wells present at the site (status spring 2020) do not provide a clear picture of the hydrogeological conditions at the site.

4. Receptors- In Germany, the groundwater itself is a protected receptor. Additionally, the soil-plant pathway is a potential receptor due its connection to the food chain and the detection of PFAS in grass that resulted in special disposal.

REMEDIAL OBJECTIVE

1. Long-Term Closeout Strategy- Pump and treat is being conducted for an indefinite 30 years. The soil remedy is being evaluated and will likely include ex-situ soil desorption.

2. Achievable Remedial Action Objective- Pump and treat is operating for an indefinite 30 years.

3. Specific Regulatory Standards and Legal Drivers- For PFAS, the Code of Practice No. 3.8/1, is used by the regulators in Bavaria in combination with Leitlinien zur vorläufigen Bewertung von PFC-Verunreinigungen in Wasser und Boden - Guidance for the preliminary evaluation of PFAS-contaminations in water and soil - status July 2022, published by the Bavarian Environmental State Authority.

4. Remediation Methods Planned or Being Conducted- Pump and treat will operate concurrent with the RI/FS. At this time, there is insufficient information available to definitively establish the final remedial action; however, the most probable scenario at this time is that the pump and treat system will continue as the FRA. Remedial actions for soil are currently being evaluated and are expected to include ex-situ soil desorption.

5. Response Complete- Is not definable at this time. RC will be determined following the underway RI/FS, and once a regulatory standard is promulgated. In the interim, RC is being set to match the end of the planned RA(O) phase.

6. Site Closure- Is not definable at this time. SCO will be determined following the underway RI/FS, and once a regulatory standard is promulgated. In the interim, SCO is being set to match the end of the planned RA(O) phase.

7. Host Nation Involvement- The HN environmental authorities for the site are the municipal Ansbach Environment Agency (Umweltamt Stadt Ansbach) and the Bavarian State Water Board (Wasserwirtschaftsamt Ansbach). Agencies are aware of the site and were informed about the PA/SI conducted in September 2014, the SI report submitted in May 2016, an initial RI/FS report submitted in December 2019. The HN was also informed about the approved decision document prepared in March 2020.

PHASE SCHEDULE

1. Current Phase Objective- An RI/FS is underway to determine the magnitude and extent of PFAS in soil and groundwater near the former fire training pit and area south of Hangar 5 (Bldg 5508). An IRA for operation of a pump and treat system is also underway.

2. Milestones- RIP (05/01/2027), RC (09/30/2056), Site Closeout (09/30/2056)

SCHEDULE & BUDGET CHANGES

1. Schedule- Two years were added to the RI/FS end date and all subsequent phases were extended by at least six months during the Spring 2023 datacall. During the Spring 2024 datacall, all phases were shifted out one year.

2. Budget- The CTC for this site in Spring 2024 is TBD.

HISTORICAL SITE ACTIVITIES

During a previous investigation, conducted in the late 1990s, TPH (145 mg/kg) and PAH (53 mg/kg) were detected in soils. As a result, in November 1999 the structure was demolished and a total of 330 cbm of contaminated soil was excavated to a depth of 2 m bgs and disposed properly. Confirmation samples taken at 2 m below ground surface (bgs) around the edge of the excavation pit did not contain contamination above remediation limits. A PA/SI was conducted in June 2002 to assess POL, PAH, PCB, and BTEX contamination after the excavation of contaminated soil around the fire training pit, where benzene and PCB containing flammable liquids were used to light tires for training purposes of the fire department, and to confirm that remediation was successful or propose further actions, if needed. Soil and soil gas samples were collected and analyzed for the compounds of concern. The results were compared with the current regulatory limits to assess the potential necessity of further environmental actions. During this investigation, no significant contamination was detected and a threat to receptors cannot be anticipated. This PA/SI also demonstrated that the previously performed remedial measures were successful. Based on these investigation results, no further actions were recommended at the site. On 29 August 2014, the HN regulator requested that an initial soil investigation be conducted at the former fire training pit in accordance with the German Federal Soil Protection Act and Ordinance (BBodSchG and BBodSchV) in order to identify, quantify, and assess potential PFAS contamination in this area. Results of the PFAS analyses of soil, sludge, concrete and water samples were compared with the threshold values defined in the Bavarian Guideline Leitlinien zur vorläufigen Bewertung von PFC Verunreinigungen in Wasser und Boden, Bavarian State Office for Environment (March 2013) to identify elevated concentrations and exceedances of preliminary regulatory limits currently valid in the state of Bavaria. The analytical results indicate a widespread subsurface impact by PFAS in the area around the former fire training pit down to at least 3 m bgs. All soil samples showed PFOS + PFOA + PFHxS concentrations (between 1.2 ug/L and 244.19 ug/L) above the corresponding preliminary threshold values of that time. The water and the sludge samples from the oil-water separator also exceeded the threshold values. In 2015, the maximum groundwater and perched groundwater PFOS concentrations respectively were detected at 4.4 ug/L and 1,900 ug/L that exceed the HN preliminary guidance value of 0.1 ug/L. Maximum concentration in soil eluate was detected at 240 ug/L exceeding the applicable HN Level-2 threshold of 1.0 ug/L as valid in 2016 (SI report May 2016). The referenced threshold was tightened to 0.4 u/L in April 2017. Since the creek Katterbach receives water/perched groundwater collected on-post nearby the CC site in storm water lines, it can be anticipated that the elevated PFAS concentration in the creek is sourced by the contamination at the CC site. Further downstream, the water of the creek is used by a fish farm producing trout for local restaurants. Samples taken from trout meat by HN show elevated PFOS concentrations compared to Bavarian background values. However, threshold values set by food law are met still allowing the marketing of the fish. The PFAS soil impacts need to be delineated. The risk of groundwater contamination is high and needs to be investigated. A 2016 SI report confirmed groundwater contamination exceeding applicable Bavarian evaluation criteria. Following up the 2016 SI, a FY17 RIFS to refine the magnitude and extent of PFAS contaminated soil and groundwater has been completed; the accompanying report was delivered in December 2019. Based on the report, an IRA is being completed to install exfiltration wells along the western installation boundary to prevent further migration of PFAS off-post. Additional investigation is required to delineate the impacts of PFAS on soil and characterize the groundwater impacts of PFAS at this site. These data will be used to design the soil remedy which will be presented in the Soil Decision Document. The site was previously included in the EPR under DUCS number NBAN104.

PROJECT APPROVAL

The project is required per IAW DoDI 4715.08 (1 Nov 13), Encl. 3, Par 1e (international agreement). The requirements are imposed by the BBodSchG (Bundes-Bodenschutz-Gesetz/ Federal Soil Protection Act) and the BBodSchV (Bundes-Bodenschutz-Verordnung/ Federal Soil Protection Ordinance. Pursuant to Art

53 of the Supplementary Agreement to the NATO SOFA [a binding international agreement within the meaning of DODI 4715.08, Encl. 3, par 1e (2)(b)], the US is to apply the provisions of these laws where applicable. A Decision Document for groundwater remediation has been prepared. A Decision Document for soil will be prepared in FY23.

GE81A - Storck Barracks

Installation Name: GE81A - Storck Barracks

Installation City: Neustadt/Aisch- Bad Windsheim

5715A.1005_CCAN127_GE81A _PFAS Bldg 6505

Env Site ID: CCAN127

Cleanup Site: GE81A _PFAS Bldg 6505

Alias: #

Regulatory Driver: DODI

RIP Date: 10/16/2027

RC Date: 9/30/2057

RC Reason: Not assigned

SC Date: 9/30/2057

Program: Compliance-related Cleanup

Subprogram: CC

NPL Status: Not assigned

Hazardous Ranking Score: 0

RRSE: N/A

MRSPP: N/A

Phase	Start	End
PA:	5/16/2016	7/15/2018
SI:	7/16/2018	3/15/2020
RI/FS:	3/15/2020	10/15/2025
RD:	10/16/2025	10/15/2026
IRA:	- -	- -
RA(C):	10/16/2026	10/15/2027
RA(O):	10/16/2027	9/30/2057
LTM:	- -	- -

Site Narrative: SITE LOCATION AND DESCRIPTION

1. Location- The site is located in the western portion of Storck Barracks (ARLOC GE81A), immediately south and east of the fire station (bldg. 6505) it is part of the installation's airfield and approximately 100 m from the western ARLOC boundary.

2. Physical Layout/Site Use- The site is comprised of four discreet grassy areas that separate bldg. 6505, from roadways and the helicopter pad to the east. The Site is maintained grasslands, divided by taxiways and other paved areas, and used for airfield operations. The site covers an area of approximately 1,150 m2.

CONCEPTUAL SITE MODEL

1. Release Description- The Source of PFAS was determined to be spills in front of the fire station.

2. Media Impacted- Soil and groundwater.

3. Nature and Extent of Contamination- During the SI, PFOS concentrations in soil ranged from 0.501 ug/L to 2.15 ug/L, above the Bavarian Level 2 threshold of 0.4 ug/L. The PFAS impact in soil as described by the SI was largely located within the shallow unsaturated subsurface to the south and southwest of the fire station building. PFAS were detected in groundwater at trace concentrations below the regulatory limits for the individual PFAS constituents. The 2021 RI report confirmed that an area of approximately 11,000 m2 was contaminated with PFOS at levels exceeding the preliminary Bavarian Level-2 threshold of 0.4 ug/L. Maximum total PFAS concentrations in the order of 110 ug/L were determined in the contamination center. An area in the order of 2,000 – 2,200 m2 directly adjacent to the south of the fire brigade building is impacted with PFAS >5 ug/L down to at least 2.5 – 3.0 m bgs. A soil volume in the order of 5,000 – 6,500 m3 may therefore be referred to as the core contamination. During groundwater sampling events in November 2022 and May 2023, PFAS concentrations exceeding the applicable GFS or GOW values were only identified in well SB3, located cross-gradient to the main soil impact. PFHxS was reported between 0.16 and 0.18 ug/L, exceeding the applicable GFS value of 0.1

ug/L. PFAS concentrations in wells SB2 and SB4 have not exceeded regulatory PFAS values between April 2019 and May 2023.

4. Receptors- In Germany, groundwater itself is a protected receptor.

REMEDIAL OBJECTIVE

1. Long-Term Closeout Strategy- PFAS are mainly present in unsaturated soil. It is expected that soil excavation to remove source material will be needed. Remediation of groundwater is not anticipated, but groundwater monitoring is ongoing.

2. Achievable Remedial Action Objective- Remove elevated PFAS concentrations in soil through excavation of source area.

3. Specific Regulatory Standards and Legal Drivers- The Bavarian State Office for the Environment Guidelines for the Preliminary Assessment of PFAS Contaminants in Water and Soil.

4. Remediation Methods Planned or Being Conducted- Soil excavation is planned in FY25. Capping may be a possible solution for this site.

5. Response Complete- Will be achieved after soil excavation is performed in the RAC phase. The RC date is set to match the end of the RAO phase.

6. Site Closure- Site closure date set to 09/30/2057 to match the end of the RAO phase.

7. Host Nation Involvement- The HN environmental authorities for the site are the Neustadt/Aisch- Bad Windsheim municipal Environment Agency (Landratsamt Neustadt/Aisch-Bad Windsheim) and the Bavarian State Water Board Ansbach (Wasserwirtschaftsamt Ansbach). Both agencies are aware of the site.

PHASE SCHEDULE

1. Current Phase Objective- An RI/FS began in FY21 to determine the nature and extent of contamination. A decision document will be prepared under the RI/FS.

2. Milestones- RIP (10/16/2027), RC (09/30/2057), Site Closeout (09/30/2057)

SCHEDULE & BUDGET CHANGES

1. Schedule- One year was added to the RI/FS and RD dates during the Spring 2023 datacall.

2. Budget- The CTC for this site in Spring 2024 is TBD.

HISTORICAL SITE ACTIVITIES

Storck Barracks has been used by U.S. forces for various activities since 1945. Located proximate to the site are an airfield, fire station and hangars. AFFF is stored on site for use during firefighting activities including at the fire station and in the fire suppression systems (FSS) located in two hangars 6500 and 6502. Reportedly there was never a fire training area, (Reportedly, the one at Katterbach, Ansbach Army Heliport was used) and Fire Department personnel do not have any records or knowledge of AFFF releases, including no known spills or equipment discharges. The AFFF stored on site met European Union specifications and contained lesser amounts of long-chained PFAS compared to previous mixtures. In 2021, the AFFF in the FSS was substituted with a fluorine-free product. A retention basin is present outside hangar 6500, which is designed to collect runoff during discharge of the FSS. The basin is supposed to remain empty to fulfill its purpose in case of a fire; however, in 2014 it was found full of water of unknown origin. The water was sampled for PFAS (among other parameters) as part of the waste characterization process with low-level detections reported. In 2015 after some coordination with the HN, the water was pumped to the local wastewater treatment plant off-post. The source of PFAS was unknown, although base personnel thought that the water in the basin originated from sprinkler maintenance work, periodically releasing PFAS-containing water into the basin. The maintenance

contractor was asked to change procedures and to collect the water separately; however, water was again discovered in the retention basin in 2016. After the initial finding, the HN had requested a tightness test/TüV certificate for the basin, which subsequently failed. The HN also requested general PFAS investigations at the airfield, and in 2017 a Preliminary Assessment was performed outside of the CC program to determine if a release to the environment had occurred. The PA investigations found elevated levels of PFAS in grass cuttings and soil, with soil leachate concentrations exceeding the Preliminary Guideline Value 2. Based on these results, the grass clippings have been collected for disposal in a high-temperature incinerator; the associated costs are not funded under the CC program. In May 2018, the HN revisited the site and issued a follow up letter reiterating the need for a tightness test and asked for repair measures. In this letter, the HN requested the installation of a groundwater monitoring well near the basin to determine if PFAS-contaminated wastewater infiltrated into groundwater through the potentially leaking basin. To meet this requirement, the site was included in the CC program during the Spring 2018 data call, with an SI performed in FY19. The source of PFAS was determined to be spills in front of the fire station.

PROJECT APPROVAL

The project is required per IAW DoDI 4715.08 (1 Nov 13), Encl. 3, Par 1e (international agreement). The requirements are imposed by the BBodSchG (Bundes-Bodenschutz-Gesetz/ Federal Soil Protection Act) and the BBodSchV (Bundes-Bodenschutz-Verordnung/ Federal Soil Protection Ordinance. Pursuant to Art 53 of the Supplementary Agreement to the NATO SOFA [a binding international agreement within the meaning of DODI 4715.08, Encl. 3, par 1e (2)(b)] the US is to apply the provisions of these laws where applicable. A Decision Document will be prepared and LEC consulted after the RI/FS.

SITE SUMMARY

SITE CLOSEOUT SUMMARY

CRL ID	Site Name	Site Closeout Date
5652A.1001	CCAN018_GE43T - Bldg. 5842 - GWM 5	8/30/2013
5652A.1002	CCAN116_GE43T - Bldg 5513 Railroad Offlo	10/31/2007
5652A.1003	CCAN200A_GE43T - Groundwater Monitoring	9/30/2006
5652A.1005	CCAN118_GE43T - VMF near Bldg 5906 (MCA	9/30/2012
5652A.1006	CCAN119_GE43T - Child Development Ctr(MC	10/31/2011
5652A.1008	CCAN123_GE43T - TEMF Katterbach (MCA 667	9/30/2013
5715A.1001	CCAN019_GE81A - Bldg 6556 Former Gas St.	12/31/2006
5715A.1002	CCAN002_GE81A - FORMER SKEET RANGE	11/15/2017
5715A.1003	CCAN120_GE81A - VMF near Bldg 6633 (MCA	12/31/2011
5715A.1004	CCAN122_GE81A - Bldg 6512 Motor Pool (MC	9/30/2012