

**DECISION DOCUMENT FOR SELECTED REMEDY  
1954-1968 LANDFILL/BURN PITS (SWMU 57)  
YAKIMA TRAINING CENTER, WA  
FEBRUARY 2021**

## **1. PURPOSE**

This Decision Document describes the selected remedy of institutional controls for the 1954-1968 Landfill/Burn Pits Site (YFCR 50 HQAES ID: 1214A.1047) at Yakima Training Center (YTC). The remedy was selected consistent with corrective action and cleanup requirements promulgated under Washington's Hazardous Waste Management Act and Dangerous Waste Regulations, the Model Toxics Control Act (MTCA) cleanup regulations, the Resource Conservation and Recovery Act (RCRA), and the U.S. Department of Defense Environmental Restoration Program (10 U.S.C. 2701 et seq.). The remedy was selected by the Joint Base Lewis McChord (JBLM) Installation Restoration Program (IRP) with concurrence from Washington State Department of Ecology (Ecology) and United States Army Environmental Command.

The 1954-1968 Landfill/Burn Pits Site (Site) is located in the northwest portion of the YTC Cantonment Area, approximately 0.1 miles north of the National Guard building. The Site was identified as Solid Waste Management Unit (SWMU) 57 in the September 1995 RCRA Facility Assessment (RFA) conducted by the United States Environmental Protection Agency (EPA). Municipal solid waste material generated in the Cantonment Area and in training areas was reportedly burned and disposed of in unlined pits between 1954 and 1968. The waste material was covered with soil to a thickness of at least 1.5 feet. The Site is currently undeveloped. Anticipated future land use at the Site is commercial/light industrial associated with YTC operations.

A March 2007 Decision Document selected land use controls (LUCs) to prevent residential use and unplanned excavations as the remedy for the Former Landfill Complex in the vicinity of SWMU 57 (Office of the Garrison Commander, Fort Lewis 2007).

During pre-construction geotechnical testing in 2012 and 2013 for the construction of National Guard barracks adjacent to Building 870, test pits encountered burn residue and trash. A new investigation site YFCR-55 (HQAES ID: 1214A.1066) was opened to investigate the unknown waste encountered during excavation. Early in the investigation, it became clear that wastes were similar to what was encountered within SWMU 57. The results of geotechnical evaluation indicated that the distribution of waste at SWMU 57 was greater than the previously identified, and that YFCR-55 is an extension of the YFCR-50 SWMU 57 landfill complex.

A Site Investigation (SI) was conducted in 2016 to confirm the presence/absence of chemical impacts in soil associated with the waste material. A Remedial Investigation (RI) and Feasibility Study (FS) were conducted in 2018 to refine the lateral extent of SWMU 57 as a basis for selecting a remedy that considers future development.

## 2. SITE RISK

As summarized in the 2007 Decision Document, the Site contaminants for the potential direct contact pathway were determined to be antimony and lead. The maximum antimony and lead concentrations detected at the Site were 100 milligrams per kilogram (mg/kg) and 1,000 mg/kg, respectively. The MTCA direct contact cleanup levels in a residential land use scenario for antimony and lead are 32 mg/kg and 250 mg/kg, respectively. However, residential cleanup levels for the potential direct contact pathway, which are based on conservative child exposure assumptions, were not considered appropriate for YTC given that the general public is typically not permitted to access YTC.

As a result, standard MTCA cleanup levels for an industrial/commercial scenario, which are based on conservative adult worker exposure assumptions, were considered in the 2007 Decision Document to be more appropriate for providing a conservative estimate of the potential risk and hazard posed by antimony and lead via the potential direct contact pathway. The standard MTCA direct contact cleanup levels in a commercial/industrial land use scenario for antimony and lead are 1,400 mg/kg and 1,000 mg/kg, respectively. Thus, even the maximum detected concentrations of antimony and lead at the Site do not pose an unacceptable risk or hazard for the potential direct contact pathway given current and anticipated future land use.

While the 2007 Decision Document noted that constituent concentrations detected in samples from SWMU 57 were less than MTCA cleanup levels for an industrial/commercial scenario, LUCs were established because there were some constituent concentrations (for lead and antimony) that were greater than MTCA direct contact cleanup levels for a residential land use scenario. The LUCs established by the Decision Document prohibited unmitigated future residential land use and unplanned excavation within the SWMU 57 boundary (Office of the Garrison Commander, Fort Lewis 2007).

During the 2016 SI, it was determined that the existing conclusions regarding the lack of human health risks from chemical constituents were still applicable (based on current and anticipated future land use at the time of the 2016 SI), and a re-evaluation of human health risks was not warranted.

During the 2018 RI/FS, a conceptual Site exposure model was developed to provide a framework for understanding potential exposure scenarios including development of the Site. The following scenarios were evaluated:

- **Baseline No Action Scenario:** The Site is developed without any controls or further remedial action. This scenario is not considered to be realistic and is not the current land use scenario. The Baseline No Action Scenario evaluates potential risk to single-family residents and commercial/Base workers.
- **Pre-Remediation and Pre-Development:** The Site remains under current conditions, in which no remediation has occurred. Residential land use, unplanned excavation, and the installation of water supply wells are prohibited. The Pre-Remediation and Pre-Development scenario assumes that access to the Site is limited and evaluates potential risk to trespassers and recreators.

- Remediation Construction: The Site is remediated using targeted or total waste/soil removal. The Remediation Construction scenario assumes that access to the Site is limited and evaluates potential risk to construction/utility workers, trespassers, and recreators.
- Post-Remediation Development: The Site has been remediated using targeted or total waste/soil removal and construction on the Site is underway (e.g., construction of barracks). This scenario evaluates potential risk to residents, commercial workers, utility maintenance workers, and recreators.

The following exposure pathways were considered complete:

- Direct contact (incidental ingestion and dermal contact) with soil by:
  - Construction/utility workers during the Remediation Construction phase.
  - Utility maintenance workers during the Post-Remediation Development phase(s).
- Inhalation of particulates by:
  - Construction/utility workers during the Remediation Construction phase.
  - Utility maintenance workers during the Post-Remediation Development phase(s).

The following exposure pathways were considered partially complete:

- Direct contact (incidental ingestion and dermal contact) with soil by trespassers during the Pre-Remediation and Pre-Development phase. Although potentially complete, these pathways were not considered complete given existing YTC Base security, fencing, existing exposure barriers, and the general lack of trespassers at YTC.
- Direct contact (incidental ingestion and dermal contact) with soil and inhalation of particulates by trespassers during the Remediation Construction phase. Although potentially complete, these pathways were not considered complete given the YTC security and engineering controls (e.g., Site control measures, dust monitoring) that will be required for Remediation Construction activities. For these same reasons, these pathways were considered insignificant compared to the complete exposure pathways.
- Direct contact (incidental ingestion or dermal contact) with surface water by trespassers (Pre-Remediation and Pre-Development phase), construction/utility workers (Remediation Construction phase), and utility maintenance workers (Post-Remediation Development Phase) were not considered complete given that the Contaminant Hazard Factor for surface water and sediment was determined to be minimal (Pacific Northwest National Laboratory 1996).

The Baseline No Action Scenario potential exposure pathways are not included in the evaluation above because the scenario is not considered to be realistic. Further, while the RI/FS considered human health risk under development scenarios, the current and anticipated land use scenario remains as commercial/light industrial associated with YTC operations.

### 3. REMEDIAL ALTERNATIVES

Based on a current and anticipated land use scenario that does not include development, the Site does not pose an unacceptable risk or hazard. As such, evaluation of remedial alternatives is not necessary. However, a no further action alternative is not acceptable since contaminants are present in soil at concentrations above MTCA cleanup levels for unrestricted land use. Additionally, the FS provided an evaluation of remedial actions if development is considered in the future

The FS evaluated the following remedial alternatives:

**Alternative 1 – No Action.** Alternative 1 was provided only for comparison to other remedial alternatives and was not presented as a viable alternative. The alternative involves no further action at the Site. It would not include monitoring of the Site or implementation of institutional controls and would incur no cost.

**Alternative 2 – Institutional Controls.** Alternative 2 includes implementing Institutional Controls to minimize exposures for potential receptors under the most conservative exposure scenario(s) by way of LUC mechanisms. The LUCs would be implemented and maintained in - general accordance with Washington Administrative Code (WAC) 173-340-440. This alternative includes prevention of residential land use and unplanned excavation of contaminated soil inside the 2019 Estimated Landfill Boundary (Figure 1). Monitoring, maintenance, and enforcement of LUCs would be similar to current implementation under the 2017 Comprehensive Land Use Controls Plan (Sealaska Environmental Services, LLC 2018). Costs associated with the Institutional Controls alternative are estimated at \$90,162.

**Alternative 3 – Targeted Waste/Soil Removal.** Alternative 3 involves targeted removal of soil and waste material located in the trench complexes that cover approximately 3 acres of the Former Landfill Complex. The proposed approach includes (1) removal and stockpiling of the clean soil overlying the waste material with either a crawler tractor or scraper, (2) establishing engineering controls to minimize dust and runoff, (3) providing a temporary access road for equipment and truck traffic, (4) excavation of the combined soil/waste material horizon, (5) transport and disposal of the material, and (6) backfill and restoration of the area. It is estimated that approximately 22,000 tons of soil would be excavated from the Site over the course of approximately one month. Costs associated with the Targeted Waste/Soil Removal alternative are estimated at \$3,857,987.

**Alternative 4 – Total Waste/Soil Removal.** Alternative 4 involves total removal of soil and waste material located inside the 2019 Estimated Landfill Boundary (Figure 1). This area is approximately 10 acres. The proposed approach includes (1) providing a temporary access road for equipment and truck traffic, (2) excavation of the combined soil/waste material horizon, (3) transport and disposal of the material, and (4) backfill and restoration of the area. It is estimated that approximately 120,000 tons of soil (80,000 cubic yards at 1.5 tons per cubic yard) would be excavated from the Site over the course of approximately four months. Costs associated with the Targeted Waste/Soil Removal alternative are estimated at \$12,839,420.

#### **4. SELECTED REMEDY**

Based on a current and anticipated land use scenario that does not include development, the Site does not pose an unacceptable risk or hazard for current or anticipated future land use. Thus, the selected remedy is Alternative 2 – Institutional Controls. Institutional controls will be implemented and maintained in general accordance with WAC 173-340-440. The specific implementation requirements for the institutional controls, including monitoring, maintenance, and enforcement, will be documented in the JBLM IRP LUC Plan for YTC.

Since this Site is owned by the Federal Government, a state restrictive covenant will not be imposed since the Army does not routinely file with the county recording officer records relating to the type of interest in real property that it has in the Site. Instead, consistent with WAC 173-340-440(8)(b) and (9), the LUC Plan implements an effective alternative system to (1) prohibit residential use that may create an unacceptable risk, (2) notify Ecology of any intended conveyances to non-federal entities, (3) execute and record a restrictive covenant upon such conveyance, (4) incorporate use restrictions into all Site leases, (5) notify Ecology of any proposal to use the Site for residential purposes, and (6) grant access to Ecology for cleanup action related activities.

It should be noted that these institutional controls are not intended to lock up the land in its current state for perpetuity by completely discouraging all reuse options for the Site in the event that it is no longer needed for its current purpose. Rather, the institutional controls for unmitigated future residential land use are simply designed to ensure that the nature and extent of the Site is considered during all planning decisions and that the potential impacts from the Site are mitigated as necessary before any proposed residential use. Likewise, the institutional controls for unplanned excavation are simply designed to keep contaminated soil from being brought to the surface.

Costs associated with the selected remedy (Institutional Controls) are estimated at \$90,162.

#### **5. PUBLIC/COMMUNITY INVOLVEMENT**

JBLM IRP will follow public comment requirements for this Decision Document consistent with WAC 173-340-600 and U.S. Army guidance. Actions include publishing a legal notice in the local newspaper, providing a 30-day opportunity for comment, and adding the Decision Document to the local repository.

#### **6. DECLARATION**

The selected remedy is protective of human health and the environment, complies with cleanup standards, attains applicable Federal and State requirements, and is cost effective. Since no physical action is being taken, regular compliance monitoring (i.e., collection of environmental samples) is not necessary. The specific implementation requirements for the institutional controls, including monitoring, maintenance, and enforcement, will be documented in the JBLM IRP LUC Plan for YTC. This remedy utilizes permanent solutions and alternative treatment technologies to the extent practicable for this Site. However, because treatment of the principal

threats of the Site was not found to be practicable or necessary from a risk perspective, this remedy does not satisfy the preference for treatment as a principal element of the remedy. A treatment action is not reasonable or practicable since the Site does not pose an unacceptable risk or hazard to human health or the environment under current and anticipated future land use.

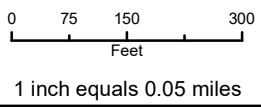
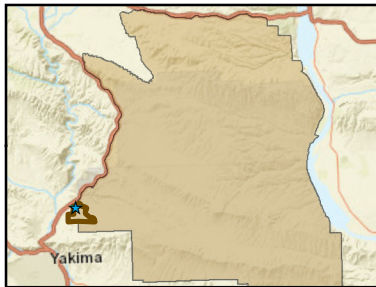
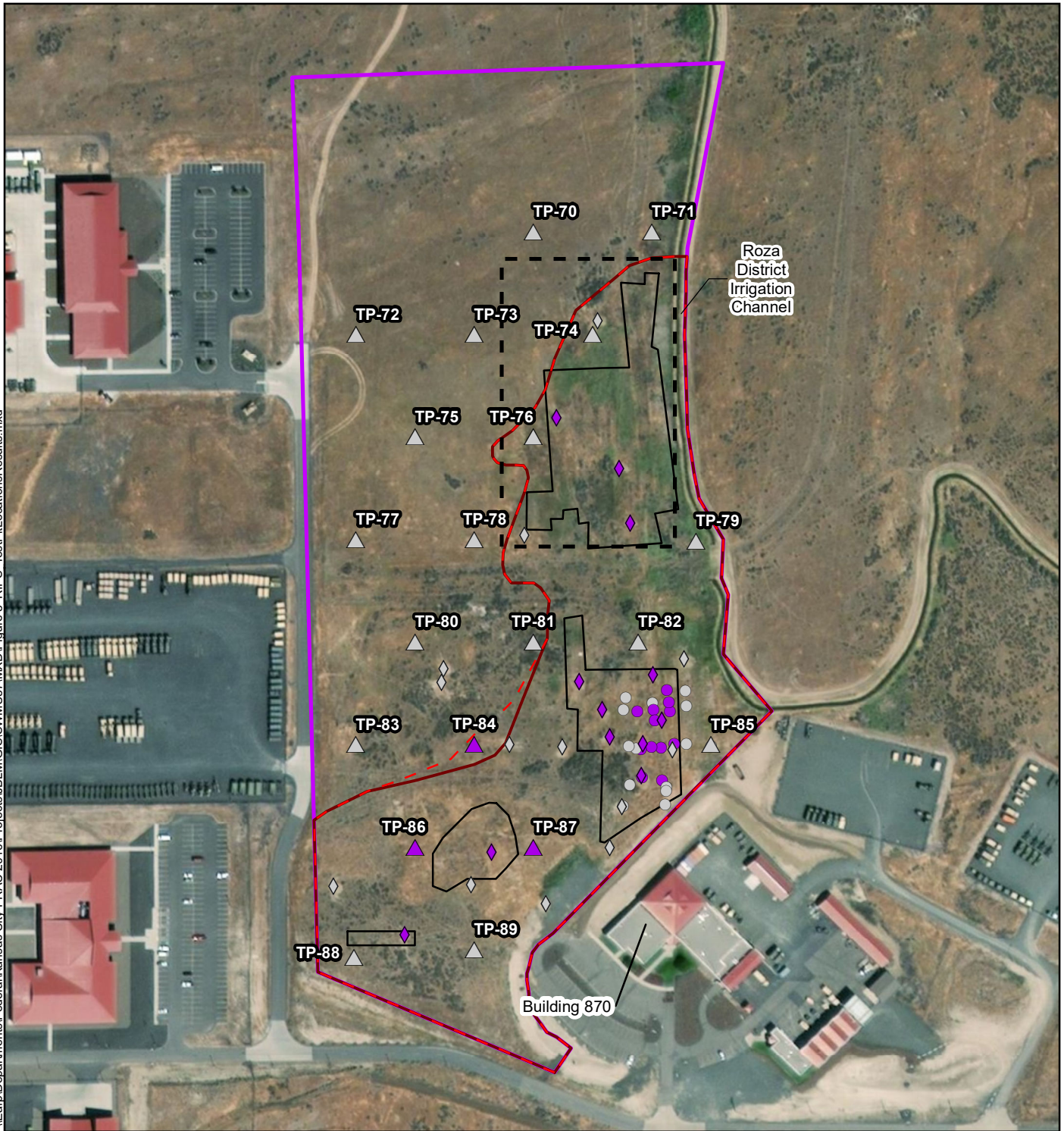
Because the selected remedy will result in hazardous substances remaining on-Site above levels that allow for unlimited use and unrestricted exposure, periodic reviews will be conducted every five years to ensure that the selected remedy continues to provide adequate protection of human health and the environment.

## **7. APPROVAL AND SIGNATURE**

Institutional controls are the selected remedy for the 1954-1968 Landfill/Burn Pits (YFCR 50 HQAES ID: 1214A.1047) at the YTC. Site YCFR-55 (HQAES ID:1214A.1066) will be closed. Costs associated with the selected remedy are estimated at \$90,162.

Skye D. Duncan  
Colonel, US Army  
Commanding

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- Legend**
- ▲ 2018 Test Pit With Debris
  - △ 2018 Test Pit Without Debris
  - ◆ 2016 Test Pit With Debris
  - ◇ 2016 Test Pit Without Debris
  - 2012 Test Pit With Debris
  - 2012 Test Pit Without Debris
  - Former Landfill Complex
  - Solid Waste Management Unit 57
  - Interpreted Trench Complex
  - 2016 Site Inspection Estimated Landfill Boundary
  - - - 2019 Estimated Landfill Boundary

**FIGURE 1**  
**2019 ESTIMATED LANDFILL BOUNDARY**

Map Date: 7/3/2019  
Coordinate System: UTM Zone 10  
Horizontal Datum: WGS 84