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MDA P Site: Phase I Closure Implementation Report
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1.3 Pre-mobilization Activities

1.3.1 General

Prior to the start of closure/remediation activities at the MDA P Site, several nonintrusive projects were completed that enhanced Phase I closure performance. These projects included construction as well as surface contamination level surveys and are described in the following sections.

1.3.2 Segregation Pad

In late 1996, a materials segregation area was constructed on the east side of MDA P (Plate 1). The segregation area was designed for the required waste-segregation operations within the MDA P boundary during Phase I closure implementation. The area consisted of a compacted earth pad, a liner, and erosion control barriers. Some waste was removed from the western side of the pad and stockpiled on the waste pile. Approximately 5000 yd^3 of clean backfill soil was imported for the construction. A 40-mm high-density polyethylene (HDPE) liner was installed and covered by a layer of compacted, imported soil approximately 8 to 12 in. thick. The completed elevation of the area was 7434 ft with a berm that extended approximately 2 additional ft. The base of the compacted earthen slopes was protected by a line of straw bales. An asphalt-lined trench was constructed around the east side and tied to the existing MDA P runon trench. A construction drawing of the segregation area is included in Appendix A, section A-1.0. The segregation pad, which was modified by Roy F. Weston, Inc., prior to remediation to enlarge it and reduce the access grade, was used for debris and soil staging. It was renamed Pad 11 (see Plate 1).

1.3.3 Decontamination Pad

In late 1996, a materials decontamination pad was constructed on the upland area south of MDA P and directly east of Flash Pad 387 (Plate 1). The decontamination pad was designed for the debris decontamination operations required during Phase I closure implementation. The pad consisted of a 40- by 40-ft, 5000-lb psi concrete pad with integral curbing, drainage, and sump. The concrete was placed over a compacted earthen base and HDPE liner. The finished grade of the pad was approximately equivalent to the adjacent roadway. The catch basin, or sump, had a total capacity of 180 gal. A 20- by 80-ft compacted earthen ramp was constructed on the north side to allow access from MDA P. A culvert 24 in. wide was installed in the ramp where it crossed the existing MDA P runon trench. The decontamination pad was completed with a set of steel grates on the floor as well as a steel fence, tarps, and gates on the perimeter. A construction drawing of the decontamination pad is included in Appendix A, section A-1.0.

1.3.4 Runoff Trenches

In 1997, a series of runoff trenches were constructed at the base of MDA P (Plate 1). The trenches were designed to collect stormwater runoff during Phase I closure implementation. Three trenches were constructed: two were below the west lobe in the terrace materials and one was below the east lobe in the bedrock. The total length of the three trenches was approximately 470 ft. The trenches were approximately 3- to 4-ft deep, 6- to 8-ft wide, and lined with 40-mm HDPE. Construction of the runoff trench below the east lobe of MDA P required constructing an access road along the upper east side of the project area. A construction drawing of the runoff trenches is included in Appendix A, section A-1.0. This road, known as the East Access Road, remained largely unmodified throughout Phase I and Phase II activities.

1.3.5 Surface Barium Survey

In 1996, Laboratory personnel conducted a surface survey for barium contamination and surface radiation on the upper terrace of MDA P and the area where the segregation area was to be constructed (see Appendix A, section A-2.0). A 30- by 30-ft grid was established that contained 88 sampling points. A field

portable x-ray fluorescence (XRF) instrument (Spectrace Model 9000) was used for the barium analyses, and beta gamma and low energy gamma radiation meters (Eberline Model ESP-1) were used for the radiation surveys. The results of the survey indicated that roughly one-third of the sample locations exhibited barium concentrations above 1000 ppm. The highest barium concentrations were measured on the east lobe of the waste pile. The radiation measurements indicated that beta gamma levels were at, or slightly above, Laboratory background values (BVs). The results are included in Appendix A, section A-2.0.

1.3.6 Hand Sorting Pad

In 1998, a concrete pad was constructed west of Flash Pad 387 to provide a surface for hand sorting. The pad consisted of a 40- by 60-ft, 3500-lb psi concrete pad with integral curbing, drainage, and sump. The concrete was placed over a compacted earthen base and HDPE liner. The sump had a total capacity of approximately 180 gal. A 20- by 20-ft compacted earthen ramp was constructed on the west side so that equipment could access the soil staging area. Originally, this pad was intended to contain a hopper and conveyor system, but the system was never placed into operation. This concrete pad was used to stage contaminated soils within the area of contamination (AOC) and was called Pad 12 (Plate 1).

2.0 MDA P CLOSURE IMPLEMENTATION

2.1 General

Weston, under subcontract to the Laboratory's ER Project, began implementing the approved MDA P closure plan in 1997. Weston was given the tasks of removing, segregating, decontaminating, and disposing of the MDA P contents, as well as coordinating the project. Personnel from Laboratory organizations provided such support services as waste sampling and analyses and waste determinations. Table 2.1-1 lists the milestones (and their dates) that were achieved during the project. During the latter portion of MDA P fieldwork, the closure of Flash Pad 387 and the remediation of SWMU 16-016(c)-99 were added as tasks. These two additional activities are described in sections 11 and 12.

Table 2.1-1
MDA P Closure Phase I Milestones

Contract award	8/26/97
SSHASP approval	10/29/97
Test pit mobilization	11/12/97
Test pit demobilization	12/08/97
Phase I mobilization	7/13/98
Phase I demobilization	2/22/02
Remote excavation start	2/2/99
Remote excavation finish	6/30/00
Non-remote excavation start	8/07/00
Non-remote excavation finish	3/20/02
Waste disposal start (industrial)	3/29/99
Waste disposal finish (industrial)	6/15/01
Waste disposal start (hazardous)	9/03/99
Waste disposal finish (hazardous)	3/24/02

6.3 Decontamination Water Staging

Decontamination water was staged in three 20,000-gal., single-walled, steel fractionation tanks designed to separate solids from liquids. These tanks were located on lined and bermed pads constructed adjacent to the decontamination pad within the AOC. The three tanks received decontamination water pumped from the sump in the decontamination pad. When a tank was full, a lot number was assigned to the tank for tracking purposes. Each tank of water was marked (lot number and sample numbers) for identification purposes. As their contents were sampled and managed, the use of the three tanks was rotated: actively receiving water from the decontamination pad, awaiting sample results, or awaiting disposition.

Two similar tanks were located at other locations in the support area. A fourth tank was located immediately west of Flash Pad 387. This tank was used as a reservoir for water for dust control and was not placed on a lined pad. This tank received water pumped from one of the three tanks at the decontamination pad; waste determination results indicated when the water could be used for dust control. Much more water was required for dust control than could be supplied by re-used decontamination water, so this tank was filled from a local fire hydrant through a temporary hose.

A fifth tank of similar construction was located at the HEWTF within the burning ground. This tank was installed to receive water pumped from one of the three tanks at the decontamination pad, if sampling results indicated that the water could not be used for dust control.

6.4 Stormwater Staging

Stormwater was staged in three new 10,000-gal., single-walled, steel tanks; each tank was dedicated to one of the three runoff trenches. These tanks were located on a lined and bermed pad. When the tank was full, a batch number was assigned to that tank of stormwater for tracking purposes. Each tank was filled only once.

6.5 Debris Staging

Debris from the excavation and waste segregation processes at MDA P included metal and concrete debris. All debris materials were staged in 100-yd^3 lots (Photograph 6.5-1) and assigned a unique tracking number. Each staging pad was mapped with the position of each lot within the pad, and each lot identification number was marked with a wooden stake or spray paint so it could be identified in the field. During each sampling event, each debris lot was spray painted with the sample number, so that each debris lot had at least two markers for identification. Temporary staging area maps were compiled and used to relocate and identify individual debris lots.

All debris was staged at the decontamination pad and visually inspected for the presence of HE or other materials that needed to be removed prior to decontamination. All debris was subjected to a surface radiation survey with a beta-gamma radiation instrument. Representative swipe samples for removable radioactive materials (i.e., smears) were collected and submitted to the Laboratory health physics analytical laboratory (HPAL) for analysis. All materials that exhibited elevated levels of surface or removable radiation were segregated into the radioactive waste boxes and were not decontaminated. All other debris materials were subjected to decontamination by high-pressure washing with hot water at the decontamination pad (Photograph 6.5-2). Once decontaminated, all debris was transferred to Pad 3 at the 90s Line. At the staging area, debris was segregated into 100-yd^3 lots of metal and concrete. Each lot was assigned a unique lot number for tracking purposes. Each lot then received another representative swipe sampling for removable radioactive materials before the lot was released for disposal or recycle. No metal was recycled after implementation of the DOE moratorium that prohibited shipment of metal from an RCA (DOE 2000, 73792).

Photograph 6.5-1. Debris staging at Pad 3, 90s Line, 1999 (view to north)

Photograph 6.5-2. Personnel and debris at the decontamination pad, 1999

6.6 Asbestos Containing Material

Asbestos-containing materials (ACM) were staged within the AOC. Large items, including wrapped pipe and other debris removed from MDA P, were double wrapped in accordance with the U.S. EPA Asbestos

12.1 Excavation

Excavation of the area within the SWMU 16-016(c) boundary included both remote and conventional means. Since part of the SWMU boundary extends down the western margin of MDA P, contaminated materials in this area were excavated during both waste pile removal with the robotic equipment and subsequent manual excavation of contaminated materials. No attempt was made to segregate or identify materials that were specifically related to migration of barium nitrate from the pile area. Most of the excavation for SWMU 16-016(c)-99 was performed during the excavation of contaminated materials after removal of the MDA P waste pile was complete (circa August 2000 to March 2001).

The soils within the footprint of the 386 Flash Pad were excavated and staged with soils from adjacent areas used for support of the MDA P closure. Access to the interior of the fenced area was coordinated with personnel from ESA-FM, as the area was operational. The extent of the excavation is shown on Plate 3. Field screening for barium, using a field XRF instrument, was used as an indicator for the limit of excavation. The extent of barium contamination was not found to be continuous downgradient of the location of the former pile within the 386 Flash Pad. Surface soils and some bedrock materials were removed from within the flash pad, and only spotty areas were found downgradient. Contamination was not found to have penetrated the bedrock. Some residual bedrock contamination was recognized in the drainage along the western margin of MDA P, but it was below the PRG of 2000 ppm barium.

The remaining areas within the 386 Flash Pad fence were spot-checked for contamination around the excavated area to ensure that all soils contaminated above the PRGs were removed. The new building in the southeast corner of the 386 fence area did not hinder or preclude these activities. After the excavation activities were complete, a layer of soil and gravel was placed in the excavation within the current fence. Gravel was placed on the north side of the current fenceline as an erosion control agent. At this writing, the 386 Flash Pad remains in use for equipment staging.

The septic tank and waste line were remediated in two stages (March 2001 and March 2002). In March 2001, the waste line (4-in.-diameter VCP) was located and excavated from the tank to its endpoint. The pipe was empty and the connection with the tank had been plugged. The tank outlet was plugged and the waste line was taken out of service. Field-screening of the pipe interior indicated that no HE or barium contamination was present. The distal 10 ft of the waste line was crushed pipe with no defined outfall. The metal top and riser of the tank were excavated to expose the tank itself, estimated to be a 100-gal. metal tank. A representative of NMED Field Operations Division inspected the tank and the tank was backfilled with clean soil to grade and left in place. A copy of the NMED inspector's form is included in Appendix B. The pipe inlet was plugged with a polyvinyl chloride pipe fitting and the water was turned off inside the building at the toilet to decommission the source. Soil surrounding the tank and the edges and interior portions of the tank were field-tested for HE and barium and found to be below operational PRGs for both. In March 2002, the tank and pipe were excavated, sampled, and removed completely.

12.2 Waste Segregation and Staging

Waste generated during the excavation of the soils from the former barium pile and septic tank includes soils and debris. Soils from the excavation of contaminated areas were staged in 100-yd^3 lots for waste sampling. No effort was made to segregate soils from the SWMU 16-016(c)-99 sites from other areas being excavated as part of the MDA P support areas, include soils staging pads and roads cover. Soils mixed with the contents of the septic tank were containerized at the time of the tank removal and staged at the excavation.

The debris generated includes the pipe materials and the debris from the tank removal. The pipe and debris was inspected by a representative from ESA and found to be free of HE residues. Spot tests for barium residues were also negative.

12.3 Waste Characterization

Soils generated from excavation of the SWMU 16-016(c)-99 sites were subjected to the same sampling regime as all soils generated during the MDA P closure (see section 7.2). Generated soils were incorporated into those generated from the MDA P activities and were not sampled independently. No sampling was conducted on the debris other than tests for residual levels of HE and barium. The contents of the septic tank, as well soils at the tank inlet and outlet, were sampled at the time of the tank removal. The sample request summaries are included in Appendix D.

12.4 Waste Disposal

Soil generated from excavation of the SWMU 16-016(c)-99 sites were disposed of through the system developed for the MDA P closure. No attempt was made to distinguish the disposal of soils from the SWMU 16-016(c)-99 areas from those from MDA P. Disposal of soils from MDA P is described in sections 9.2 and 9.3. Soils mixed with the tank contents and under the tank were found to be nonhazardous and nonregulated, respectively, and were returned to the excavation.

The debris generated was found to be nonhazardous by the HE and barium spot tests. The fragments of the 4-in. diameter VCP and tank remnants were disposed as industrial waste. The materials were included in soil shipments to the receiving facility in Rio Rancho, New Mexico, operated by Waste Management, Inc. and are included in the soil shipment documentation. The remnants of the metal tank were turned over to personnel from ESA-FM for recycling.

13.0 REFERENCES

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