DEPARTMENT OF THE AIR FORCE
AIR FORCE CIVIL ENGINEER CENTER
INSTALLATION RESTORATION PROGRAM
JOINT BASE MCGUIRE-DIX-LAKEHURST, NJ 08641

19 October 2026

Mr. Michael Figura
Remediation Program Manager (AFCEC/CZRE)
787 CES/CEIE
2403 Vandenberg Avenue
Joint Base McGuire-Dix-Lakehurst, NJ 08641

Ms. Karyn Treinen
USEPA, Region 2
290 Broadway – 18th Floor
New York, NY 10007-1866

Re: *Final Proposed Plan for Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006* for the Optimized Remediation Contract, Joint Base McGuire-Dix-Lakehurst, NJ.

Dear Ms. Treinen:

Attached for your reference please find the *Final Proposed Plan for Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006*.

If you have any questions, please contact Mr. Michael Figura at (609) 754-5799.

Sincerely,

FIGURA.MICHAEL.J.1228906812 Digitally signed by FIGURA.MICHAEL.J.1228906812 Date: 2026.10.19 15:47:22 -04'00'

MICHAEL FIGURA
Remediation Program Manager

Attachment:
- Final Proposed Plan for Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006, Joint Base McGuire-Dix-Lakehurst, New Jersey, October 2026

cc via SharePoint:
Bill Freidmann, Jr., USEPA
Marianna Cosentino, NJDEP
Christina Hart, NJDEP
Kristine Iazzetta, NJDEP
Sal van Wert, USACE Baltimore
James Richman, AFCEC/CZRE
Branwen Ellis, New Jersey Pinelands Commission

Final Proposed Plan for Lakehurst Rifle, Pistol, and Skeet Ranges, Site ZZ006

Joint Base McGuire-Dix-Lakehurst, New Jersey

October 2026







Final Proposed Plan for Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006, Joint Base McGuire-Dix-Lakehurst (JBMDL), New Jersey

October 2026

The Department of the Air Force (DAF) invites the public to comment on the proposed remedy for the munitions-related contamination in soil and groundwater at Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006, located at the Lakehurst Area of Joint Base McGuire-Dix-Lakehurst (JBMDL), New Jersey (**Figure 1**).

Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006 is part of the **Military Munitions Response Program (MMRP).** The MMRP identifies and addresses potential risks from unexploded ordnance and other munitions-related contamination left behind by past military activities at former ranges. Because small arms ammunition and clay targets can leave behind metals and other materials, the DAF investigated whether contamination was present in soil and groundwater and if cleanup is needed.

This Proposed Plan summarizes previous investigations completed at the Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006 and documents that no remedial action is necessary to ensure protection of human health and the environment and these three sites can be safely used without additional cleanup**.**

This Proposed Plan also summarizes information that can be found in greater detail in the 2006 **Preliminary Assessment (PA)** Report and 2011 **Site Inspection (SI)** Report for all three sites, which can be accessed at the **Administrative Record (AR)** website referenced on the right side of this page. Information related to the Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006 from the 2017 Final Removal Action Report and 2024 Final **Remedial Investigation (RI)** Report, is also summarized in this document.

This Proposed Plan is issued by the DAF, the lead response agency for MMRP activities, and the United States Environmental Protection Agency (USEPA), the lead regulatory agency for the sites, who will jointly select the final remedy after reviewing and considering all information submitted during the 30-day public comment period.

As required by **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** Section 120(e)(4) and the **Federal Facility Agreement (FFA)** with the DAF for JBMDL, the USEPA must co-select the final remedy. In addition, the DAF will consult with the New Jersey Department of Environmental Protection (NJDEP). The DAF, in conjunction with the USEPA, may modify the proposed remedy or select another response action based on new information or public comments.

— MARK YOUR CALENDARS —

Public Comment Period
23 October to 21 November 2026

In Person and Virtual
Public Meeting
22 October 2026

Details of the public meeting will be advertised in the Asbury Park Press, Burlington County Times, and Pine Barrens Tribune. JBMDL Restoration Advisory Board members will also receive meeting details via email.

For questions and comments about this Proposed Plan, please contact:

James Richman,
Remediation Program Manager
787 CES/CEIE
2403 Vandenberg Avenue
Joint Base McGuire-Dix-Lakehurst, NJ 08641
james.richman.1@us.af.mil
(609) 754-2267

For information please see the AR file, online at:
https://ar.cce.af.mil/

Therefore, the DAF and USEPA encourage the public to review and comment on the proposed remedy presented in this Proposed Plan, as well as review site documents to gain a better understanding of the sites and previous investigations. The documents are available in the AR file, online at https://ar.cce.af.mil/.

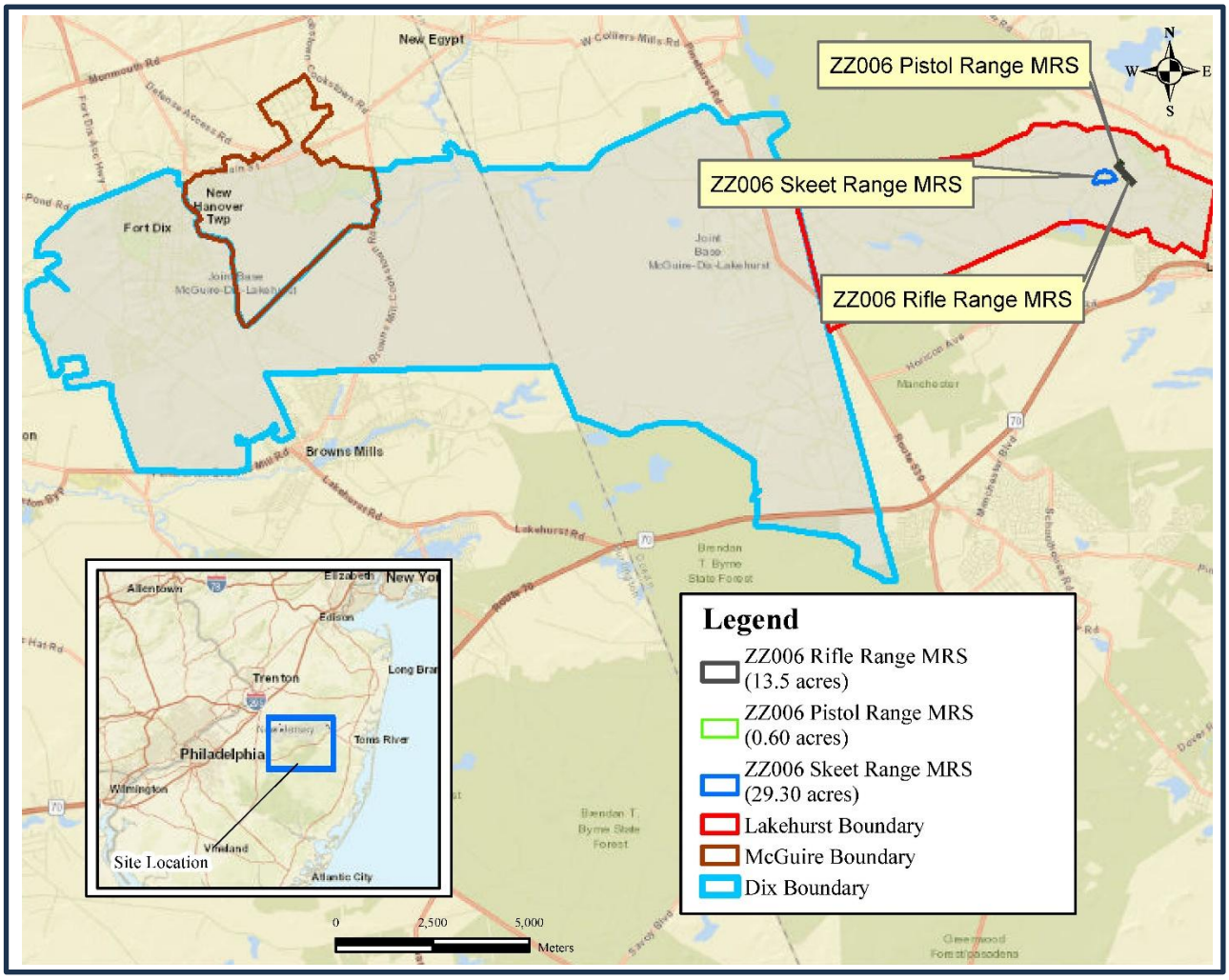
To access records, click "Continue to Site" to view the main page. From the "Active Duty Installation List" on the left, scroll down and select "JBMDL- Lakehurst, NJ." In the "Subject or Title" box, type in "ZZ006" and click "Search." Scroll down to see available documents. Click on the icon to open and view a document.

(Note: Words in **bold** are defined in the Glossary of Terms on **Page 17**.)

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Figure 1. JBMDL, ZZ006 Rifle Range, ZZ006 Pistol Range, and ZZ006 Skeet Range MRSs Locations



THE CERCLA CLEANUP PROCESS

Environmental investigations and cleanups follow the steps shown in **Figure 2**. These activities are carried out in accordance with CERCLA, the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**, and Executive Order 12580. For Air Force facilities, the responsibility for implementing CERCLA has been assigned to the DAF.

Previous investigations at the Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006 that have followed steps in the CERCLA process include the PA, SI, Non-Time Critical Removal Action (NTCRA), and RI.

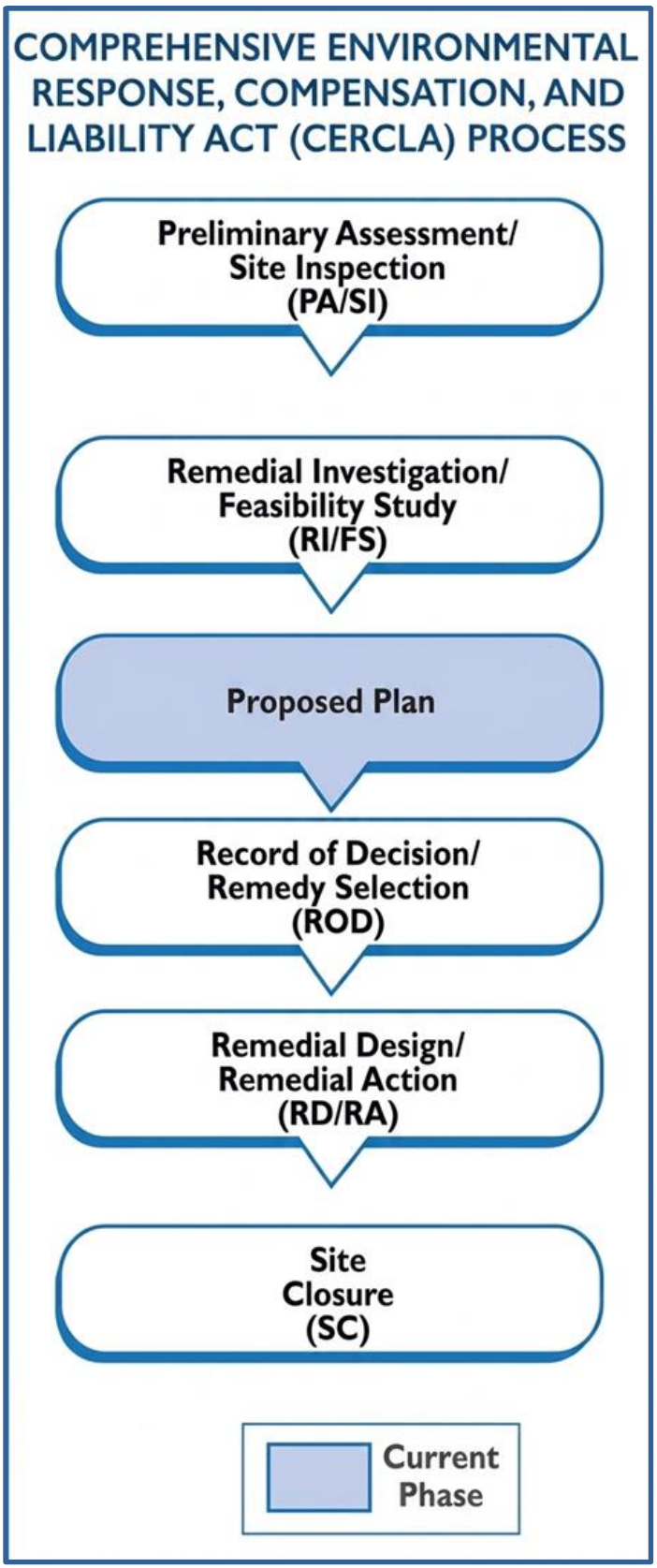
This Proposed Plan is the next step in the CERCLA cleanup process (**Figure 2**). It is based on the results of previous investigations and removal actions, as well as reports prepared from those efforts. The Proposed Plan provides site information to the public, identifies alternatives that were considered, explains the proposed remedy, and invites public comments.

After the public comment period for this Proposed Plan closes, the DAF and USEPA will review all comments received. They will then either select the proposed remedy as the final remedy, modify the proposed remedy, or select a different response action.

The DAF will prepare a Responsiveness Summary that summarizes and addresses the public comments. This summary will be included in the **Record of Decision (ROD)** which formally documents the final selected remedy for the Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006.

At the Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006, the **Remedial Design/Remedial Action** (RD/RA) phase may not be needed because **No Further Action (NFA)** is the proposed remedy, and if that is selected as the final remedy, the ROD would be followed by Site Closure.

Figure 2. Cleanup Process under CERCLA



SITE HISTORY AND BACKGROUND

JBMDL is located in Burlington and Ocean counties, and is approximately 20 miles southeast of Trenton, New Jersey. The base is approximately 14 miles inland from the Atlantic Ocean. JBMDL is located within the Pinelands National Reserve, a pine-forested area that covers about 1.1 million acres of coastal plain. The installation covers more than 42,000 contiguous acres of federal property. It is surrounded by an additional 58,000 acres of state- and federally-managed land.

Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006, encompasses 43.4 acres of small arms training ranges. It consists of three separate MRSs: ZZ006 Rifle Range MRS (13.50 acres), ZZ006 Pistol Range MRS (0.60 acres), and ZZ006 Skeet Range MRS (29.30 acres).

There is no evidence of MEC at the MRSs based on the investigations performed to date; no intact Small Arms Ammunition (SAA) or MEC were observed during the previous investigations. No actual military munitions other than SAA have been historically used at these three small arms ranges. As a result, there are no other known or suspected MEC areas associated with the MRSs.

The predominant Munitions Constituents (MC) associated with SAA is lead. Other MC include antimony, arsenic, copper, zinc, and the constituents of the clay targets (polycyclic aromatic hydrocarbons, or PAHs at skeet ranges only).

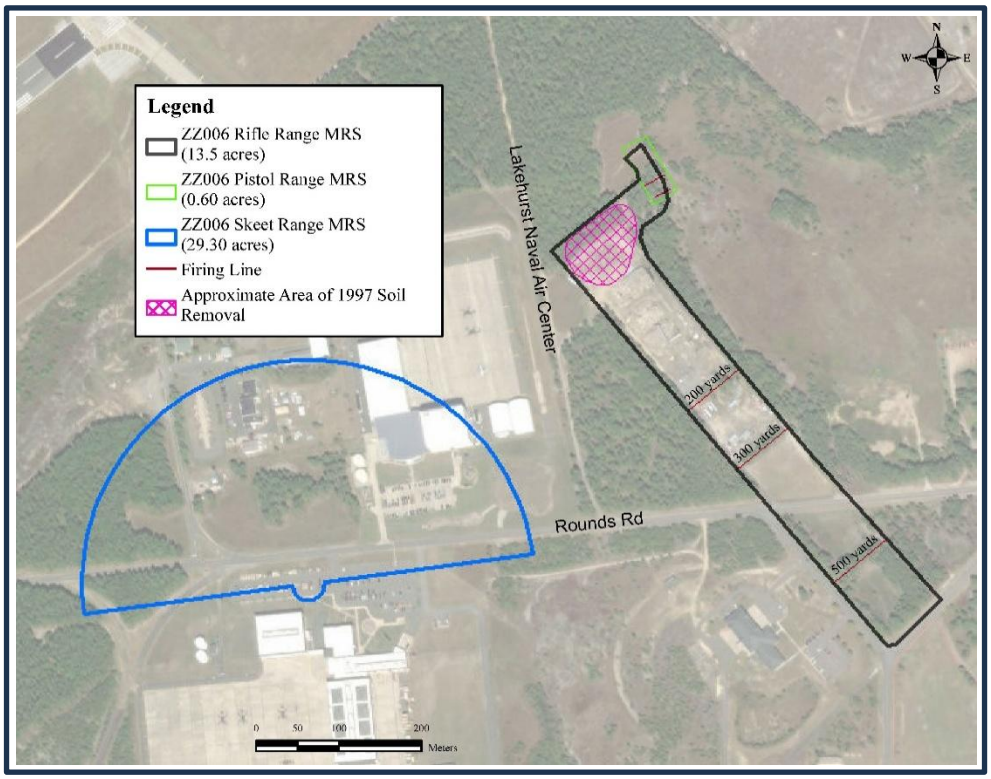
ZZ006 Rifle Range

The ZZ006 Rifle Range MRS is a former rifle range on a 13.50-acre tract of land located in the east-central region of the Lakehurst Area (**Figure 3**). The former rifle target area was in the upper northwestern portion of the range, and three rifle firing lines were located approximately 200 yards, 300 yards, and 500 yards to the southeast, respectively.

Some pine/scrub vegetation exists at the former firing lines and behind the target area, but large portions of the range (including the former target area) are unvegetated.

Based on this site's documented use as a rifle range from the late 1930s to 1975, small arms ammunition used at this MRS include .50 caliber or smaller.

Figure 3. ZZ006 Rifle Range, ZZ006 Pistol Range, and ZZ006 Skeet Range MRSs



ZZ006 Pistol Range

The ZZ006 Pistol Range MRS is a former pistol range on a 0.60-acre tract of land situated adjacent to and northeast of the ZZ006 rifle target area (**Figure 3**). Site features associated with pistol range training activities included an impact (i.e., backstop) berm, a target area located approximately 80 ft southeast of the impact berm area, and two suspected firing lines located approximately 100 ft and 180 ft farther to the southeast, respectively. The ZZ006 Pistol Range MRS is not fenced and is largely covered by mixed pine/scrub vegetation.

Based on this range's documented use as a pistol range from the late 1930s to 1975 and observations of spent bullet fragments, ammunition used at the range was likely .45 caliber.

ZZ006 Skeet Range

The ZZ006 Skeet Range MRS is former skeet range on a 29.30-acre acre tract of land located southwest of the ZZ006 Rifle Range MRS, near the intersection of Rounds Road and Rockwell Road (**Figure 3**). Limited information is available regarding the construction and historical use of this MRS. The PA identified an investigation area consisting of a semi-circular shot fall zone with a 900-ft radius, and a shooting area (i.e., firing line) situated at the center of the baseline (**Figure 3**).

Based on the range's documented use as a skeet range from the late 1930s to 1975, it is likely that only 12-gauge and 20-gauge shotguns were used at this site.

PREVIOUS INVESTIGATIONS AND SURVEYS

The following summarizes the various phases of investigation that have been performed at the ZZ006 Rifle Range, ZZ006 Pistol Range, and ZZ006 Skeet Range MRSs to evaluate potential soil and groundwater impacts.

Preliminary Assessment (2006). Available historical documents regarding development and operation of the three MRSs were assembled and reviewed for the PA.

According to the PA, potentially contaminated soil from the ZZ006 Rifle Range MRS was excavated in 1980. In 1997, the Installation raked and treated more potentially contaminated soils at the ZZ006 Rifle Range MRS and adjacent areas (**Figure 3**). The soils removed from the site were combined with soils excavated from other small arms ranges and treated by soil washing.

The treated soils were reportedly placed back into the original excavation footprint from which they were removed.

At the conclusion of the PA, it was recommended that an SI be performed at the ZZ006 Rifle Range, ZZ006 Pistol Range, and ZZ006 Skeet Range MRSs in order to ensure that lead had not migrated to groundwater at the ZZ006 Rifle Range and ZZ006 Pistol Range MRSs and that soil met NJDEP soil cleanup criteria at the ZZ006 Skeet Range MRS.

Site Inspection (2011). The SI field activities at all three MRSs consisted of: a detector-aided, non-intrusive survey of portions of the sites; the collection of surface soil samples (0 to 6 inches below ground surface [bgs]) for **X-Ray Fluorescence (XRF)** and laboratory analyses to determine the concentrations of contaminants of potential concern (e.g., antimony, arsenic, copper, lead, and zinc) (all sites) and PAHs (ZZ006 Skeet Range); and the collection of groundwater samples from temporary wells (all sites).

The screening levels for surface soil were NJDEP Residential Direct Contact Soil Remediations Standards (NJRSRS) and for groundwater the NJDEP Groundwater Quality Standards (GWQS).

The detector-aided visual survey revealed no magnetic anomalies or indications of MEC at any of the three MRSs. No MEC was encountered during the field activities at the three MRSs. Numerous Munitions Debris (MD) such as spent bullets were observed at ZZ006 Rifle Range and ZZ006 Pistol Range, and scattered remnants of clay targets were observed at ZZ006 Skeet Range.

ZZ006 Rifle Range Sampling Results

Five of the 30 surface soil samples analyzed using XRF contained lead concentrations above the screening level at the time (400 milligram per kilogram [mg/kg]). Four of the 17 surface soil samples from the site that were analyzed in the laboratory contained lead concentrations that exceeded the screening level. One soil sample exceeded the screening level for antimony (31 mg/kg). None of the analytical results for the other metals in soil exceeded their respective screening

levels.

Unfiltered groundwater samples showed concentrations of lead, arsenic, copper, and zinc that exceeded their respective screening levels. The elevated concentrations may have been caused by sediment being entrained in the unfiltered water sample. The analyses of the filtered groundwater samples indicated only arsenic in one sample exceeded the screening level (3 µg/L).

ZZ006 Pistol Range Soil Sampling Results

A portion of the ZZ006 Pistol Range MRS was investigated as part of the ZZ006 2011 MRS SI.

Three of the seven surface soil samples from the site that were analyzed in the laboratory contained lead concentrations that exceeded the screening level. The other metals were either not detected or concentrations were less than their respective screening levels.

ZZ006 Skeet Range Sampling Results

Prior to the SI, the U.S. Army Center for Health Promotion and Preventative Medicine (USACHPPM) conducted an environmental baseline survey in 2008 at the ZZ006 Skeet Range MRS as part of a property transfer to the New Jersey National Guard. Baseline survey sampling identified lead in surface soils above the screening level in 4 of the 24 sampling grids and PAHs above screening levels in 6 of the sampling grids.

During the SI, two of the 10 surface soil samples from the ZZ006 Skeet Range MRS that were analyzed in the laboratory contained lead concentrations that exceeded the screening level. One soil sample exceeded the screening levels for antimony (31 mg/kg) and arsenic (19 mg/kg). None of the analytical results for the other metals in soil exceeded their respective screening levels. Generally, most of the PAHs in the surface soil samples collected during the SI from the ZZ006 Skeet Range MRS were non-detect, and where detected, PAH concentrations were usually estimated to be one or more orders of magnitude less than the screening level concentrations. Only one surface soil sample location exhibited exceedances of the PAH screening levels for five of the analytes.

The unfiltered groundwater samples showed concentrations of lead, arsenic, and antimony that exceeded the screening levels for those metals. None of the filtered groundwater samples exceeded the screening levels.

Following the SI, ZZ006 Rifle Range, ZZ006 Pistol Range, and ZZ006 Skeet Range were rated according to the Munitions Response Site Prioritization Protocol (MRSPP) to determine the level of risk they presented. ZZ006 Rifle Range and ZZ006 Pistol Range received a medium risk score of 5 and ZZ006 Skeet Range received a low to medium risk score of 6.

Additional surface and subsurface soil sampling and analysis for metals and/or PAHs were recommended at all three MRSs at the conclusion of the SI. Because unfiltered groundwater samples contained lead and other select metals concentrations that exceeded the screening levels, additional groundwater sampling was recommended at each MRS.

Non-Time Critical Removal Action (NTCRA) (2015-2017). Additional surface and subsurface soil samples were collected at the three MRSs during the 2015-2016 **Engineering Evaluation/Cost Analysis (EE/CA)** to delineate the extent of soil that needed to be removed to reduce the risks. (**Figure 4** [ZZ006 Rifle Range and ZZ006 Pistol Range] and **Figure 5** [ZZ006 Skeet Range]).

ZZ006 Rifle Range – an area of approximately 0.8 acres contained lead above the screening level. A smaller area of elevated antimony fell within the lead area.

ZZ006 Pistol Range – an area of approximately 0.3 acres contained lead above the screening levels. A smaller area of elevated antimony fell within the lead area.

ZZ006 Skeet Range – an area of approximately 2.89 acres contained lead and/or PAHs above the screening levels at the MRS. A smaller area of elevated arsenic fell within the lead area.

A total of 2,087.2 cubic yards (CY), 1,036.1 CY, and 3,435.4 CY of contaminated soil was removed from the ZZ006 Rifle Range, ZZ006 Pistol Range, and ZZ006 Skeet Range MRSs, respectively during the NTCRA field activities.

Figure 4 – NTCRA - Extent of Excavation at ZZ006 Rifle Range and ZZ006 Pistol Range

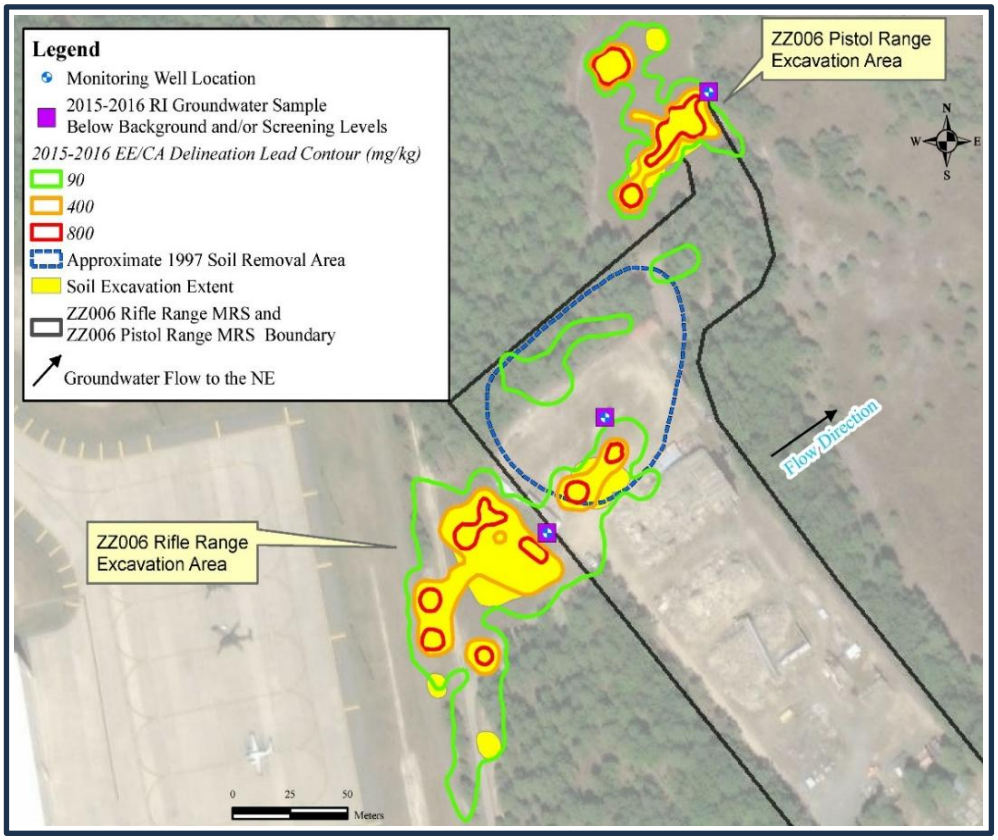
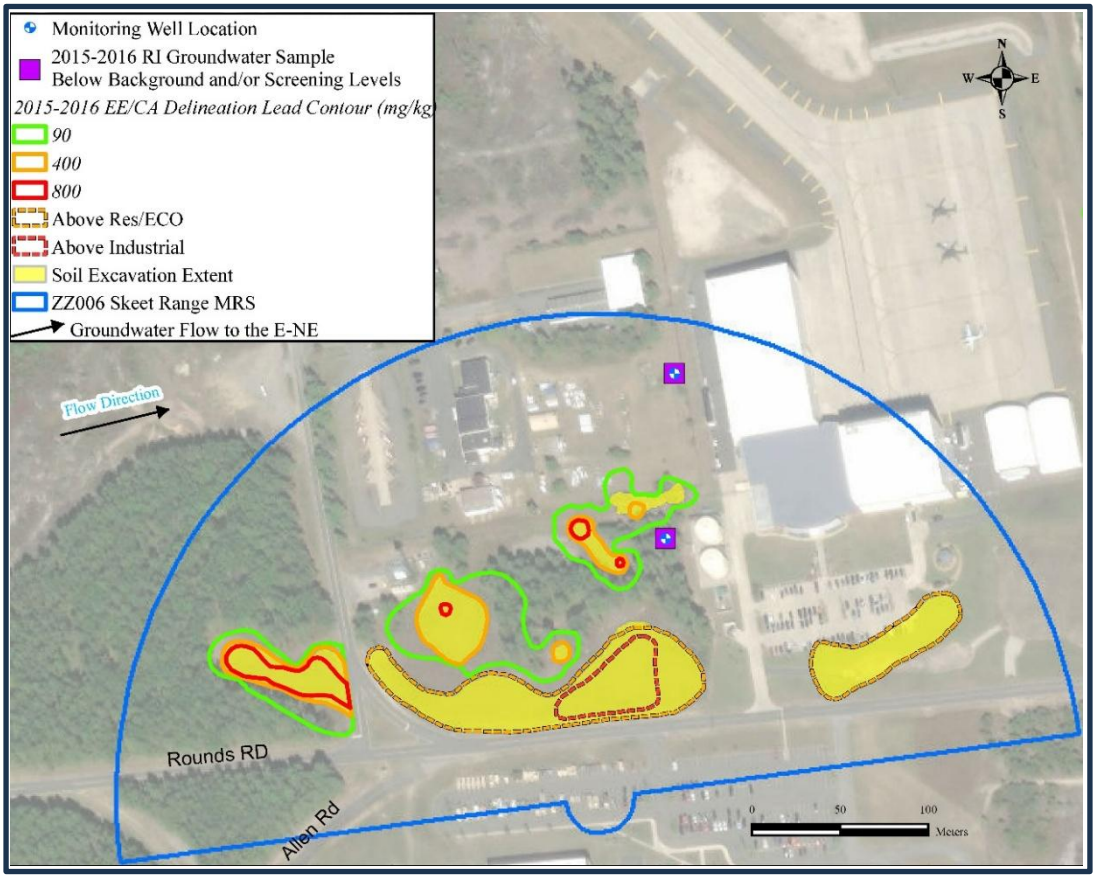


Figure 5 – NTCRA – Extent of Excavation at ZZ006 Skeet Range



The analytical results confirmed that maximum concentrations of metals and PAHs were below their respective screening levels. The excavations were backfilled with clean topsoil.

Post-excavation confirmation soil samples were collected from the sides and bottom of the excavations and analyzed for metals and PAHs.

Remedial Investigation (2015-2017). Although no soil samples were collected during the MRS RI, confirmation soil samples collected from within the removal action excavation and EE/CA soil samples collected outside the removal action excavation were incorporated into the RI risk assessments.

The screening levels used during the RI for all analytes included the more conservative values between the USEPA Residential Regional Screening Levels (RSLs) and NJRSRS for soil and the USEPA Tapwater RSL for groundwater. The analytes were also compared to their respective soil background concentrations (i.e., Coastal Plain Mean Rural Soil Concentration for Lakehurst Soil Type were used as Background Threshold Values [BTV]) and groundwater background concentrations (NJDEP Class I-PL groundwater remediation standards are used as background concentrations for metals and average background concentrations provided in Background Addendum Phase 2 RI are used for PAHs).

For lead, both USEPA Resident RSL and NJDEP NJRSRS were 400 mg/kg at the time of the RI. However, USEPA Region 2 developed a tiered approach for lead consisting of the following:

- First individual detections of lead exceeding 400 mg/kg in surface soil (0-2 feet bgs) were evaluated as an initial remediation goal (performed during the EE/CA soil sampling described above).
- Next, the average lead concentrations within the top two feet across the remediated areas were compared to 200 mg/kg once the NTCRA targeting detections above 400 mg/kg was complete.

The RI risk assessments determined that remaining MC contaminants in soil do not present a potential hazard to human or ecological receptors at any of the three MRSs (see more details regarding the Human Health Risk Assessment [HHRA] in Summary of Site Risks section below).

Note the USEPA residential screening level for lead was changed in 2024 from 400 mg/kg to 200 mg/kg. Because the lead analytical results in surface soil were compared to 200 mg/kg per the USEPA Region 2 guidance, the RI risk assessment conclusions summarized above are still valid.

The RI included groundwater sampling at each of the three MRSs as summarized below.

ZZ006 Rifle Range RI groundwater sampling – One new permanent groundwater monitoring well, installed downgradient of the removal action area, was sampled, along with one existing monitoring well, during two seasonally separated sampling events. The groundwater samples were analyzed for total metals including antimony, arsenic, copper, lead, and zinc. No metals were detected above their established background concentrations. Therefore, it was concluded that groundwater does not pose an elevated risk to human health in consideration of the current use and reasonably anticipated future uses.

ZZ006 Pistol Range RI groundwater sampling - One new permanent groundwater monitoring well installed downgradient of the removal action area was sampled during two seasonally separated sampling events. The groundwater samples were analyzed for total metals including antimony, arsenic, copper, lead, and zinc. Arsenic was detected at a concentration greater than the screening level (0.052 µg/L) but below the background threshold value (12.9 µg/L). All other metals were non-detect. As a result, the DAF concluded that groundwater at ZZ006 Pistol Range does not pose an elevated risk to human health in consideration of the current use and reasonably anticipated future uses.

ZZ006 Skeet Range RI groundwater sampling – One existing and one new permanent groundwater monitoring well installed downgradient of the general shot fall zone were sampled during two seasonally separated sampling events. The groundwater samples were analyzed for total metals including antimony, arsenic, copper, lead, and zinc; and PAHs. Arsenic was detected at a concentration greater than the screening level but below the established background threshold value.

All other metals were below their respective groundwater screening levels.

PAHs were non-detect in all RI groundwater samples. As a result, it was concluded that groundwater at ZZ006 Skeet Range does not pose an elevated risk to human health in consideration of the current use and reasonably anticipated future uses.

The lead concentrations in groundwater at all three MRSs were either non-detect or their values were estimated well below the new EPA standard for lead in groundwater, 10 µg/L. Therefore, the RI conclusions regarding the groundwater contamination described above for all three MRSs are still valid.

Following the RI, all three MRSs obtained the MRSPP score of 8 (a low risk).

SITE CHARACTERISTICS

ZZ006 Rifle Range

Some pine/scrub vegetation exists at the ZZ006 Rifle Range firing lines and behind the target area, but large portions of the range (including the former target area) are unvegetated.

There are no surface water bodies on or adjacent to the MRS that would receive runoff from the MRS. This MRS is not located in wetlands, and there are no historic buildings or cultural resources on the property. The topographic profile is generally flat with elevations ranging from 77 to 98 ft above mean sea level (amsl). Shallow groundwater is approximately 15 to 22 ft bgs and flows to the northeast in the site area.

Most of the ZZ006 Rifle Range is fenced and presently in use by a New Jersey State Police unit for urban search-and-rescue training. The training site consists of large areas with building debris and damaged vehicles to simulate a disaster site. Conditions at this portion of the MRS are subject to change based on needs of the State Police disaster simulations.

In addition, there are plans to construct an Army Urban Search and Rescue (USAR) support facility near the long-range firing point. The remainder of the MRS is wooded and appears subject to future controlled burns for vegetation management. Portions of the ZZ006 Rifle Range outside the training area are within a designated hunting area. Future land use is not expected to change.

Access to JB MDL requires admittance through the security gate and there is a fence around the perimeter of the installation.

Access to the USAR training site is restricted by the USAR training area fence. There are no access restrictions to the remaining portions of the ZZ006 Rifle Range located outside the training area (once inside the Lakehurst Area perimeter fence).

ZZ006 Pistol Range

The ZZ006 Pistol Range is not fenced and is largely covered by mixed pine/scrub vegetation. There are no surface water bodies on or adjacent to the MRS that would receive runoff from the MRS. This MRS is not located in wetlands and there are no historic buildings or cultural resources on the property.

The topographic profile is generally flat with elevations ranging from 77 to 98 ft amsl. Shallow groundwater is approximately 35 to 38 ft bgs and flows to the northeast in the site area.

The ZZ006 Pistol Range is not currently developed, but due to its proximity to the ZZ006 Rifle Range, its use may be subject to change based on search-and-rescue training in the area. Like the ZZ006 Rifle Range, the ZZ006 Pistol Range is also wooded and is located within a designated hunting area. Evidence of controlled burning consistent with typical vegetation management practices was observed in this MRS. Future land use is not expected to change other than that mentioned above.

The MRS, located outside the enclosed search-and-rescue training area, is accessible to foot traffic (no access restrictions) once inside the JBMDL perimeter fence. There are no roadways with direct access to this MRS.

ZZ006 Skeet Range MRS

Much of the ZZ006 Skeet Range MRS has been developed. The northern portion of the shot fall zone farthest from the firing point is occupied by part of the Lakehurst Recycling Facility. The recycling facility contains several buildings, parking areas, and a storage yard that lay within the boundaries of the MRS but are separated from the remainder of the site by a chain-link fence. The area south of Rounds Road is currently occupied by the New Jersey Air National Guard (NJANG)

Aviation Support Facility. The former firing line and southern boundary of the MRS is covered by a paved parking lot that is part of the NJANG Aviation Support Facility.

Additionally, a construction of a new Army Communications-Electronics, Research, Development, and Engineering Center (CERDEC) hangar was completed in 2016. The construction area is located north of Rounds Road, on the eastern side of the ZZ006 Skeet Range fan. The CERDEC facility is separated from the remainder of the site by a chain-link fence. The undeveloped portions of the MRS are covered by mixed pine/scrub vegetation

There are no surface water bodies on or adjacent to the MRS that would receive runoff from the MRS. This MRS is not located in wetlands, and there are no historic buildings or cultural resources on the property. The topographic profile is generally flat with elevations ranging from 77 to 98 ft amsl.

Shallow groundwater is approximately 9 to 13 ft bgs and flows to the northeast in the site area.

The firing area of the ZZ006 Skeet Range is currently under a parking lot associated with the newly constructed NJANG Aviation Support Facility located directly south of the MRS. The northern portion of the shot fall zone is presently occupied by the Lakehurst Recycling Facility. The eastern side of the ZZ006 Skeet Range fan is now occupied by the CERDEC hangar.

Future use of the MRS includes continued operation of the existing recycling facility, NJANG Aviation Support Facility, and newly constructed CERDEC hangar. The MRS is not in a designated hunting area.

Rounds Road and Rockwell Road traverse the ZZ006 Skeet Range MRS, and access to the majority of this MRS is not restricted (once inside the Lakehurst Area perimeter fence) except for the fenced areas around the Lakehurst Recycling Facility and CERDEC hangar.

SUMMARY OF SITE CONTAMINATION

Based on early site assessments, historical use, and subsequent investigations, there is no evidence of MEC at the MRSs. Specifically, no intact SAA or MEC were observed during the RI or removal action field efforts. As a result, no action with respect to MEC was recommended at the conclusion of the RI.

Based on historical use of the three MRSs for small arms range training, potential MC included metals residue (antimony, arsenic, copper, lead, and zinc) at all three sites and PAHs at ZZ006 Skeet Range. Lead contaminated soil was identified at all three MRSs. The contaminated soil also included elevated levels of antimony at ZZ006 Rifle Range and ZZ006 Pistol Range and arsenic and PAHs at ZZ006 Skeet Range. However, following the NTCRA, the remaining MC contaminants concentrations in soil were below removal action goals (i.e. the screening or background levels at the time of the response action) and do not present a potential hazard to human or ecological receptors at Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006. As a result, an NFA with respect to MC was recommended at all three sites.

SCOPE AND ROLE OF THE ACTION

This Proposed Plan addresses the ZZ006 Rifle Range. ZZ006 Pistol Range, and ZZ006 Skeet Range MRSs at JBMDL Lakehurst.

The recommended NFA response will involve no further investigation or cleanup at the sites with respect to MEC or MC.

Future investigations, remedy selection, and closure for other Lakehurst MRSs are pending; however, those activities do not impact the fate of the ZZ006 Rifle Range, ZZ006 Pistol Range, and ZZ006 Skeet Range MRSs. In addition, other non-MMRP environmental restoration actions at JBMDL Lakehurst are ongoing under separate programs and similarly do not affect the evaluation or remedy for the three MRSs.

SUMMARY OF SITE RISKS

As noted in Site Characteristics section above, access to the MRSs is restricted in that access to JBMDL requires admittance through the security gate in the perimeter fence that surrounds the base. Access is further restricted within the Lakehurst Recycling Facility and CERDEC hangar at ZZ006 Skeet Range and around the USAR training site at ZZ006 Rifle Range.

A **Human Health Risk Assessment (HHRA)** was performed at the ZZ006 Rifle Range, ZZ006 Pistol Range, and ZZ006 Skeet Range MRSs as part of the RI to determine if the site human health risk

was within an acceptable range assuming unrestricted reuse conditions.

The objective of the HHRA was to determine whether residual detected concentrations of MC (those remaining in soil after removal action), based on post-excavation confirmation sampling results, pose a significant threat to current or potential future human receptors at these sites. The HHRA evaluated recreational users (including hunters and trespassers), industrial/utility workers, construction workers, and hypothetical future residents. Potential exposure of police trainees was also considered and determined to be bounded by the more conservative residential exposure scenario.

At the ZZ006 Rifle Range and ZZ006 Pistol Range MRSs, antimony in soil was the only human health Contaminant of Potential Concern (COPC) based on a comparison of the maximum detected concentrations against the regulatory screening levels. The HHRA considered both carcinogenic (cancer) and non-carcinogenic (non-cancer) risks. Because antimony is a not a carcinogen, only non-cancer health effects were evaluated. The calculated noncancer hazard quotients (HQs) for antimony varied among the evaluated human receptors based on their respective exposure assumptions. The highest HQs were associated with the hypothetical future residential receptor, with values of 0.0446 at the ZZ006 Rifle Range and 0.0187 at the ZZ006 Pistol Range. Because antimony was the only COPC evaluated for noncancer effects at these MRSs, these HQs also represent the total noncancer hazard indices (HIs). Both HIs were below the noncancer hazard threshold of 1.0, indicating no unacceptable noncancer health hazards associated with antimony exposure. Therefore, antimony in soil was not carried forward as a Contaminant of Concern (COC) at the ZZ006 Rifle Range and ZZ006 Pistol Range.

For lead, the maximum lead concentrations in post-excavation confirmation soil samples at the three MRSs exceeded the updated USEPA screening level (2025 USEPA OLEM guidance) and NJDEP residential soil standard for lead of 200 mg/kg. Samples exceeding this standard are summarized below:

- ZZ006 Pistol Range – a total of 98 soil samples (including 11 duplicates): 11 samples with lead concentrations above 200 mg/kg (ranging between 218 and 371 mg/kg).
- ZZ006 Rifle Range - a total of 148 soil samples (including 6 duplicates): 28 samples with lead concentrations above 200 mg/kg (ranging between 204 and 386 mg/kg)

Lead in post-excavation confirmation soil samples was evaluated in accordance with current 2025 USEPA OLEM guidance for residential exposure scenarios as follows.

Although several discrete soil samples exhibited lead concentrations greater than 200 mg/kg, all detected concentrations were below 400 mg/kg. In addition, the arithmetic mean lead concentration within each MRS is less than 200 mg/kg.

Consistent with OLEM Directive 9200.2-167, the 200 mg/kg benchmark represents a soil concentration that is generally protective of the regional risk reduction goal of limiting exposure such that no more than 5% of the target child population exceeds a blood lead level of 5 µg/dL under residential exposure assumptions.

These lines of evidence indicate that potential exposures are bounded and that upper-end concentrations do not represent site conditions.

Based on these findings, residual lead concentrations are considered consistent with the OLEM risk framework and exposures are unlikely to exceed the target blood lead level of 5 µg/dL in more than 5% of the potentially exposed child population.

Accordingly, no further action is warranted with respect to lead in soil at the ZZ006 Pistol Range and ZZ006 Rifle Range MRSs under a residential exposure scenario.

At the ZZ006 Skeet Range, five PAHs and arsenic in soil were identified as COPCs. The human health risk assessment evaluated potential cancer risks and noncancer health hazards associated with these COPCs for current and future human receptors. The highest calculated risks were associated with the hypothetical future residential receptor, with a total excess lifetime cancer risk of 2.09×10^{-6} and a total noncancer HI of 0.0317. The cancer risk was within EPA's generally acceptable risk range of 1×10^{-6} to 1×10^{-4}, and the HI was

below the noncancer hazard threshold of 1.0. Therefore, none of the evaluated COPCs were retained as COCs at the ZZ006 Skeet Range.

For lead, the maximum lead concentration in post-excavation confirmation soil samples at the MRS exceeded the updated USEPA screening level (2025 USEPA OLEM guidance) and NJDEP residential soil standard for lead of 200 mg/kg. Individual samples exceeding this standard are summarized below:

- ZZ006 Skeet Range – a total of 132 soil samples (including 10 duplicates): 9 samples with lead concentrations above 200 mg/kg (ranging between 207 and 377 mg/kg)

The evaluation of these results is the same as explained for the ZZ006 Rifle Range and ZZ006 Pistol Range above. Accordingly, no further action is warranted with respect to lead in soil at the

ZZ006 Skeet Range MRS under a residential exposure scenario.

Based on the above discussion, no COPCs were carried forward as COCs.

Therefore, site soil at ZZ006 Skeet Range is recommended for no further investigation or no action as it does not pose a risk to potential receptors.

Groundwater was not evaluated as an exposure medium in the MRS-specific HHRA because no site-related constituents were identified as contaminants of potential concern in groundwater at ZZ006 Rifle Range, ZZ006 Pistol Range, and ZZ006 Skeet Range.

Based on **Screening Level Ecological Risk Assessment (SLERA)**, no MC in soil were determined to create a potentially unacceptable risk to local ecological receptor populations at ZZ006 Rifle Range, ZZ006 Pistol Range, and ZZ006 Skeet Range.

Therefore, there is no need for further action at the ZZ006 Rifle Range, ZZ006 Pistol Range, and ZZ006 Skeet Range MRSs based on ecological risk.

Because MEC was not found during previous investigations conducted at the sites, an evaluation of the MEC hazards was not required.

REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) are not required for the Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006 because there are no unacceptable risks to human health or the environment due to MEC or MC.

In accordance with EPA's *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (July 1999, OSWER 9200.1)*, the requirements to provide a summary of remedial alternatives and an evaluation of alternatives in the Proposed Plan do not apply to the ZZ006 Rifle Range, ZZ006 Pistol Range, and ZZ006 Skeet Range MRSs because there are no unacceptable risks to human health or the environment due to MEC or MC.

PROPOSED REMEDY

Since no human health or ecological risks or explosive hazards are present at the Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006, there is no basis of remedial action. The sites currently meet **Unlimited Use/Unlimited Exposure (UU/UE)** conditions, which means the proposed remedy of NFA is protective of human health and the environment.

RECORD OF DECISION

If public comments do not require a reevaluation of the proposed remedy, the USEPA and the DAF will sign a ROD, in consultation with NJDEP, following the public comment period.

It will document the proposed remedy as the remedy for the site and include the DAF's responses to comments received during the public comment period.

COMMUNITY PARTICIPATION

Public input is important in the decision-making process. The public, including nearby residents and interested parties, are encouraged to ask questions about the proposed remedy for the ZZ006 Rifle Range, ZZ006 Pistol Range, and ZZ006 Skeet Range MRSs.

The DAF will summarize and respond to public comments in a responsiveness summary, which will become part of the official ROD.

The publication of the Proposed Plan, and the opportunity for comment and a meeting on the Proposed Plan, fulfill the public participation requirements of CERCLA Section 117(a), which specifies that the lead response agency (the DAF in this case) must publish a notice and a brief analysis of the Proposed Plan.

The documents discussed in this Proposed Plan are available for public review in the AR and at the Information Repositories.

COMMENT PERIOD AND PUBLIC MEETING

The public comment period for this Proposed Plan offers the public an opportunity to provide input into the process for selecting a remedy controlling contamination and risks at the Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006.

A public meeting will be held to provide information on the Proposed Plan, prior to selection of a final

remedy for the Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006. The public is encouraged to attend the meeting to learn more about the proposed remedy for the site.

The meeting will also provide an additional opportunity for the public to submit comments to the DAF on this Proposed Plan.

For further information related to the public comment period and public meeting, please refer to “Mark your Calendars” on Page 1.

Page 15 provides a form on which you may comment in writing and submit in person or mail to the DAF. You may also comment verbally at the meeting. Finally, you may email your comments. The mail and email addresses are provided on the next page.

PROJECT CONTACTS FOR MORE INFORMATION

If you have questions about this Proposed Plan, please contact the following:

Deputy Chief of Public Affairs
(609) 754-2104

James Richman
Remediation Program Manager
james.richman.1@us.af.mil
(609) 754-2267

Christine Rodriguez
Program Manager,
AFCEC/CZRE
christine.rodriguez.11@us.af.mi

INFORMATION REPOSITORIES

Documents relating to this Proposed Plan can be found for public review at the following information repositories:

Online Administrative Record File: https://ar.cce.af.mil/

Ocean County Library*
101 Washington St
Toms River, NJ 08753
https://theoceancountylibrary.org/
(734) 349-6200

***Please call or visit the library website for current hours of operation.**

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the Proposed Plan for the ZZ006 Rifle Range, ZZ006 Pistol Range, and ZZ006 Skeet Range MRSs at JBMDL-Lakehurst is important to JBMDL, the USEPA, and the NJDEP. Comments provided by the public are valuable in helping to select a final cleanup remedy for the site.

You may provide oral comments at the meeting or you may use the space below to write your comments. Comments must be submitted to Mr. James Richman, DAF by the last day of the comment period. If mailing comments, all written comments must be postmarked no later than 21 November 2026. If you have any questions about the comment period, please contact Mr. Richman at (609) 754-2267. You may also submit your comments by email at james.richman.1@us.af.mil.

Name _____

Address _____

City _____

State, Zip _____

Comments:

James Richman
AFCEC/CZRE, JBMDL Remedial Project Manager
787 CES/CEIE
2403 Vandenberg Avenue
Joint Base McGuire-Dix-Lakehurst, NJ 08641

INVITATION TO COMMENT

On the Proposed Plan for
Lakehurst Rifle, Pistol and Skeet Ranges, Site ZZ006
Joint Base McGuire-Dix-Lakehurst, New Jersey

IMPORTANT DATES TO REMEMBER

Public Comment Period
23 October to 21 November 2026

Public Meeting
22 October 2026

GLOSSARY OF KEY TERMS

Administrative Record (AR): A compilation of all documents relied on to select a remedial action pertaining to the investigation and remediation of the project site.

Chemical of Potential Concern (COPC): Any chemical that is shown to pose possible risk to humans a site. COPCs are identified by comparing maximum concentrations of contaminants detected at a site to the lowest human health risk-based screening levels .

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): Also known as the "Superfund" statute, this federal law was passed in 1980 and regulates environmental investigation of releases of hazardous substances and cleanup of sites from past operations identified as possibly posing a risk to human health and the environment.

Discarded Military Munitions (DMM): Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include unexploded ordnance, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of consistent with applicable environmental laws and regulations.

Engineering Evaluation/Cost Analysis (EE/CA): A process and document used to identify objectives for a removal action, analyze the effectiveness, implementability, and cost of various alternatives, and ultimately recommend and justify the preferred action.

Human Health Risk Assessment (HHRA): An assessment that evaluates the likelihood of adverse effects to human health that occurs as a result of exposure to contamination in the environment.

Military Munitions: All ammunition products and components produced for, or used by, the armed forces for national defense and security. This includes confined gaseous, liquid, and solid propellants; explosives, pyrotechnics, chemical and riot control agents; smokes, and incendiaries including bulk explosives and chemical warfare agents; chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers; demolition charges; and devices and components thereof.

Munitions Constituents (MC): MCs are metals and explosives that may have been released from small arms ammunition into soil or groundwater.

Munitions and Explosives of Concern (MEC): Classification for those military munitions that pose an explosive safety risk.

Munitions Debris – Remnants of munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal.

Munitions Response Site (MRS): A discrete location on a defense site that is known or suspected to contain unexploded ordnance, discarded military munitions, or MC.

Munitions Response Site Prioritization Protocol (MRSPP): An MRSPP Priority ranging from 1 to 8 can be assigned to an MRS in accordance with the DoD MRSPP Primer (DoD, 2007). The MRSPP priority will be used to determine the future funding sequence of the MRS for further munitions response action. Priority 1 indicates the highest potential hazard and Priority 8 indicates the lowest potential hazard. Only a site with a potential Chemical Warfare Material (CWM) Hazard can receive a Priority of 1. The MRSPP priority is determined by selecting the highest rating from the Explosive Hazard Evaluation (EHE), Chemical Warfare Material Hazard Evaluation (CHE), and Health Hazard Evaluation (HHE) Modules.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): The NCP is the primary regulation of CERCLA. NCP regulations provide the Federal government the authority to respond to the problems of abandoned or uncontrolled hazardous waste disposal sites as well as to certain incidents involving hazardous wastes (e.g., spills). The NCP is codified in Title 40 Code of Federal Regulations Part 300.

National Priorities List: The United States Environmental Protection Agency's list of the most serious uncontrolled or abandoned hazardous

waste sites identified for possible long-term remedial action under the CERCLA, or "Superfund" program.

No Further Action: A determination issued by the relevant environmental regulatory agency stating that identified contaminants present at the property have been investigated and remediated in accordance with applicable remediation statutes, rules and guidance, to a standard appropriate for the intended use of the property and/or offsite locations affected by migrating contamination.

Non-Tome Critical Removal Action (NTCRA): Respond to releases requiring action that can start later than six months after the determination that a response is necessary.

Preliminary Assessment (PA): A PA is the first step in the process of evaluating a site potentially contaminated with hazardous substances or pollutants pursuant to CERCLA and the NCP. Typically, a PA will include reviewing historical site documents, conducting interviews, and performing a visual site inspection.

Proposed Plan: Presents the proposed alternative for a site to the public and briefly summarizes the alternatives studied in the detailed analysis phase of the RI and FS, highlighting the key factors that led to identifying the proposed alternative. The Proposed Plan, as well as the RI/FS and the other information that forms the basis for the lead agency's response selection, is made available for public comment in the AR file. An opportunity for a public meeting must also be provided at this stage.

Record of Decision (ROD): Documents the remedial action plan for a site or operable unit and (1) certifies that the remedy selection process was carried out in accordance with CERCLA and, to the extent practicable, with the NCP, (2) describes the technical parameters of the remedy, and (3) provides the public with a consolidated summary of information about the site and the chosen remedy, including the rationale behind the selection. The ROD is part of the AR file, which contains the full details of site characterization, alternatives evaluation, and remedy selection.

Remedial Action Objective (RAO): Goal for protecting human health and the environment. RAOs should specify the contaminant of concern, exposure route, receptors and acceptable contaminant level.

Remedial Design/Remedial Action (RD/RA): Documents the design and technical specifications for cleanup remedies and technologies. Remedial action follows the remedial design phase. It involves the actual construction or implementation phase of cleanup. The RD/RA is based on the specifications described in the ROD.

Remedial Investigation (RI): An in-depth study designed to gather the data necessary to determine the nature and extent of known contamination at a site, assess risk to human health and the environment, and establish criteria for cleaning up the site.

Screening-Level Ecological Risk Assessment (SLERA): An assessment that provides a general indication of the potential or lack thereof for ecological risk. It may be conducted for several purposes including: 1) to estimate the likelihood that a particular ecological risk exists, 2) to identify the need for site-specific data collection efforts, or 3) to focus site-specific ecological risk assessments where warranted.

Site Closure: The final phase in the CERCLA cleanup process that can be achieved when all site cleanup goals are met, and the site has attained unlimited use, unrestricted exposure levels.

Site Inspection: SI typically consists of environmental sampling for MC, limited geophysical surveys, and visual reconnaissance of the site to evaluate the explosive, chemical and human health hazards associated with a site. While geophysical surveys are often conducted, intrusive investigation of anomalies identified is not. SI reports include the completed MRSPP score sheets and include recommendations for future action at the site.

Unlimited Use/Unlimited Exposure (UU/UE): A finding that there are no restrictions on the potential use of land or other natural resources.

X-Ray Fluorescence (XRF): XRF is a non-destructive analytical technique used to determine the elemental composition of materials. XRF analyzers determine the chemistry of a sample by measuring the fluorescent (or secondary) X-ray emitted from a sample when it is excited by a

primary X-ray source. Each of the elements present in a sample produces a set of characteristic fluorescent X-rays (“a fingerprint”) that is unique for that specific element, which is why XRF spectroscopy is an excellent technology for qualitative and quantitative analysis of material composition.