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# DRAFT OPERABLE UNIT 3 IMPLEMENTATION PLAN FOR THE ABOVE-GRADE DISMANTLEMENT OF THE HIGH AND LOW NITRATE TANKS

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IMPLE PLAN

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Mr. James A. Saric, Remedial Project Director
U.S. Environmental Protection Agency
Region V - SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

**DRAFT OPERABLE UNIT 3 IMPLEMENTATION PLAN FOR THE ABOVE-GRADE DISMANTLEMENT OF THE HIGH AND LOW NITRATE TANKS**

Enclosed is the draft Implementation Plan for the Above-Grade Dismantlement of the High and Low Nitrate Tanks. Under the Remedial Design Prioritization and Sequencing Report for Operable Unit 3 (OU3), these tanks would not have been decontaminated and dismantled until Fiscal Year 2001. However, the two tanks need to be removed this spring to allow for the near-term planned construction of the treatment facility for Operable Unit 1 (OU1) remediation and construction of the haul road in support of the on-site Disposal Facility. To support the activities noted above, the decontamination and dismantlement are scheduled to begin in March 1996. Site operatives will remove and treat the liquids and residue in the tanks under standard waste water treatment operating procedures prior to the start of the decontaminating and dismantling activity.

This Implementation Plan differs from previous Implementation Plans because of the simplistic nature of these temporary tanks compared to other structures that have been planned for decontamination and dismantlement. This plan was prepared in a summary fashion using a similar but streamlined format.

If you have any questions, please contact Anand C. Shah at (513) 648-3146.

Sincerely,

Johnny Reising
Fernald Remedial Action
Project Manager

FN:Shah

Enclosure: As Stated

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# OPERABLE UNIT 3 IMPLEMENTATION PLAN FOR THE ABOVE-GRADE DISMANTLEMENT OF THE HIGH AND LOW NITRATE TANKS

This document summarizes the project-specific design and field activities planned for the dismantlement of the above-grade portions of the Low Nitrate Tank (18K) and the High Nitrate Tank (18L). At- and below-grade remediation will be managed under the Soil Remediation Project and is not included in the scope of this project. The dismantlement of these components is being performed under the authority of the approved Operable Unit 3 (OU3) Remedial Design/Remedial Action (RD/RA) Work Plan for Interim Remedial Action. This implementation plan is being submitted to the U.S. Environmental Protection Agency and the Ohio Environmental Protection Agency in accordance with the approved OU3 RD/RA Work Plan and OU3 Remedial Design Prioritization and Sequencing Report (PSR).

## INTRODUCTION

Components 18K and 18L are located approximately 450 feet west of the Elevated Water Storage Tank (26B), as shown in Figure 1. Each tank measures approximately 180 feet by 180 feet by four feet high, has a volume of one million gallons, and has two 40-mil high-density polyethylene liners. The High and Low Nitrate Tanks were used for temporary wastewater storage during the reconstruction of the Biodenitrification (BDN) Surge Lagoon (18A). The contents of the tanks were pumped directly into the BDN Towers (18D). The flow from each tank was regulated to achieve the proper nitrate concentration for the BDN process.

The Low Nitrate Tank is no longer being used in the BDN process and is currently available for sludge removal and dismantlement. The High Nitrate Tank is currently being used to meter high nitrate filtrate (generated during the treatment of site UNH inventories under Removal Action 20) into the permanent High Nitrate Storage Tank (18M) until it can be processed through the biodenitrification system. Once the filtrate and residual sludge have been removed (estimated late April 1996), the High Nitrate Tank will be available for dismantlement.

The two components were initially scheduled for remediation in 2001 as part of the Liquid Storage Complex, as described in the PSR. However, the planning of OU1 and OU2 remediation has identified the need to accelerate the dismantlement schedule for these two components. The reasons are described below.

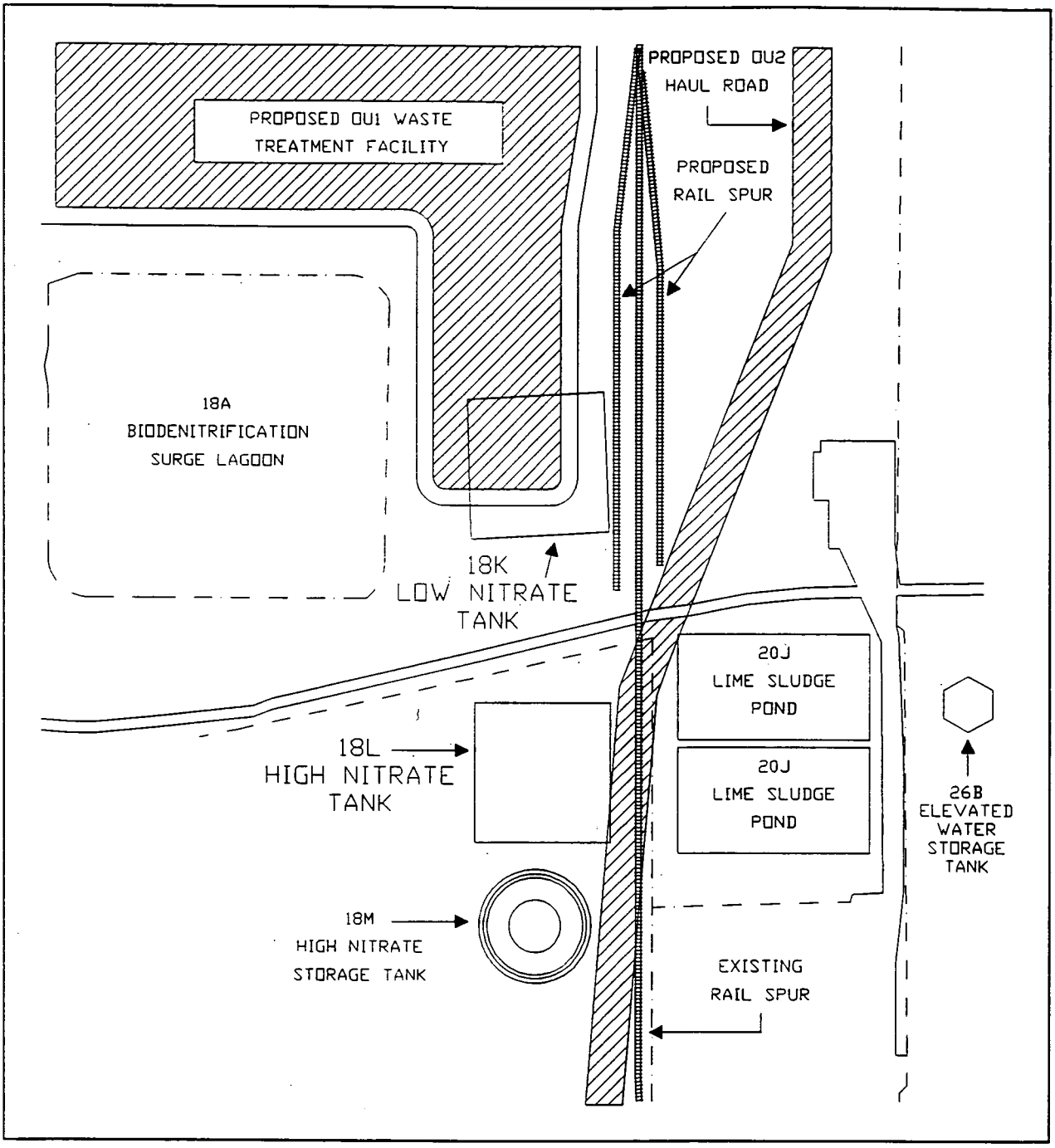


**FIGURE 1 Location of High and Low Nitrate Tanks**

The design for the OU1 Waste Treatment Facility includes a rail loading and warehouse area where the Low Nitrate Tank is currently located. The anticipated date for laying the foundation of this facility is May 1996. Similarly, to support OU2 remediation, a haul road will be constructed to transport waste from the South Field Area to the On-Site Disposal Facility (OSDF). The intended path of the haul road intersects the High Nitrate Tank.

Construction of the haul road is scheduled to begin in September 1996. The tanks will need to be removed to support these construction and remediation schedules.

The remediation approach of the High and Low Nitrate Tanks consists of the following activities, although not necessarily in this order:

- Characterization;
- Preparatory Action (Sludge Removal);
- Above-Grade Dismantlement;
- Material Management; and
- Environmental/Occupational Monitoring.

Other remedial tasks discussed in the OU3 RD/RA Work Plan, such as Safe Shutdown, Hazardous Waste Management Unit Closure, and at- and below-grade dismantlement are not applicable to this dismantlement project. At- and below-grade dismantlement will be managed under the Soil Remediation Project.

**CHARACTERIZATION**

In order to assess health and safety concerns, occupational and environmental monitoring requirements, and alternatives for disposition of materials from dismantlement, process knowledge and available characterization data were evaluated. Two different sets of samples have been taken to identify the concentration of constituents in the liquid and sediments in the tanks. Samples were taken to support the characterization information to be included in the OU3 Remedial Investigation/Feasibility Study (RI/FS) for the disposition of materials removed during dismantlement of OU 3 structures. These samples were collected from "hot spots" identified during field screening of the tanks, and are not representative of the material in the tanks, since only one grab sample was collected from each tank. The results of the RI/FS sampling of the sediment indicated greatly elevated levels of uranium (16,200 ug/g) and elevated levels of three regulated metals (mercury [26 mg/kg], lead [1340 mg/kg], and chromium [407 mg/kg]), all in the Low Nitrate Tank. Hot spot concentrations in the High Nitrate Tank were well below levels of concern for the RCRA-regulated metals; total uranium was detected at 2119 ug/g.

Data from samples of the sediment taken in July 1995, which were considered representative of the material in the tank based on process knowledge, showed uranium concentrations of 174 ppm in the High Nitrate Tank and 61 ppm in the Low Nitrate Tank. Barium was the only

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constituent regulated under the Resource Conservation and Recovery Act (RCRA) that was detected (0.414 mg/L), but was well below the regulatory level of 100 mg/L. There was no detectable radiological contamination on the exterior surfaces of the support structures.

To reconcile differences between the two sets of data, additional samples will be collected under a sampling plan that will be developed. These samples will be analyzed for isotopic uranium and thorium; the results will provide an indicator of whether or not the concentrations of contaminants merit concern. Also, these data will be used to assure the acceptability of treatment of the sediment in the Ore Recovery Plant (i.e., Plant 8); after treatment, the dried sediment will be sampled and analyzed for the presence of RCRA-regulated metals to determine the appropriate method of disposition.

**PREPARATORY ACTIONS**

Several tasks have to be performed to prepare the nitrate tanks for dismantlement. These tasks are governed by FEMP standard operating procedures as routine activities and are therefore not included within the scope of the OU3 interim action.

The accelerated schedule calls for emptying the tanks during the spring. Since the ground is generally muddy in the spring, additional traction is expected to be necessary for the heavy equipment required to empty residual sludge from the tanks. Therefore, a gravel road will be constructed around each tank prior to removal of tank contents. It is important to note that in keeping with the philosophy of waste minimization through material recycling and reuse, this gravel will be scraped up at the completion of the project and reused in the foundation of the haul road.

For each tank, the wastewaters will be drained and the tank cover will be removed to provide access to any residual sludge that has settled on the bottom. The "Super Sucker," a FEMP sludge removal vehicle, will be driven around the tank on the gravel road. The Super Sucker will remove most of the sludge from the tanks using a suction hose. After the bulk of the sludge has been removed, the liner will be wiped (e.g. using a rubberized scraper) to direct the remaining sludge to a corner in order to maximize sludge removal by the Super Sucker. The Super Sucker will transport the sludge to Plant 8 for vacuum filtration. After the sludge has been removed, preparatory activities will be complete and structural dismantlement will begin.

**DISMANTLEMENT**

The anticipated method of dismantlement includes four major activities for each nitrate tank: disconnecting utilities; removing above-grade piping; removing the liners; and dismantling the tank walls and supports. These activities will be performed on the Low Nitrate Tank first because it will be available for sediment removal first and because of the more immediate need to clear the area for the construction of the OU1 Waste Treatment Facility by May 1996.

As part of disconnecting utilities, piping will be disconnected and capped at-grade. The below-grade piping (i.e., nitrate tank influent lines) will be eventually removed along with the haul road as part of the Soils Remediation Project. Once the small quantities of pumps and above-grade piping has been removed and containerized, the liners will be removed and cut into manageable sections (i.e., approximately 20-foot wide strips). Radiological surveys will then be performed to determine whether the liners can be free-released. These sections will be rolled up and placed into appropriate interim storage. The galvanized steel tank walls and associated tank supports will then be dismantled by hand and put into discrete packages. Since appreciable levels of surface contamination are not expected on the tank walls and support braces, these materials will also be surveyed to confirm free releasable levels. Materials that can be free released will be sent to the Material Release Facility. Materials that cannot be free released will be held for future on-property reuse and/or disposition.

**MATERIAL MANAGEMENT**

The generation of debris from the dismantlement of the tanks will be managed in accordance with current OU3 Feasibility Study and Removal Action 17 (Improved Storage of Soils and Debris) strategies. Materials expected to be generated during this project have been estimated and appear in Table 1. Both tanks are almost identical so the total expected waste generation is listed, as opposed to individual tank totals.

Material classified in OU3 FS Category A (Accessible Metals) consists primarily of galvanized steel sides and support braces of the tanks. Category B (Inaccessible Metals) materials include four pumps, above-grade piping, electrical items, and miscellaneous conduits and wiring. Finally, Category I (Miscellaneous) materials represent the tank covers, double liners, non-asbestos-containing piping insulation, and personal protective equipment (PPE). Note that this insulation will not be removed from the piping and will, therefore, be packaged. It is anticipated that the total project will not generate more than one top-loading container.

**TABLE 1 Material Volume Estimates**

| Material Description (FS Category) | Bulked Volume (cu. ft.) | Weight (tons) | Interim Storage Configuration | Preferred Storage Location | Anticipated Disposition |
|---|---|---|---|---|---|
| Accessible Metals (A) | 192 | 23.5 | Stockpile | TSS South of the SWRB[a] | On-Site Reuse |
| Inaccessible Metals (B) | 49 | 1.4 | Top-Loader | Plant 1 Pad | On-Site Disposal |
| Misc. Materials (I) (tank covers, insulation, PPE) | 295 | 6.0 | Top-Loader | Plant 1 Pad | On-Site Disposal |
| Misc. Materials (I) (tank liners) | 953 | 11.9 | Stockpile | TSS South of the SWRB[a] | On-Site Reuse |

[a] If possible, the tank walls and liners will be free-released from the radiologically controlled area and stored for possible on-site reuse; otherwise, these materials will be stored on the Plant 1 Pad.

As discussed above, the tank liners, walls, and support braces will be radiologically screened to determine eligibility for free release under criteria of DOE Order 5400.5. If the metal is free releasable, it will likely be transported to the tension support structure south of the Storm Water Retention Basin (SWRB) for possible future on-site reuse (e.g., for run-off control during remediation of the South Field or during construction and filling of the OSDF). In the event that these materials do not meet free-release requirements, they will be stored on-site (anticipated to be the Plant 1 Pad) for possible reuse or to await final disposal (anticipated to be in the OSDF) per the OU3 final remedial action Record of Decision. All other materials will be placed in the appropriate storage configuration to await final disposal.

## ENVIRONMENTAL/OCCUPATIONAL MONITORING

As discussed in the OU3 RD/RA Work Plan, occupational air monitoring, which will be addressed in the project-specific Health and Safety Plan, will be performed using a possible combination of personal air sampling, breathing zone, and general area sampling methods to assess personal exposure to airborne radioactivity. Based on characterization data, additional (i.e., environmental) monitoring is not expected to be necessary. However, if elevated airborne levels are detected during occupational monitoring, the need for environmental monitors will be reassessed. For example, project perimeter air samples could be collected on a daily basis to ensure against a spread of contamination; the sample filters from these samplers would be removed and analyzed at a minimum for gross alpha and beta activity.

## PROJECT MANAGEMENT

Section 7 of the OU3 RD/RA Work Plan provides the overall management structure applied to this remediation project. The implementation of the High and Low Nitrate Tank remedial action will be performed through a coordinated effort by the FEMP construction organization, which will directly coordinate and manage remediation activities, the construction support contractor, FEMP organizations, remedial design subcontractor, and DOE project management. The removal of sludge from the tanks will be performed and managed by Remediation Support Operations (RSO), which is the FEMP organization responsible for day-to-day operations and maintenance.

## PROJECT SCHEDULE

The schedule for project planning (document submittal and approval), preparatory actions, dismantlement, and project closeout is provided in Figure 2. The schedule identifies the primary milestones required pursuant to the OU3 RD/RA Work Plan, including project initiation, duration, and completion of field activities, and the preparation and submittal of the remedial action report.

| ACTIVITY START | ACTIVITY FINISH | ACTIVITY DURATION |
|---|---|---|
| 13FEB96 | 13FEB96 | 0 |
| 13FEB96 | 14MAR96 | 30 |
| 26FEB96 | 26APR96 | 60 |
| 14MAR96 | 14MAR96 | 0 |
| 14MAR96 | 29MAR96 | 15 |
| 18MAR96 | 16AUG96 | 152 |
| 16AUG96 | 16AUG96 | 0 |
| 16AUG96 | 15OCT96 | 60 |
| 15OCT96 | 15OCT96 | 0 |

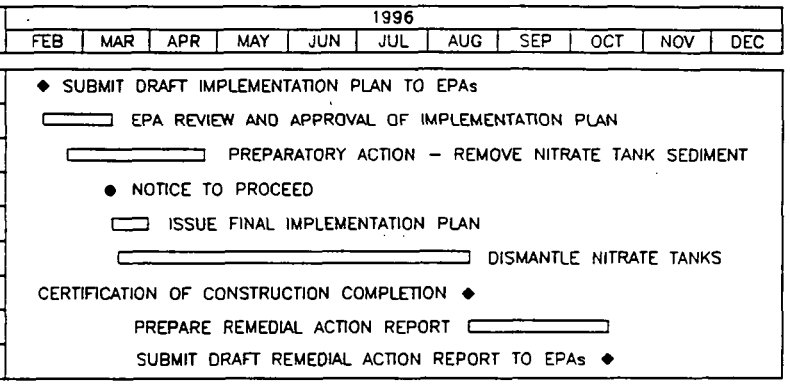


**FIGURE 2 Project Planning Schedule for Dismantlement of High and Low Nitrate Tanks**

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