Site-Specific Justification for Partial Deletion from the National Priorities List: Operable Unit 1, North Ridge Estates Superfund Site, Klamath County, Oregon

Purpose

The U.S. Environmental Protection Agency (EPA) is proposing to partially delete Operable Unit 1 (OU1) of the North Ridge Estates Superfund Site (Site) from the National Priorities List (NPL), as shown in Figure 1. Contamination at the nearby Kingsley Firing Range, identified as OU2, is currently being investigated by EPA and the U.S. Army Corps of Engineers (USACE) formerly used defense sites (FUDS) program. The remedial investigation (RI) is expected to be completed by FY 2023 and will determine if remedial action is needed; OU2 is not being proposed for deletion at this time and will remain on the NPL. This document provides EPA's justification for this proposed partial deletion action.

Determination that the Site Meets the Criteria for Deletion

EPA issued a Remedial Action Construction Completion Report for the Site on December 30, 2020, documenting that all selected remedial action objectives and associated cleanup goals for the Site were consistent with EPA policy and guidance. The proposed partial deletion meets the completion requirements as specified in Office of Solid Waste and Emergency Response (OSWER) Directive 9320.2-22, *Close Out Procedures for National Priorities List Sites* (May 2011). All response actions for OU1 are complete and there is no unacceptable risk to human health or the environment. EPA, in consultation with Oregon Department of Environmental Quality (ODEQ), has determined that no further response actions are necessary at OU1 other than implementing operation and maintenance (O&M), enforcing and monitoring institutional controls, and preparing five-year reviews (FYRs).

Notice of Intent to Partially Delete/Deletion Docket

EPA plans to publish a Notice of Intent for Partial Deletion (NOIPD) of the Site, specifically OU1, from the NPL in the *Federal Register* (the proposed rulemaking) and will open a 30-day public comment period on this proposed action. This document will provide information about the Site and explain how OU1 meets EPA's criteria for partial deletion. Supporting documents are available for review in the OU1 Site Partial Deletion Docket, available online at https://www.regulations.gov and at EPA's webpage for the Site at www.epa.gov/superfund/north-ridge-estates. Appendix A provides an index of the documents included in the OU1 Site Partial Deletion Docket.

Partial deletion of an operable unit (OU) from the NPL does not create, alter, or revoke any individual's rights or obligations, nor does it in any way alter EPA's right to enforce actions at the deleted site, as appropriate. The NPL is designed primarily to provide information, to assist EPA management in identifying sites that appear to present a significant risk to public health or the environment, and to guide EPA in determining which sites warrant further investigative and/or response actions, if appropriate. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.425(e), states that a partial deletion of an OU from the NPL does not preclude eligibility for future response actions, should future conditions warrant such actions. This partial deletion of OU1 of the Site is proposed in accordance with 40 C.F.R. § 300.425(e) and is consistent with the *Notice of Policy Change: Partial Deletion of Sites Listed on the National Priorities List*, 60 FR 55466 (November 1, 1995). As OU1 is a portion of the Site, Section 300.425(e)(3) of the NCP is applicable to this proposed action.

Agency Concurrences

EPA consulted with ODEQ, and in correspondence dated January 11, 2021, ODEQ concurred with the proposed partial deletion of OU1 of the Site from the NPL. Based on the final site inspection in October 2020, EPA and ODEQ determined that the implemented remedial actions achieved the specified degree of cleanup or protection for OU1 of the Site denoted in the August 2011 Record of Decision (ROD), as modified by the February 2019 Explanation of Significant Differences (ESD).

Community Involvement

EPA and ODEQ satisfied public participation activities for the Site, as required in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Sections 113(k) and 117, 42 U.S.C. §§ 9613(k) and 9617. EPA offered public comment periods or similar opportunities for participation on the proposed cleanup plan and during implementation of the Site remedies and will continue to do so for upcoming FYRs that will be completed at the Site. Additionally, EPA conducted public meetings prior to the start of and at the conclusion of field work each year to discuss planned cleanup activities and Site progress. EPA also held a final project public gathering to celebrate cleanup completion and to review the easements and institutional controls with members of the community.

The documents that EPA relied on for the proposed partial deletion of OU1 of the Site from the NPL are in the deletion docket and are available to the public at https://cumulis.epa.gov/supercpad/cursites/. EPA also has an information repository at the Klamath County Public Library located at 126 south 3rd Street in Klamath Falls, Oregon. The library may not be accessible at the time of this publication for in-person viewing due to COVID-19 restrictions. The materials will be placed in the Klamath County Public Library in the event the facility is open to the public for in-person viewing. EPA will publish a notice of availability of the NOIPD and of the start of the 30-day public comment period in the Klamath Falls *Herald and News* concurrent with the publication of the NOIPD in the *Federal Register* to satisfy public participation procedures required by Section 300.425(e)(4) of the NCP. All comments will be reviewed and considered in the final partial deletion decision.

Site Background and History

a. Location/Project Organization

The North Ridge Estates Superfund Site is located approximately 3 miles north of the City of Klamath Falls, in Klamath County, Oregon (Figure 1).

The Site is named after the North Ridge Estates residential subdivision built on a portion of the property that is now included within the Site boundary. The Site encompasses the footprint of the former Marine Recuperation Barracks (MRB) and includes all areas where asbestos-containing materials (ACM) and/or asbestos were observed and/or detected. Aside from some incidental and/or localized contamination, the yellow boundary noted on Figure 1 signifies the extent of the contamination and excavation activities performed during the remedial action (RA) for OU1.

The Site largely comprises properties that are privately owned. Klamath County owns the two on-site repositories, the common area, and all roads (except Thicket Court). Thicket Court is privately owned by an ownership group.

EPA is the lead agency and ODEQ serves as the support agency at the Site. EPA conducted a remedial investigation and feasibility study (RI/FS), remedial design (RD), and RA; work at the Site was completed as a fund-lead project. The subsequent O&M phase will be conducted by ODEQ with EPA oversight. EPA will be conducting the FYRs. The first FYR will be finalized in July 2021 and every five years thereafter (e.g., July 2026, July 2031).

b. NPL Listing

EPA proposed the Site for addition to the NPL on March 10, 2011 (76 FR 13113), and then formally listed the Site on the NPL on September 16, 2011 (76 FR 57662). The Site's CERCLIS ID is ORN001002476.

c. Site History

The Site was contaminated with ACM resulting from the demolition of approximately eighty 1940s-era military barracks buildings. OU1 of the Site is located on Old Fort Road and North Ridge Drive and encompasses approximately 125 acres. OU2 is a 46-acre former firing range located in a geographically distinct area and the remedial investigation at this location should be completed by 2023.

Marine Recuperation Barracks (1944 to 1946)

The Site was originally developed in 1944 to create a facility to treat Marines suffering from tropical diseases contracted during WWII. The base was active from April 1944 until February 1946. The entire 745 acres were declared surplus property by the Navy in March 1946.

The MRB comprised 82 buildings, including a sewage treatment plant, horse stables, warehouse, brig, medical officers' quarters, animal hospital, dependent hospital, post exchange, auditorium, gymnasium, swimming pool, fire house, mess hall, dispensary, laboratory, laundry, bakery, maintenance garage, bachelors' quarters, central power plant, library, and 30 barracks. Most of the buildings were constructed between Old Fort Road and the present-day North Ridge Drive. Several building materials used for site improvements contained asbestos (e.g., siding, roofing, floor tiles, and steam pipe insulation). Remaining MRB buildings include a warehouse (located on Parcel MBK-G), the former brig (located on Parcel BM) which has been renovated into a five-unit apartment building, and several residences on Thicket Court used as officers' quarters during military use.

Oregon Technical Institute (1947 to 1964)

The State of Oregon acquired the property in October 1947 for use by the Oregon Technical Institute (OTI, now known as the Oregon Institute of Technology). During OTI's occupancy of the Site, OTI added seven new buildings and acquired 40 additional acres of land. OTI vacated the property in May 1964.

General Services Administration (1964 to 1965)

In December 1964, ownership of the Site was transferred to the General Services Administration (GSA). An inspection conducted by GSA in July 1964 indicated the Site was virtually intact; however, some buildings had fallen into disuse and were shuttered and boarded.

Private Ownership (1965 to 1977)

In 1965, a partnership of private individuals purchased the property from GSA. This private partnership owned the property until 1977. Reportedly, during this time, the owners stripped the vacant buildings of salvageable materials (e.g., equipment, furnishings, copper, and wood) and demolished at least 22 buildings. The demolished building debris was burned or buried on site.

MBK Ownership (1977 to 2006)

In December 1977, the property was purchased for development by the Melvin Bercot Kenneth Partnership (MBK). The remainder of the standing structures were demolished and burned with the debris buried in pits on site. In 1993, Klamath County approved plans for a subdivision, North Ridge Estates, construction of homes began later that year. Homes were constructed on top of buried asbestos-containing waste pits, or on top of demolition material. MBK sold all the properties in the subdivision between 1994 and 2002.

Between 2003 and 2005, ODEQ requested EPA support in assessing concerns by the residents of waste material surfacing in their yards. The waste material the residents were observing was ACM from the demolished structures. EPA conducted five separate removal actions to collect and properly dispose of the ACM that was surfacing in the yards throughout the development. It was later determined that the ACM had reached the surface due to frost heave and erosion. While large amounts of ACM were removed each year by EPA, the removals could not permanently eliminate unacceptable risks to residents of the Site. In 2005, many residents were temporarily relocated by EPA for 3 months during removal activities.

Receivership (2006 to Present)

In January 2006, a federal consent decree (CD) was entered between the settling defendants, including MBK, 36 settling homeowners, 5 settling federal agencies (US Department of the Navy, the US Department of Defense, the US Department of Health and Human Services, the US Department of Education, and the General Services Administration), EPA, the U.S. Department of Justice, and a court-appointed receiver. Compensation to the homeowners was negotiated under a separate global settlement agreement for private claims between the settling defendants and the settling homeowners. The receiver, EPA, and the other federal agencies were not party to the global settlement agreement. The CD required payment to EPA by the settling defendants and settling federal agencies for past response costs and established a receivership to manage and hold the property titles. All of the parcels held by the receivership were sold between 2017 and 2020 and are now privately owned. Klamath County holds the title for the two on-site waste repositories, Memorial Park, and all of the roads within and adjacent to the development, with the exception of Thicket Court.

d. Contaminants of Concern

The types of ACM identified at the Site included cement asbestos board (CAB), vinyl asbestos floor tiles (VAT), floor tile mastic, roofing material, steam pipe wrap consisting of insulation (AirCell and magnesium silicate (MAG) insulation), and tar paper. CAB was manufactured as a dense, rigid, noncombustible board containing a high proportion of chrysotile asbestos fibers bonded with Portland cement. The VAT, floor tile mastic, AirCell insulation, roofing materials, and tar paper found at the Site also contain chrysotile asbestos. MAG insulation contains amosite and chrysotile asbestos. It is estimated that over 3 million pounds of asbestos containing material was used in the original

construction of the MRB. Asbestos is the main contaminant of concern (COC) at the Site and these asbestos-containing materials are referred to collectively as ACM.

When buildings containing ACM were demolished, some of the ACM debris was consolidated into waste piles or burial pits. The remaining ACM was dispersed in surface and subsurface soil areas near the demolition locations. During development of the North Ridge Estates residential housing area, most ACM was covered or buried with soil, but some was left exposed. Over time, pieces of ACM in the shallow subsurface soil migrated to the surface. This was believed to be due to repeated cycles of frost heave, surface soil erosion, and/or transport by water runoff. Once at the surface, the ACM released asbestos fibers into the surface soil and/or air, especially when disturbed. Sampling during the RI determined that surface water and groundwater were not impacted by the release of ACM.

Arsenic was the only non-asbestos COC identified in the ROD. The extent of arsenic contamination in soil (above the background level) was limited to an area at the former power plant (Parcel A). The arsenic contamination in the soil of Parcel A was co-located with ACM and/or asbestos contamination.

OU1 Pathway to Partial Deletion

a. Initial Response

EPA first responded to the Site in 2003 at the request of ODEQ using the EPA removal authority. It was estimated that over 3 million pounds of ACM were used in the construction of the MRB. From 2003 to 2005, all visible ACM (207,680 pounds) was collected/removed and sent to an off-site local landfill to address threats to human health. However, due to a process called frost heave (the result of the freeze/thaw cycle) and erosion, ACM continued to migrate to the surface each spring. EPA temporarily relocated residents during summer 2005 to facilitate removal of some friable types of ACM which had surfaced.

b. Remedial Investigation and Feasibility Study

Starting in 2003 and until 2006, various investigations were conducted under CERCLA authority. Some early removal actions were conducted pursuant to a 2003 Administrative Order on Consent (AOC) between DEQ and MBK. As part of the 2006 CD, EPA was reimbursed by MBK and other settling defendants for the fund-lead removal actions completed in 2004 and 2005. Subsequent EPA removals were conducted in 2008 prior to development of the RI/FS and implementation of the remedy. The 2003 removal action included removal by hand of approximately 7 tons of surficial ACM from 25 residential properties and several MBK-owned lots. In a 2004 removal action, approximately 26.5 tons of material were removed from the MBK-C property and disposed at the Klamath County Landfill. In two different EPA removal actions in 2005, EPA removed 680 pounds of ACM and disposed this at the Klamath County Landfill. In 2008 and 2009 EPA removed over 23,474 cubic yards of ACM and placed this in an on-site repository. In 2008 and 2009, 48 cubic yards of PCB-contaminated soil was identified and disposed of offsite at a hazardous waste landfill and 68 cubic yards of lead-contaminated soil was sampled, collected, and disposed of in the on-site repository since it was not considered a hazardous waste. The information obtained from these investigations and removal actions are presented in the January 2010 RI Report (CDM Smith 2010a). The RI indicated that the risks warranted a remedial response action for contaminated soil within OU1. The key findings from the RI report are summarized below.

The amount of ACM used during the construction of the MRB was estimated to be 1,522 tons (or 3 million pounds). During the various removal actions, approximately 58.5 tons of surficial ACM debris was collected and removed from the Site. The amount of ACM that remained at the Site at that time was estimated to be approximately 1,464 tons, which is 96 percent of the original quantity used in construction of the barracks. ACM was present at OU1 as both dispersed materials scattered across several areas of the Site and as buried debris concentrated in specific areas. Surficial ACM was observed at some, but not all, burial areas, and thus could not be reliably used as an indicator of burial. Burial areas were thought to be the result of localized dumping, as this was supported by the observation that many of the burial areas did not appear to be connected to any specific historical building location. The distribution of MAG and AirCell did not follow a set pattern and could not be predicted accurately. Steam pipe debris was located based on a geophysical survey and other investigations; the total length of asbestos-containing steam pipe at the Site in 2005 was estimated at approximately 12,000 linear feet at 2 to 6 feet below ground surface (bgs).

The risk assessment performed as part of the 2010 RI Report (CDM Smith 2020a) concluded that friable amosite- and chrysotile-containing ACM (i.e., MAG and AirCell) presented a current risk to residents when soil containing these types of ACM was disturbed by routine outdoor activities. In addition, arsenic was found in soil above background at the old power plant area and was identified as a COC. Given the risk and the widespread distribution of MAG and AirCell at the Site, remedial actions were required to mitigate exposures to human health. Ecological risks are not routinely evaluated for sites contaminated with asbestos; ranges of metals concentrations detected on site were determined to be not of significant ecological concern.

Cleanup levels (CULs) for COCs and the basis for the levels are typically developed for a site in order to select a final remedy in the ROD. Normally, CULs would be developed by computing the concentrations of COCs that correspond to an excess cancer risk of 1E-06 for media that have exposure pathways to receptors. However, such a computation for asbestos in soil was not possible because of the high variability in the relationship between asbestos in soil and asbestos in air. Even if the computations were possible, the ability to measure asbestos in surface and subsurface soil was limited by the available technologies and methods. Non-cancer risks from inhalation of asbestos fibers from ACM were also recognized, but there is no applicable methodology to quantify non-cancer risks for asbestos at OU1 of the Site. For these reasons, CULs for asbestos were not established for ACM (site debris) and soil. If the remedial action objectives (RAOs) for asbestos contamination were achieved through implementation of remedial measures that eliminate the exposure pathways, then risks to humans from inhalation exposures to asbestos were expected to be acceptable. The Site was characterized using activity-based sampling. The FS was then prepared to evaluate the appropriate remedial actions for the Site to meet the RAOs. Specifically, first to eliminate human exposure to ACM in soils by removing the ACM in surface and subsurface soils, and second, by capping the soils, thereby breaking the soil-to-air exposure pathway and associated with contact with asbestos.

The FS was completed on March 25, 2010 (CDM Smith 2020b). Applicable remedial technologies were identified and screened based on the nine criteria for remedial alternatives evaluation. EPA evaluated seven alternatives that combined five remedial technologies and process options: (1) No action, (2) source excavation and on-site consolidation, (3) excavation and off-site disposal, (4) excavation and off-site thermo-chemical treatment of contaminated materials at permitted facilities, (5) capping and containment, (6) indoor cleaning and land use controls and (7) institutional controls to address potential health risks.

c. 2011 Record of Decision (ROD)

On September 22, 2011, EPA issued a final ROD for OU1 after releasing a Proposed Plan for public comment. The ROD formally divided the Site into two OUs:

- OU1 (the focus of the September 2011 ROD) encompasses the footprint of a former MRB and includes all areas where ACM and/or asbestos were observed and/or detected, with the exception of the former firing range. OU1 is estimated to be 125 acres.
- OU2 includes the area of the former firing range and is estimated to be 46 acres.

Based on the findings of the RI/FS, EPA identified three RAOs to address potential human health risks at OU1:

- Prevent inhalation exposures by humans to asbestos fibers in soil above levels that pose an unacceptable risk for residential use.
- Prevent the migration of asbestos contamination by natural and man-made transport mechanisms from source locations to unimpacted locations and media.
- Prevent the potential for human inhalation and incidental ingestion exposure to soil in the vicinity of the former power plant contaminated with arsenic concentrations above levels that pose an unacceptable risk to human health.

To address these RAOs, EPA selected an excavation and containment remedy that was conducted across OU1. The selected remedy provides protection of human health and the environment by eliminating exposure to ACM and asbestos-contaminated soils across OU1, and addresses arsenic in soils at the former power plant area of OU1.

The selected remedy was designed to reduce the long-term risk of exposure to ACM and asbestos fibers by eliminating complete exposure pathways. This ensured that people have no, or very limited, opportunities for inhalation of asbestos fibers from ACM in contaminated soil, thus reducing cancer risk from asbestos exposure. The selected remedy also addressed the human health and ecological risk due to arsenic in the surface soil by excavation and consolidation, and/or capping of contaminated materials at OU1. The February 28, 2019, Explanation of Significant Differences modified the remedy by determining that a site-specific background arsenic value of 12 mg/kg, as determined by a background study, superseded the human health-based arsenic CUL of 0.425 mg/kg specified in the ROD.

The selected remedy included the following components:

- Excavation of the majority of ACM and arsenic contaminated soils (in surface and subsurface soils) on privately owned and receivership-managed parcels.
- Installation of a visible marker layer where asbestos was left in place or where the excavation depth could not be achieved to denote the extent of contaminated material excavated on each parcel.
- Capping remaining soils on the parcels with clean soils of sufficient thickness to break the soil-to-air exposure pathway associated with any residual ACM or asbestos fibers remaining in the soils. The caps also keep ACM from migrating to the surface in the future through natural processes such as frost heave or erosion. Caps on OU1 include:

    - on-site repositories,
    - soil caps on parcels, and
    - existing structures, such as buildings, driveways, and existing roads.

- Consolidation and placement of all excavated contaminated material in one or more on-site ACM repositories.
- Capping the on-site repositories with a marker-barrier and then clean soil of sufficient thickness to break the soil-to-air exposure pathway and keeping contaminated materials from migrating to the surface in the future through natural processes such as frost heave or erosion. Access controls were implemented, as necessary, to protect the repositories.
- Application of institutional controls (ICs) to the entire Site to prevent disruption of residual contamination within parcels and consolidated material in the on-site repositories.
- A contingency for interior cleaning was included in the remedy. Under the current conditions, risks were determined using air samples collected from stationary air monitors placed in 22 different homes to collect asbestos fibers to estimate risks to residents from indoor air. The results estimated the risk to be 7E-07 (below EPA's risk range of 1E-06 to 1E-04 and ODEQ's risk level of 1E-06). Therefore, no remedial action was determined to be necessary inside OU1 homes. However, after excavation and backfill/capping was conducted on each parcel, indoor air and dust sampling was required to ensure that indoor air remained protective of human health.
- Maintenance with ongoing monitoring (inspections and sampling) will be conducted to provide assurance that capped areas are maintained and not damaged, exposure does not occur, and caps remain protective.

d. Remedial Design (RD) and Remedial Action (RA)

In December 2015, the RD was developed to implement the selected remedy for OU1 as described above. In addition to the selected remedy, the RD also provided for alternate covers, such as vapor barriers in crawlspaces in existing structures to address areas where excavation was not be feasible, which was consistent with the selected remedy in the ROD. The RD also identified development of a local borrow source for clean cover material and replacement of local roads within OU1 that could be damaged extensively as a result of the heavy construction activities. The remedial design included a basis of design report and construction documents (e.g., contract drawings and technical specifications) (CDM Smith 2015).

RA activities were conducted by EPA's Remedial Action Contractor, EA Engineering (EA), with oversight by EPA Region 10, ODEQ, the designer of record CDM Smith, and the USACE under an Interagency Agreement. RA activities began in July 2016 and were substantially completed by October 2018 with follow-on inspections for vegetation establishment and erosion. The RA included excavating the majority of contaminated materials, in accordance with the design, in order to meet the ROD requirements and installing a visible marker layer where visible ACM was left in place. A frost-protective cap (minimum 2-foot thick vegetated soil cover) was installed and seeding established to prevent erosion. In areas where excavation was limited due to Site circumstances or access, the depth of excavation was noted in the O&M plan. About 60,430 cubic yards of contaminated material was excavated and consolidated in two on-site repositories: the Memorial Park Repository and the Swimming Pool Repository. Each repository was capped with a 2-foot frost protective cover and a layer of marker barrier fabric. Indoor air sampling, completed after the remedy was conducted at each parcel, confirmed that asbestos was not present inside the homes; therefore, the contingent remedy of indoor house cleaning was not necessary.

A Construction Quality Assurance (QA) Plan was approved by EPA and used to verify that construction QA and Quality Control (QC) requirements were met during implementation of the RA. Construction QA primarily involved monitoring of contractor construction QC procedures to verify that work conformed to the project requirements. EA used a web-based portal for the submittal process. Subcontractors were provided with limited access to the web portal for delivering submittals, requests for information, and documents. Construction QC consisted of a review of documents and testing procedures to directly monitor and control the quality of remedy components. A QA audit was completed by EA for each season. These audits were conducted by EA's Construction QA Manager and discussed with EPA and ODEQ.

The major QC activities consisted of dust abatement, air monitoring, erosion and sediment control, imported material analytical testing, and cap placement and thickness.

Dust abatement was a fundamental method for eliminating contaminant migration during excavation. During excavation and placement of contaminated material in repositories, dust control measures were maintained to ensure that no visible dust was emitted during work activities, especially those that involved disturbance of contaminated material. Dust was primarily controlled through pre-wetting using sprinklers and irrigation equipment, water trucks, and hoses employed by field staff. Perimeter air monitoring and personal air monitoring results indicated dust control measures were effective. Erosion and sediment controls were installed and maintained in order to prevent contamination from migrating offsite. Erosion and sediment controls included silt fence, erosion control blankets, straw wattles, and straw bales and inspections after storm events.

Quality Assurance for the excavation and restoration activities was performed by EA. EA evaluated the final grades for acceptance by comparing the as-built survey to the design cut and fill requirements.

Excavated contaminated materials were deposited at one of the two on-site repositories. EA field staff inspected and documented asbestos pipe segregation, lift thicknesses, and compaction efforts for compliance with the approved specifications. Inspection results were documented in the Daily Construction QA Report and included deficiencies and/or corrective actions.

QA and QC documentation included a photographic record and daily field documentation that was provided to EPA.

The EA Construction Quality Manager completed Weekly Construction Progress Reports providing a summary and update on project field activities. In addition to the QA/QC conducted by EA and subcontractors, EPA, ODEQ, or the USACE conducted field oversight.

Following completion of the construction activities each season, a construction summary report (EA 2017, 2018, 2020) was developed, reviewed, and approved by EPA. Each of these seasonal reports provided a summary of work completed for that season, residual contamination left in place, as-built conditions, monitoring results and quality control documentation. These yearly reports were consolidated into the final Construction Summary Report dated January 2021.

The ROD noted that arsenic contamination in the soil of Parcel A was co-located with ACM and/or asbestos contamination. Arsenic risk levels in these soils were within EPA's acceptable risk range of 1E-06 to 1E-04, but exceed ODEQ's risk threshold of 1E-06. While cleanup of asbestos in soils on and near the former power plant location removed the arsenic contamination it was determined and documented

in an Explanation of Significant Difference that the arsenic concentrations were naturally occuring and that the RAO for arsenic contaminated soils near the former power plant were addressed by excavation and placement of the soil in the capped on-site repository.

An Operation and Maintenance Plan (O&M Plan) (CDM Smith 2020) has been approved by EPA and ODEQ and summarizes ICs necessary to ensure long-term protectiveness of the remedy.

e. OU1 Operation and Maintenance/Institutional Controls

As described below, both O&M and ICs are required for OU1 to maintain protectiveness. O&M and IC activities are described in detail in the OU1 Final O&M Plan (CDM Smith 2020). This O&M Plan and appendices will be periodically updated by ODEQ as Site conditions change. ODEQ will begin O&M on May 1, 2021.

Operation and Maintenance

An O&M Plan was prepared and approved by EPA and ODEQ in June 2020 following remedy construction. As indicated in the O&M Plan, ODEQ will perform the following:

- *Routine Site Inspections:* Routine non-intrusive visual site inspections will be conducted to ensure integrity of the protective cap. Site inspections will be performed at least annually and following severe storm events.
- *Cap Maintenance:* Any damage to protective caps will be observed and recorded by ODEQ during routine site inspections. If necessary, damage will be repaired either by ODEQ or by others as directed, to eliminate potential exposure of underlying contamination.
- *IC Evaluation and Updates:* ICs will be evaluated by ODEQ on at least an annual basis and updated, if necessary, to ensure protectiveness. EPA will review ICs during the FYR.
- *Reporting:* Annual reports summarizing O&M activities will be prepared and submitted to EPA. Regular review and updates to the O&M Plan will be completed by ODEQ. The annual reports will assist EPA in considering the adequacy of the O&M program, based on the frequency of repairs, costs at the Site, and how these factors relate to determining and ensuring protectiveness of the remedy.
- *Assist EPA in preparation of Five-Year Reviews:* The annual reports will be used to assist EPA in developing the FYRs.

Institutional Controls

ICs are in-place and are used to minimize risks posed by ACM and ACM-contaminated soils that remain under the cap, and to ensure that the cap remains protective in the long-term. These controls will continue to generally allow for current land use activities but will restrict those uses to prevent damage to the caps, liners, and on-site repositories installed during RA. The following ICs are in-place at OU1:

- *Proprietary Controls – Easement and Equitable Servitude (EES):* Allows access for EPA and ODEQ to perform required maintenance on engineered controls and restrict property use. The EES prohibits grantors from conducting activities, such as excavation, that would impair the protectiveness of a constructed remedy, such as a soil cap. An executed EES for each affected property was filed with the Klamath County Clerk's Office and will run with the land, so that any future property owners will be subject to the conditions of the instrument. 41 EESs were filed with the Klamath County Clerk's Office. Through this instrument, the grantee (ODEQ), and

EPA as a third-party beneficiary, hold perpetual rights to enforce the conditions and restrictions of such instruments.

- *Government Controls – Excavation Notification and Reporting Form:* The property owner is required to notify the ODEQ representative of proposed excavation actions to ensure adequate engineering controls are in place when excavating into residual contamination (i.e., below the cap). In addition, the notification form identifies the processes required to ensure that contaminated materials/waste are properly handled, stored, and disposed at an approved disposal facility. Fact sheets have been developed and distributed to all homeowners and ODEQ has the ability to enforce for failing to provide proper notification.
- *Information Devices – Deed Notice of Environmental Contamination:* Ensures that residual asbestos information associated with a property is shared with a prospective purchaser during a property transaction. Notice of Environmental Contamination informational notices were utilized at properties on Thicket Court. These properties may have buried steam pipe under a paved road. The paved road was intact and not part of the remedial action. These deed notices were filed with the Klamath County Clerk's Office to inform current and potential future residents at these properties to discourage uses that could lead to unacceptable exposures to such contamination. These are currently being enforced along Thicket Court.
- *Information Devices – Community Awareness:* Provides resources and education to inform the community (including public utility) of the site-engineered controls in place (i.e., protective cap) to limit exposures and risk to residual ACM. Long-term site control information will be distributed to existing community members through websites, community meetings, and on-site signage, and/or provided to title companies to distribute to new homeowners. A fact sheet, updated periodically, also includes contact information of long-term program staff. Additionally, a parcel completion package was provided to property owners upon completion of remedial actions.
- *Information Devices – Contractor Awareness:* Ensures contractors that specialize in asbestos abatement are informed of long-term status of the Site (e.g., contaminated soil left in place, excavation notification, and reporting form requirements).

f. Five-Year Reviews (FYR)

Statutory FYRs will be performed because waste repositories are present on-site and contaminated soil remains in place below the protective caps, preventing unrestricted use and unlimited exposure at the Site. EPA is responsible for performing and funding the FYR; the first will be completed on or before July 18, 2021.

References

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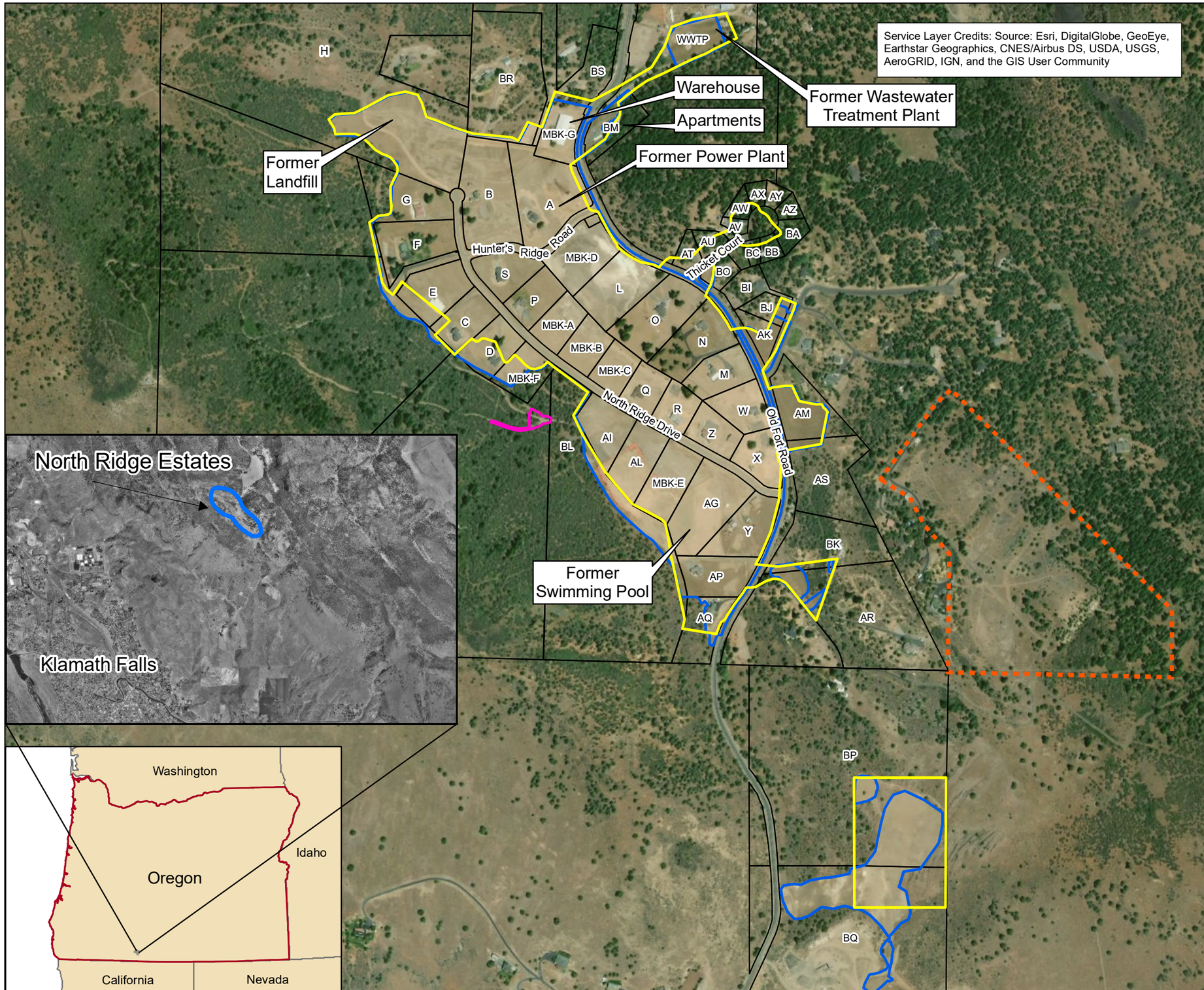
EPA. 2011. Final Record of Decision. September.

EPA. Proposed NPL Listing, March 10, 2011, 54 FR, Vol. 76, No. 47, page 13113; Docket FR 2011-03-10/PDF/2011-5340. Final NPL Listing, September 16, 2011, 52 FR, Vol. 76, No.180, page 57662; Docket FR 2011-23652.

FIGURES



Legend

- OU1 - North Ridge Estates
- OU2 - Firing Range
- Excavation Limits
- Surface Pickup Area
- Parcels

N

0 500 1,000 1,500
Feet
1 inch = 660 feet

Geographic Data Standards:
Projected Coordinate System:
NAD 1983 State Plane Oregon
South FIPS

March 2020

This product is for informational purposes and may not have been prepared for legal, engineering or surveying purposes. Users of this information should review or consult the primary data and information source to ascertain the usability of this information.

Site Location Map

Figure 1

CDM Smith

APPENDIX A

Appendix A

Docket Reports Index
Partial Deletion of OU1, North Ridge Estates Superfund Site, April 7, 2020.
EA Engineering. 2021. Remedial Action Completion Report – Redacted; January.
EPA. 2019. Explanation of Significant Difference; February.
EPA. 2020. EPA Office Director Approval of Remedial Action Completion Report-Redacted; December.
EPA. 2011. Final Record of Decision-Redacted; September.
CDM Smith. 2020. Final Operation and Maintenance Plan North Ridge Estates Superfund Site OU1. June.
ODEQ. 2021. Oregon Department of Environmental Quality Letter of Concurrence; January.