

US Army Garrison Benelux
Army Cleanup Program

Installation Action Plan Final
September 2023

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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 |
|----------------|--|
| ARLOC | Area Location |
| AST | Aboveground Storage Tank |
| BGS | Below Ground Surface |
| BGL | Below Ground Level |
| BTEX | Benzene, Toluene, Ethylbenzene, and Xylene |
| BV/BS | Bioventing/Bioslurping |
| CC | Compliance-related Cleanup |
| CTC | Cost to Complete |
| DODI | Department of Defense Instruction |
| DPE | Département de la Police et des Contrôles |
| DRMO | Defense Reutilization and Marketing Office |
| DSD | Département du Sol et des Déchets |
| DUCS | Database of USAREUR Contaminated Sites |
| ENV | Environmental |
| FS | Feasibility Study |
| FY | Fiscal Year |
| HN | Host Nation |
| HQAES | Headquarters Army Environmental System |
| HRS | Hazard Ranking Score |
| IAP | Installation Action Plan |
| IAW | In Accordance With |
| ID | Identification |
| IR | Installation Restoration |
| IRA | Interim Remedial Action |
| ISCO | In-Situ Chemical Oxidation |
| JP | Jet Propellant |
| kg | kilogram |
| L | liter |
| LNAPL | Light Non-Aqueous Phase Liquid |
| LTM | Long-Term Management |
| m | meter |
| m ² | square meter |
| m ³ | cubic meter |
| mg/kg | milligram per kilogram |
| MR | Munitions Response |

| Acronym | Definition |
|---------|---|
| MRSPP | Munitions Response Site Prioritization Protocol |
| NE | Northeast |
| NPL | National Priorities List |
| PA | Preliminary Assessment |
| PAH | Polycyclic Aromatic Hydrocarbon |
| POL | Petroleum, Oil, and Lubricants |
| RA(C) | Remedial Action (Construction) |
| RA(O) | Remedial Action (Operations) |
| RC | Response Complete |
| RD | Remedial Design |
| RI | Remedial Investigation |
| RIP | Remedy-in-Place |
| RRSE | Relative Risk Site Evaluation |
| SC | Site Closeout |
| SE | Southeast |
| SI | Site Inspection |
| TPH | Total Petroleum Hydrocarbon |
| ug/L | micrograms per liter |
| USAREUR | United States Army Europe |
| UST | Underground Storage Tank |
| VS | Walloon Threshold Values |

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 IR Sites: 0/0

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

Number of Open Sites with Response Complete/Total CC Sites: 0/1

SITE-LEVEL INFORMATION

BE215 - Chievres Airbase

Installation Name: Chievres Airbase

Installation City: CHIEVRES

Installation County: Not assigned

Installation State: Not assigned

5560A.1001_CCNS010_BE215 - Bldg 20059, USTs POL 10-

Legacy ID: CCNS010

Site Name: BE215 - Bldg 20059, USTs POL 10-

Alias: NSNS010

Regulatory Driver: DODI

RIP Date: 4/16/2015

RC Date: 5/15/2024

RC Reason: Not assigned

SC Date: 5/16/2024

Program: Compliance-related Cleanup

Subprogram: CC

NPL Status: No

Hazardous Ranking Score: 0

RRSE: N/A

MRSPP: N/A

| Phase | Start | End |
|--------|------------|------------|
| PA: | 7/31/2004 | 9/30/2004 |
| SI: | 9/30/2004 | 12/31/2004 |
| RI/FS: | 1/31/2005 | 10/31/2009 |
| RD: | 9/30/2008 | 9/30/2010 |
| IRA: | 1/31/2009 | 10/31/2011 |
| RA(C): | 10/31/2011 | 4/15/2015 |
| RA(O): | 4/16/2015 | 5/15/2024 |
| LTM: | -- | -- |

Site Narrative: SITE LOCATION AND DESCRIPTION

1. Location- The site is a former fuel storage area (POL 10-1) located near Gate 1 in the northern portion of the Chievres Air Base (ARLOC BE215), near the northern installation boundary.
2. Physical Layout/Site Use- The site is used for storage of fuel products and contained a 380,000 L JP-8 UST a 10,000 L UST sump tank; a 6,000 L sump tank; an oil water separator; a pumping station; and four 40,000 L kerosene ASTs. The site contains roughly equal proportions of paved and unpaved areas.

CONCEPTUAL SITE MODEL

1. Release Description- In 1993, the main underground pipe broke causing a spill of 3,975 L of JP-8.
2. Media Impacted- TPH and BTEX are the primary contaminants in soil and groundwater that require remediation. To a lesser degree, PAH contaminated soil is also present.
3. Nature and Extent of Contamination- LNAPL has been detected in well P102 at a thickness of 10 cm and was previously detected in well P509 between December 2015 and February 2018. TPH has been detected in soil and groundwater at concentrations up to 3,408 mg/kg and 13,065 ug/L in exceedance of the Walloon Threshold Values (VS) of 130 mg/kg and 200 ug/L. Benzene has been detected in soil and groundwater at concentrations up to 9.5 mg/kg and 1,100 ug/L in exceedance of the VS of 0.2 mg/kg and 10 ug/L. The depth of contaminated soil is 0.0 - 5.0 m bgs with an aerial extent of about 6,000 m². The aerial extent of contaminated groundwater is around 13,656 m². The volume of soil and groundwater prior to 30 April 2007 is respectively 117,000 m³ and 28,000 m³. The average depth to groundwater at the site is 9.6 m bgs and flows northwest.
4. Receptors- The groundwater contamination plume is expected to flow off-post with a potential future impact to off-post groundwater extraction wells.

REMEDIAL OBJECTIVE

1. Long-Term Closeout Strategy- Reduce TPH and BTEX concentrations in soil and groundwater to below the VS.
2. Achievable Remedial Action Objective- Reduce TPH in soil and groundwater below the VS using soil excavation, and conduct biosparging/bioventing, to eliminate potential exposure to receptors. The biosparging/bioventing system was turned off in June 2021 and a risk assessment is underway in FY23 to determine if the site can be closed.
3. Specific Regulatory Standards and Legal Drivers- The VS have been used for evaluation of contaminant concentrations.
4. Remediation Methods Planned or Being Conducted- Excavation of approximately 30,000 m³ of contaminated soil was completed in FY14 - FY15. A biosparging/bioventing remediation system operated in RA(O) through June 2021. A risk assessment is being conducted to determine the residual risk and it is likely that the system will never be restarted.
5. Response Complete- Will be determined following the completion of the risk assessment.
6. Site Closure- The site will be closed following receipt of the final RA(O) summary report that concludes NFA.
7. Host Nation Involvement- The HN environmental authorities for the site are the DSD (Département du Sol et des Déchets) and DPE (Département de la Police et des Contrôles). The HN is aware of this site but does not have any decision-making authority.

PHASE SCHEDULE

1. Current Phase Objective- With the closure of the biosparging/bioventing remediation system in 2021, the current phase objective is completion of a risk assessment. The human health risk assessment will be revised to verify the site is safe for the planned housing construction project. The risk assessment started in late FY21 and will continue into FY23. The expected due date of the risk assessment is 24 March 2023. This task will be conducted under the RA(O) phase and include soil vapor study, soil sampling, monitoring well installation, comprehensive groundwater sampling, biosparging/bioventing remedy evaluation, and preparation of a human health risk assessment to summarize this effort. The risk assessment took place. This contract includes 4 sampling campaigns leading to the creation of 3 reports. The first one is for BSBV effectiveness, the second for HHRA expanded report based on 2019 result and the third is an Engineer report on feasibility Evaluation or Remedial. Reports will be receive before end of POP.
2. Milestones- RIP (4/16/2015), RC (5/15/2024), and Site Closeout (5/16/2024)

SCHEDULE & BUDGET CHANGES

1. Schedule- During the Spring 2023 datacall, no changes were made to the phase schedule and the site remained in the RA(O) phase.
2. Budget- The CTC for this site in Spring 2023 is TBD.

HISTORICAL SITE ACTIVITIES

In 1993, the main underground pipe broke at POL 10-1 causing a spill of 3,975 L of JP-8. This was discovered during a routine inspection of the nearby storm basin/pond, when small amounts of kerosene were observed flowing in the direction of the local drainage system and also leaking from the oil/water separator. Remediation in response to the spill commenced with free product recovery using a skimmer. Soil samples tested at the time contained TPH with maximum concentration of 2,447 mg/kg. Samples taken from monitoring wells showed a maximum reading of 120,000 ug/L for TPH (Dutch C standard used to determine if remediation is required was 600 ug/L) and 1,200 ug/L for BTEX (Dutch C value was 60 ug/L). It was estimated that the amount of contaminated soil was 500 to 1,000 m³. A soil

venting and groundwater pump & treat system was operated between July 1995 and March 1996 and removed 19,219 kg of contaminants. In March 1996, a 42-cm thick floating layer of free product was detected in the discharge water from the remediation system. Four single walled 50,000 L USTs were removed from the site in 1997. In 2004, soil samples revealed concentrations of TPH in the soil up to 6,800 mg/kg at a depth of 8.0 - 8.5 m below ground surface. Groundwater contained TPH of 24,000 ug/L in one well and 4,600 ug/L in a second well. BTEX concentrations were also elevated, with benzene being the primary component at a maximum of 870 ug/L. Based on these results, it was determined that additional study at this site was required. This consisted of replacement and installation of new groundwater monitoring wells and soil and groundwater testing. In 2014, excavation works were performed at POL 10-1 to remove tanks and related equipment. During these works soils impacted with total petroleum hydrocarbons (TPH) and volatile fuel derived hydrocarbons were excavated to a depth of approximately 5.0 m below ground level (bgl). After completion of the excavation works, a BV/BS system was installed at the presumed location of the remaining source zone. The BV/BS system operated in full-scale mode from November 2015 to June 2021, with a pause occurring in July 2017. This site was previously included in the DUCs database under DUCS number NSNS010.

PROJECT APPROVAL

This project is required to maintain operations or protect human health and safety IAW Section 5.1.2 of DoDI4715.8 and DODI Enclosure 3, Chapter 1 (i). A final decision document was prepared for this site and signed on 27 April, 2011.

SITE SUMMARY

SITE CLOSEOUT SUMMARY

| HQAES ID | Site Name | Site Closeout Date |
|------------|--|--------------------|
| 5560A.1001 | CCNS010_BE215 - Bldg 20059, USTs POL 10- | 5/16/2024 |
| 5560A.1002 | CCNS011_BE215 - Bldg 20071, USTs POL 10- | 5/14/2021 |
| 5560A.1003 | CCNS012_BE215 - Bldg 20049, USTs POL 10- | 5/14/2021 |
| 5560A.1004 | CCNS112_BE215 - Bldg 2008, Gas Station | 2/28/2013 |
| 5560A.1005 | CCNS111_BE215 - Bldg 20023, Heating Oil | 3/31/2013 |
| 5560A.1006 | CCNS110_BE215 - Bldg 20048, Heating Oil | 3/15/2013 |
| 5560A.1007 | CCNS002_BE215 - Bldg 20066, Dump, POL 10 | 5/14/2021 |
| 5560A.1008 | CCNS015_BE215 - Bldg 20072, USTs POL 10- | 1/15/2015 |
| 5560A.1009 | CCNS102_BE215 - Bldg 20054, Former Skeet | 9/30/2013 |
| 5560A.1010 | CCNS108_BE215 - Bldg 20012, WW Discharge | 3/15/2013 |
| 5560A.1011 | CCNS013_BE215-FMR. FIREFIGHTING TRAINING | 1/27/2021 |
| 5560A.1012 | CCNS016_BE215-RUNWAY SWEEPING DUMP | 1/31/2015 |
| 5560A.1013 | CCNS113_BE215-FORMER FIRING RANGE | 1/31/2015 |