North Ridge Estates – Operable Unit 2
EPA Proposes No Further Action Cleanup Plan

Klamath Falls, Oregon June 13, 2025

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 10

Introduction

U.S. Environmental Protection Agency (EPA) seeks public review and comments on the proposed no further action remedy presented in this Proposed Plan for the North Ridge Estates (NRE) Superfund Site Operable Unit 2 (OU2). NRE OU2, also known as the "Kingsley Firing Range Annex," is a former munitions site consisting of overlapping small arms, rocket, and disposal ranges. NRE OU2 is part of the larger North Ridge Estates Superfund Site, located approximately 3 miles north of the city of Klamath Falls. The Site is divided into two geographically separate operable units as shown on Figure 1. This Proposed Plan relates only to NRE OU2.

This Proposed Plan applies to all media and contaminants evaluated by EPA within the 2023 North Ridge Estates Remedial Investigation (RI). Contaminants of potential concern at NRE OU2 were limited to asbestos and heavy metals in soil. EPA completed removal actions in 2022 and 2024 whereby soils contaminated with asbestos or lead were excavated, removed, and disposed off-site. Remaining media throughout the Site meet or are below relevant human health and ecological screening levels. Only one preferred alternative, no further action, was considered for this Proposed Plan since there is no longer a basis for further remedial action.

EPA is the lead agency for the investigation and cleanup of NRE OU2 and completed work at the Site in coordination with the Oregon Department of Environmental Quality (ODEQ) as a support agency on the NRE Site. The U.S. Army Corps of Engineers (USACE) completed a separate RI in 2021 that covered portions of NRE OU2 within the jurisdiction of the Formerly Used Defense Site (FUDS) program and was consulted in the preparation of this Proposed Plan.

Your Opinion Counts

EPA invites your comments on the Proposed Plan for the North Ridge Estates Superfund Site – Operable Unit 2, located in Klamath Falls, Oregon. EPA will accept comments on the Proposed Plan during the 30-day public comment period from June 9 – July 15.

Comments may be submitted in the following ways:

- Email comments to EPA at nichols.adam@epa.gov
- Fill out and mail the enclosed comment form by the deadline.

To request a public meeting, contact Caressa Long by July 15, 2025.

- Long.caressa@epa.gov
- 206-610-0115

For more information

The Administrative Record is the collection of documents which form the basis for EPA's selection of a response (cleanup) action at a Superfund Site. The complete Administrative Record for the North Ridge Estates Superfund Site - Operable Unit 2 can be found on the EPA website at: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=1002476.

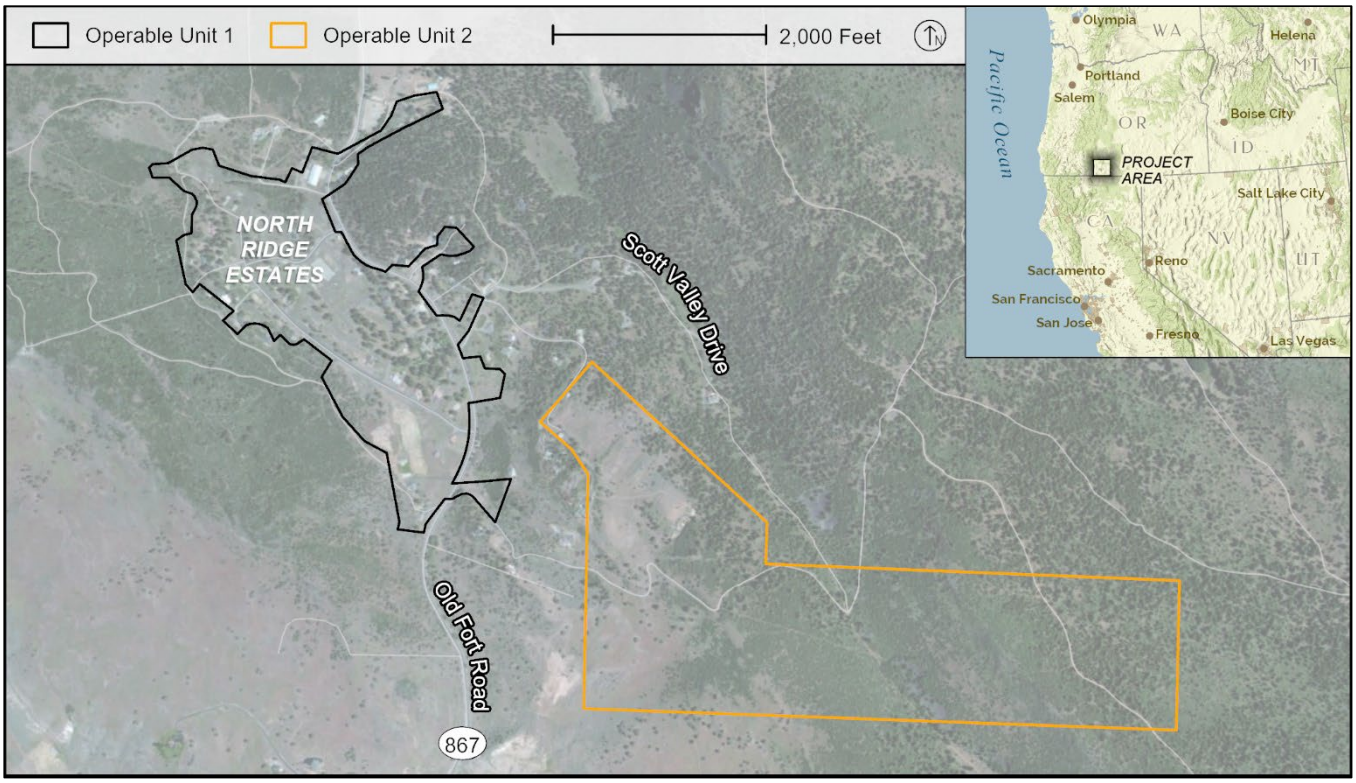

Figure 1: North Ridge Estates Superfund Site Operable Units 1 and 2

While there is no longer a basis for additional remedial action at NRE OU2, EPA invites the public to provide comments including any new information that should be considered. EPA will not select a final cleanup plan until it reviews comments received from the public. EPA, in consultation with the state of Oregon, may consider the need for additional action based on new information or public comment. If action is determined to be necessary, remedial alternatives will be presented in a new proposed plan.

This Proposed Plan was developed in compliance with the requirements of Section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

Site Background

NRE OU2 consists of 206 acres of land that was previously used as the former Kingsley Firing Range Annex. The Kingsley Firing Range Annex was activated for service by the DoD in 1944 along with the U.S. Marine Corps Barracks (now NRE OU1) located approximately one mile to the northwest. Both areas were utilized by the DoD for three years before being transferred to the Oregon Technical Institute for use as a training institution for returning veterans. However, due to the high cost of maintaining the facility, the Oregon Technical Institute built a new school and then turned the entire property over to the city of Klamath Falls for use as a park. The city could not maintain the area as a park; therefore, the land reverted to the U.S. Government in 1964.

The General Services Administration put the property up for sale; however, the U.S. Air Force requested that the firing range be retained. The U.S. Air Force assumed control of 46 acres of the firing range annex in February 1965. An additional 160 acres was acquired from a private party for use as the impact area to the firing range, bringing the total property to 206 acres. From 1965 through 1975, the site was controlled by U.S. Air Force and was also used by the Oregon National Guard. The land was

turned over to the U.S. Department of Interior, who excessed the land and sold it to private individuals in 1976.

Historical operations at the Site resulted in identification of the following contaminants of potential concern:

- Heavy metals including aluminum, antimony, arsenic, chromium, cobalt, iron, lead, manganese, vanadium, and zinc.
- Asbestos in asbestos-containing building debris that was present throughout portions of NRE OU2.

Site Characteristics

NRE OU2 is located on top of a ridge and the immediate topography is generally flat. The land surrounding the area, however, consists of steep rocky terrain with rock outcroppings. At present, NRE OU2 is contained within two privately owned parcels. There are no paved roads, and no residential or commercial structures are within NRE OU2. However, there is evidence that the area has been used by the public for skeet and target practice, hiking, hunting, and walking pets. Access to NRE OU2 is currently unrestricted.

Vegetation in the area consists primarily of shrubs with a few trees including ponderosa pine, western juniper, quaking aspen and Douglas fir.

Features from the former Kingsley Firing Range remain present at the Site, including the remnants of three overlapping ranges (Figure 2):

- The former 200-, 300-, and 500-yard firing lines and an impact area, collectively referred to as the Rifle Range.
- The 3.5-inch practice rocket range, referred to as the Rocket Range.
- The Horseshoe Disposal Pit and three burn areas, collectively referred to as the Disposal Area.

The Horseshoe Disposal Pit and burn areas are believed to have been used in the disposal of munitions. Although they are referred to as pits, no excavations have occurred at their locations, and all disposal activities were above ground.

Additionally, evidence of historic structures and associated building debris were evident throughout NRE OU2 during EPA's remedial investigation but have since been removed and disposed of off-site during the during a 2022 removal action (Weston, 2022).

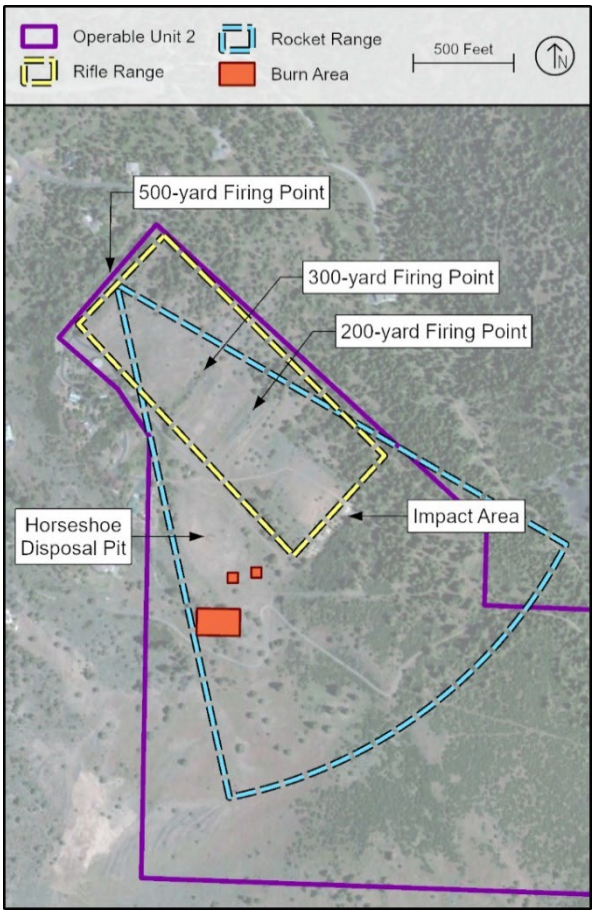

Figure 2: Map of Overlapping Ranges

Scope of Proposed Plan and Role of OU2

This Proposed Plan discusses the data obtained during EPA's RI and time-critical removal actions completed at NRE OU2 in 2022 and 2024. A separate limited RI was completed by the USACE under jurisdiction of the DoD FUDS program in 2021 and is summarized below. This Proposed Plan addresses all remaining contaminants of concern that were not evaluated under the FUDS program. This proposed plan covers NRE OU2. NRE OU1 was deleted in 2021 following successful remedial action.

USACE Remedial Investigation (2021)

EPA is the lead agency on NRE OU2; however, portions of the Site fall within the jurisdiction of the DoD FUDS program. The USACE completed a limited Remedial Investigation on behalf of DoD to evaluate risks associated with DoD munitions, including potential munitions of explosive concern (MEC), munitions debris, and munitions constituents (MC) in portions of the Site.

The USACE completed its Remedial Investigation in 2021 (USACE, 2021), and the USACE issued a Record of Decision (ROD) for no further action in 2024 (USACE, 2024). Both the USACE Remedial Investigation and ROD are available within the EPA's NRE OU2 Administrative Record.

Because of the unauthorized use of the firing range by civilians, MC contamination in portions of the Site is commingled from a combination of DoD and civilian activities. In accordance with Engineering Regulation 200-3-1 Section 5-5.2.1, which limits the authority of the Environmental Restoration-FUDS program, the USACE Remedial Investigation was limited to those portions of the Site in which contamination originated solely from DoD activities. EPA evaluated MC contamination in the comingled portions of the Site as part of the EPA's 2023 Remedial Investigation.

EPA Remedial Investigation (2023)

EPA evaluated potential risks from asbestos throughout NRE OU2 and MC in commingled portions of the Site as part of its Remedial Investigation, completed in September 2023 (EA, 2023).

<u>Asbestos</u>

Potential asbestos-containing material (ACM) debris was observed throughout NRE OU2. While the source of the debris is uncertain, it is suspected that it's from historic structures that were demolished prior to the RI (EA, 2023).

EPA worked in partnership with ODEQ to conduct four annual surveys of potential ACM from 2019 to 2022. During each survey, the location of potential ACM was recorded and subsequently pickup up for off-site disposal.

In 2022, EPA completed a time-critical removal action (TCRA) at an approximately 83-foot by 73-foot area where concentrations of highly weathered ACM had been observed, coinciding with a designated former burn area. During this TCRA, EPA also demolished and

Figure 3: Activity-based sampling took place in 2023 to evaluate potential risk from airborne asbestos fibers.

disposed of two remaining storage sheds with degrading ACM. Materials from the burn area excavation and storage shed demolitions were combined and transported to an off-site disposal facility. No additional asbestos was detected in soil following the TCRA (Weston, 2022).

Following the fourth and final asbestos survey, five additional areas coinciding with higher densities of potential ACM concentrations were selected for activity-based sampling to determine potential risks from any remaining asbestos fibers in soil (Figure 3). Results from the activity-based sampling were below the site-specific residential risk-based screening level for airborne asbestos (EA, 2023).

Munition Constituents

In 2022, EPA sampled areas of suspected commingled MC contamination that were outside the scope of the USACE Remedial Investigation. EPA sampled for heavy metals associated with small arms munitions, including aluminum, antimony, arsenic, chromium, cobalt, iron, lead, manganese, vanadium, and zinc. Results are presented in the human and ecologic risk assessment portions of the Remedial Investigation, that is part of the Administrative Record. Of the metals that were tested for, lead was the only contaminant of concern in the RI.

Summary of Site Risks

The EPA NRE OU2 RI was completed in September 2023 and includes human health and ecological risk assessments. The risk assessment considers activities that are likely to occur at present and in the future. While the Site is currently undeveloped, zoning allows for residential development to occur. EPA identified residential development as the reasonably anticipated future land use.

Following the RI, EPA completed a TCRA in 2024 to remove lead soil contamination in an area with lead concentrations ranging from 316-1,690 mg/kg. Because the risk assessments were conducted prior to the 2024 TCRA, they evaluated risk at an area of the Site where contamination is no longer present. The following summaries discuss the risk assessment results as they were presented in the RI, as well as the results from the 2024 TCRA.

Human Health Risks

EPA considered sample results for asbestos, arsenic, antimony, and lead for evaluation in the human health risk assessment. Asbestos was not detected during the activity-based (raking) sampling event. Arsenic was detected at concentrations consistent with local background. Antimony was measured below residential soil regional screening levels. Therefore, asbestos, arsenic, and antimony were not evaluated in the human health risk assessment.

Lead was the only contaminant evaluated in the human health risk assessment because it was the only contaminant detected at concentrations that exceeded the site-specific action level of 311 milligrams per kilogram (mg/kg) in soil. When evaluating lead concentrations in soil, children's exposures are the highest concern. Children play in soil and either intentionally or unintentionally ingest soil. Children are more susceptible to health effects from exposure to lead during their early developmental stages—primarily from birth to 6 years of age. Childhood exposure is measured by the amount of lead in their blood, and EPA uses a model to predict a child's blood lead concentration if exposed to a certain concentration of lead in soil. This model was used to determine an acceptable soil lead concentration that would result in less than a 5 percent probability of a child exceeding a blood lead target of 5 micrograms per deciliter. This calculation is the basis of the 311 mg/kg action level for lead in soil and

takes into consideration relative bioavailability (RBA) of lead in soil samples collected at the Site. Site-specific RBA was estimated at 39%, which is lower than default model parameters.

Soils with lead concentrations above 311 mg/kg were identified in one decision unit along the 300-yard firing line. All other on-site soil lead concentrations were well below 311 mg/kg.

Ecological Risks

The ecological risk assessment process begins with a screening-level appraisal of media-specific contamination. For OU2, lead and antimony in surface soil required further evaluation. The results of the screening-level appraisal represent maximum estimates of risk and are not necessarily representative of population-wide risks; therefore, the ecological risk assessment includes data evaluation and risk characterization, which rely on species-specific risk estimates using more site-specific assumptions and information. This process provides a more site-specific and realistic risk characterization for OU2.

The ecological risk assessment concluded that antimony in soil is not expected to pose risk to any of the species evaluated. Lead in soil may pose risks to terrestrial plants, gallinaceous birds (heavy-bodied ground-feeding), omnivorous birds (plant- and animal-eating), insectivorous mammals (insect-eating), reptiles, and amphibians, however, risks were generally limited to the 300-yard firing line (OU2-RR-BB2) and is not expected throughout the remainder of OU2.

Time Critical Removal Action (2024)

Based on results from the EPA RI, EPA decided to address contamination along the 300-yard firing line (OU2-RR-BB2) through a TCRA (EPA, 2024). In June 2024, EPA removed 576 tons of soil contaminated with lead above the site-specific action level and transported for off-site disposal (excavation along the firing line is shown in Figure 4). Due to the raised topography of the excavation area and anticipated future use of the property, backfill was not determined to be necessary. Instead, approximately 10,000 square feet of disturbed surface area was graded to reduce physical hazards to anyone who might climb the berm in the future. Confirmation sampling was conducted at the bottom of the excavation prior to smoothing to confirm that remaining soils do not contain contamination above the site-specific action level. Confirmation sampling yielded average soil lead concentrations that ranged from 9 mg/kg to 130 mg/kg (Weston, 2024), which are we'' below the action level. Thus, conclusions from the pre-TCRA modified ecological risk assessment, that assumed completion of the TCRA, apply sitewide and risks are considered to be below levels of concern.

Figure 4: Time-critical removal action within the Rifle Range 300-yard firing line (OU2-RR-BB2) in 2024.

Preferred Alternative

Based on results from EPA's RI, and following successful removal actions completed in 2022 and 2024, no further response action is needed at the Site. This determination is based on the risk assessments

which concluded that current or potential future Site conditions pose no unacceptable risks to human health or ecological receptors. No additional remedial alternatives were evaluated.

Community Involvement

EPA and the U.S. Army Corps of Engineers provided a project update and discussion of the U.S. Army Corps of Engineers Proposed Plan for U.S. Department of Defense-related contaminants on February 1, 2023, at the Klamath County Library. EPA provided a further update on the Site and its plans for no further action to the Klamath County Board of Commissioners on August 8, 2024**.** No further public meetings are expected. However, EPA may hold additional meetings at public request.

Next Steps

EPA encourages you to review and comment on the no further action proposed plan. Before making a final decision, EPA will review all comments received during the 30-day public comment period from June 9 – July 15 before making a final decision. EPA may consider the need for action based on new information or public comment. If action is determined to be necessary, remedial alternatives will be presented in a new proposed plan.

EPA will respond in writing to comments in a responsiveness summary, which will be attached to the document detailing the final option that is selected, called the record of decision. EPA will also announce its final plan in the Klamath Falls Herald and News, place a copy of the record of decision in the information repository and post it on the web.

How to Comment on the Proposed Plan

Written comments may be submitted at any time during the public comment period by U.S. mail or email to one of the following recipients:

- **U.S. Mail**:

  U.S. EPA, Region 10
  Superfund Emergency Management Division
  1200 6th Avenue, Suite 155
  Attn: Adam Nichols, Remedial Project Manager
  Site Cleanup Section 3
  Seattle, WA 98101-3188

- **Email**: nichols.adam@epa.gov

List of Acronyms

ACM	Asbestos-Containing Material
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DoD	U.S. Department of Defense
EPA	U.S. Environmental Protection Agency
FUDS	Formerly Used Defense Site
MC	Munitions Constituents
MEC	Munitions of Explosive Concern
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NRE	North Ridge Estates
ODEQ	Oregon Department of Environmental Quality
OU1	Operable Unit 1
OU2	Operable Unit 2
RBA	Relative Bioavailability
RI	Remedial Investigation
ROD	Record of Decision
TCRA	Time-Critical Removal Action
USACE	U.S. Army Corps of Engineers

REFERENCES

Weston, 2022. Time-Critical Removal Action Report: North Ridge Estates 2022 Removal. Weston Solutions, Inc. December 2022.

USACE, 2021. Remedial Investigation Report: Rocket and Disposal Range MRS Kingsley Firing Range Annex FUDS Property. U.S. Army Corps of Engineers. August 2021.

USACE, 2024. Record of Decision: Rocket and Disposal Range Kingsley Firing Range Annex. U.S. Army Corps of Engineers. September 2024.

EA, 2023. Remedial Investigation/Feasibility Study Report for North Ridge Estates Operable Unit 2. EA Engineering, Science, and Technology, Inc. September 2023.

EPA, 2024. Request for Approval and Funding for a Time-Critical Removal Action at North Ridge Estates, Klamath Falls, Oregon. February 2024.

Weston, 2024. Time-Critical Removal Action Report. Weston Solutions, Inc. December 2024.