

Change Number	Date	Document Number	Document Title	Section/Page Modified	Description Of Change(s)	Responsible Manager Approval	Compliance Approval	ES&H-Q Approval	Radiological Engineering Approval	Quality Assurance Approval	Completion Of ADM 2.01 Checklist	Completion Of SES/CSQD Checklist
18	8/25/97	RF/RMRS-96-061	Site Specific HASP for the Source Removal at the Mound Site IHSS 113	Sec. 4.0 Page 15	Removed "Reclamation of the stockpile, treatment, and excavation area will be performed to return these areas to improved natural conditions."	WJL	N/A WJL	MDS	See	900	Yes	Yes
18	8/25/97	RF/RMRS-96-061	Site Specific HASP for the Source Removal at the Mound Site IHSS 113	Sec. 4.10 Page 21	Removed radiological, traffic control, and personnel contamination control requirements from activity bullets. Low volume radiological air monitoring NOT removed as it will be conducted as a Best Management Practice (BMP)	WJL	N/A WJL	MDS	See	900	Yes	Yes
18	8/25/97	RF/RMRS-96-061	Site Specific HASP for the Source Removal at the Mound Site IHSS 113	Sec. 4.11 Page 22	Defined post transport and backfill decontamination of equipment activities.	WJL	N/A WJL	MDS	See	900	Yes	Yes
18	8/25/97	RF/RMRS-96-061	Site Specific HASP for the Source Removal at the Mound Site IHSS 113	Sec. 4.12 Page 22	Deleted section 4.12.	WJL	N/A WJL	MDS	See	900	Yes	Yes
18	8/25/97	RF/RMRS-96-061	Site Specific HASP for the Source Removal at the Mound Site IHSS 113	Sec. 5.5 Table 5.5 Page 38	Deleted "Site Reclamation" row.	WJL	N/A WJL	MDS	See	900	Yes	Yes
18	8/25/97	RF/RMRS-96-061	Site Specific HASP for the Source Removal at the Mound Site IHSS 113	Sec. 7.3 Table 7.1 Page 46	Revised PPE requirements for "Transport and Backfill of Treated Soil," and "Decontamination of Equipment." Also clarified Decontamination of Equipment to include "post transport and backfill of treated soil."	WJL	N/A WJL	MDS	See	900	Yes	Yes
18	8/25/97	RF/RMRS-96-061	Site Specific HASP for the Source Removal at the Mound Site IHSS 113	Sec. 7.3.5 Page 52	Corrected last sentence to read "Section 7.5" rather than 7.4 which incorrect.	WJL	N/A WJL	MDS	See	900	Yes	Yes
18	8/25/97	RF/RMRS-96-061	Site Specific HASP for the Source Removal at the Mound Site IHSS 113	Sec. 7.4 Table 7.3 Page 53	Refined the radiological monitoring frequencies for the Best Management Practices to be implemented during the loading, transport, and backfill of treated soil phase of the project. Site reclamation deleted from monitoring frequency column.	WJL	N/A WJL	MDS	See	900	Yes	Yes

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18	8/25/97	RF/RMRS-96-061	Site Specific HASP for the Source Removal at the Mound Site IHSS 113	Sec. 7.4.2.2 Page 58	Eliminated "reclamation" from first sentence.	JMT	N/A	MDS	Sen	900	AS	AS
18	8/25/97	RF/RMRS-96-061	Site Specific HASP for the Source Removal at the Mound Site IHSS 113	Appendix B Task10AHA Page 3	Eliminated "Vehicular traffic being struck with dump trucks" as there will be no traffic control per the revised Traffic Management Plan.	JMT	N/A	MDS	Sen	900	AS	AS
18	8/25/97	RF/RMRS-96-061	Site Specific HASP for the Source Removal at the Mound Site IHSS 113	Appendix B Task12AHA	Delete TASK12AHA, "Site Reclamation" from HASP.	JMT	N/A	MDS	Sen	900	AS	AS
18	8/25/97	RF/RMRS-96-061	Site Specific HASP for the Source Removal at the Mound Site IHSS 113	TOC Page ii	Deleted section 4.12 from table of contents.	JMT	N/A	MDS	Sen	900	AS	AS

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4.0 SCOPE OF WORK

The scope of work will involve site preparation and subsequent excavation of approximately 400 to 1,000 cubic yards of contaminated soil using standard excavation equipment. The soil will be transported to and temporarily stockpiled in the CSFS, located approximately 600 feet east of the Mound Site (Figure 3.2). The CSFS is just south of where the thermal desorption treatment equipment will be mobilized to process the soil. After excavation is completed, contaminated soil will be treated using a low temperature thermal desorption remediation technology and stockpiled in the treated soil stockpile area. Treated soil, upon confirmed attainment of performance goals, will be backfilled into the excavation. The following is a breakdown of the tasks to be implemented during the source removal at the Mound Site. A task-specific hazard analysis is included in Section 5.5 and task specific Activity Hazard Analyses are included in Appendix B. Note: Should additional tasks with activities and hazards similar to those listed below arise during the course of the project, a task specific Activity Hazard Analysis will be developed and incorporated into Appendix B.

4.1 TASK 1 - SITE PREPARATION

Most of the site preparation will involve the installation of a culvert in the Central Avenue drainage ditch and the subsequent backfilling of the ditch to provide a loading area during excavation of the Mound Site. The remainder of the work will consist of minor road improvements, and establishing work zones and equipment infrastructure at both the excavation and the CSFS areas.

The culvert installation, minor road improvements, and establishing equipment infrastructure are included in this HASP for overall project continuity although the work does not involve radiological or chemical hazards. Work will be performed in accordance with all portions of this HASP with the exception of the portions which address chemical and radiological hazards.

Tasks to be completed during the installation of the culvert and conducting minor road improvements will include:

- Installing approximately two hundred feet of 30" culvert in the bottom of the Central Avenue drainage ditch. This will require excavating approximately one foot of the bottom of the ditch to attain proper grade for the culvert. Excavated soil will be placed on the northeast side of the mound excavation area to control incidental runoff and runoff during excavation of the Mound Site;
- Backfilling the Central Avenue drainage ditch to provide a loading area during excavation of the Mound Site. Backfilling the Central Avenue drainage ditch will require the removal of vegetative soil, scarifying the surface, compacting the fill material, and the use of a nuclear soil density gauge to evaluate compaction; and

to treatment in the TDUs. Operation of the TDU system will be addressed in an additional Health and Safety Plan which will be prepared by the treatment subcontractor and approved by the RMRS Project Manager, RMRS Radiological Coordinator, RMRS Health and Safety Supervisor, RMRS Radiological Safety Section Manager, and SSOC Radiological Engineering.

4.9 TASK 9 - POST TREATMENT VERIFICATION SAMPLING

Post treatment verification samples will be taken by the treatment subcontractor to verify compliance with treatment standards. Samples will be collected and analyzed for the VOC contaminants of concern as described in the SAP. Since the existing characterization data indicates that metals and semi-volatile contaminants are below cleanup levels, no further soil sampling will be done for those constituents. Post treatment verification sampling will also be addressed in the Health and Safety Plan prepared by the treatment subcontractor.

4.10 TASK 10 - TRANSPORT AND BACKFILL OF TREATED SOIL

This task involves the loading of conventional dump trucks with front end loaders to transport soil from the treated soil stockpile to the excavation. To ensure safe movement of the trucks, a Traffic Management Plan has been prepared and resides in the FIP. In addition, the Site Safety Officer will escort every load of soil to ensure prompt response to any spills. Activities required to accomplish the transport of treated soil include the following:

- Operating the front end loader and dump trucks;
- Wearing appropriate personal protective equipment;
- Performing excavation or treated soil stockpile perimeter low volume radiological air monitoring, as required and as a BMP;
- Performing radiological surveys on equipment, as required and as a BMP;
- Conducting real-time air monitoring for VOCs and particulates;
- Monitoring personnel for noise and heat stress exposure;
- Spraying water when loading and prior to transport to minimize dust;
- Observing the dump trucks to ensure prompt response should a spill or dust generation occur;
- Spraying water when dumping and moving soil to minimize dust; and

4.11 TASK 11 - DECONTAMINATION OF EQUIPMENT

All materials and equipment in contact with soils will require decontamination prior to free release from RFETS to off site locations. Decontamination effectiveness will be determined by visual inspection and radiological surveys. At the discretion of the Project Manager, items may be decontaminated in the field or transferred to the Main Decontamination Facility. Activities required to decontaminate heavy equipment and materials include the following:

- Staging heavy equipment;
- Wearing appropriate personal protective equipment;
- Performing radiological surveys on equipment as required and as a BMP;
- Conducting real-time air monitoring for VOCs as necessary;
- Monitoring personnel for noise and heat stress exposure;
- Establishing a portable decontamination station with secondary containment;
- Transferring items to the Main Decontamination Facility;
- Spraying water at low or high pressures;
- Wiping or scrubbing;
- Managing waste such as disposable personal protective equipment and decontamination fluids.

- At no time will the wand be pointed at any body part or other personnel; and
- Polycoated Tyvek®, 16" high steel toed rubber boots, safety glasses, hard hat with face shield, and inner and outer nitrile gloves will be worn at a minimum.

5.5 TASK BY TASK HAZARD ANALYSIS

Table 5.5 presents a task by task hazard analysis for each location based on the hazards listed in the above sections. The hazard evaluation for each activity is based on the following criteria.

- Low - activities are likely to result in no exposure to chemical, radiological, or biological hazards. Physical hazards are minimal.
- Moderate - activities could possibly result in chemical, radiological, or biological exposures below established exposure limits. Physical hazards exist but are controlled through effective work practices.
- High - activities could possibly result in chemical, radiological, or biological exposures near or above established exposure limits. Physical hazards exist and exposure to the hazard is not controlled.

Table 5.5
Task by Task Hazard Analysis

Tasks	Biological	Chemical	Physical	Radiological
Site Preparation	Low	Low	Moderate	Low
Stormwater Ditch and Topsoil at CSFS	Low	Low	Moderate	Moderate
Excavate Contaminated Soil	Low	High	Moderate	Moderate
Transport Contaminated Soils	Low	Moderate	Moderate	Moderate
Manage Contaminated Soil Feed Stockpile	Low	High	Moderate	Moderate
Trench Verification Sampling	Low	Moderate	Moderate	Moderate
Decontaminate Equipment	Low	Moderate	Moderate	Moderate
Transport and Backfill Treated Soil	Low	Low	Moderate	Low
Decontaminate Equipment	Low	Low	Moderate	Low

Field Change No.2

Field Change No.18
 Field Change No.16

Table 7.1
Task Specific
Personal Protective Equipment Summary

Task	Level	Body ¹	Foot	Head	Eye ²	Hand	Respirator
Site Preparation	D	Work clothes	Steel toed safety shoes	Hard hat	Safety glasses with side shields	Heavy duty leather gloves	None required. FF,APR when mixing ConCover®
Installing Stormwater Ditch and Grading Topsoil at the CSFS	Modified D	Anti-C Tyvek®	Steel toe safety shoes and shoe covers	Hard hat	Safety glasses with side shields	Inner surgeon and outer nitrile gloves or inner gloves and heavy duty leather work gloves (cotton liners optional)	None required
Excavation of Contaminated Soil and CSFS Hot Spot	B	Anti-C Tyvek®	Steel toe safety shoes and shoe covers	Hard hat	None	Inner surgeon and outer nitrile gloves (cotton liners optional)	Supplied air or SCBA
Transport of Contaminated Soil	B	Anti-C Tyvek®	Steel toe safety shoes and shoe covers	Hard hat	None	Inner surgeon and outer nitrile gloves (cotton liners optional)	Supplied air or SCBA
Management of FS	B ³	Anti-C Tyvek®	Steel toe safety shoes and shoe covers	Hard hat	None	Inner surgeon and outer nitrile gloves (cotton liners optional)	Supplied air or SCBA
Excavation/CSFS Verification Sampling	B	Anti-C Tyvek®	Steel toe safety shoes and shoe covers	Hard hat	None	Inner surgeon and outer nitrile gloves (cotton liners optional)	Supplied air or SCBA
Decontamination of Equipment ⁵	B ³	Anti-C Tyvek®	Steel toe safety shoes and shoe covers	Hard hat	None ⁴	Inner surgeon and outer nitrile gloves (cotton liners optional)	Supplied air or SCBA
Transport and Backfill of Treated Soil	D	Work Clothes	Steel toe safety shoes	Hard hat	Safety glasses with side shields	Heavy duty leather work gloves as necessary	None required
Decontamination of Equipment ⁵ (post transport and backfill of treated soil)	D	Work Clothes	Steel toe safety shoes	Hard hat	Safety glasses with side shields	Heavy duty leather work gloves as necessary	None required

¹ If splash hazards exists and cannot be mitigated, polycoated Tyvek® will be worn. Anti-C Tyvek® required in radiological control areas only.

² No eye protection will be required when a full facepiece respirator is worn.

³ Work may be conducted without respiratory protection if continuous real time air monitoring indicates no volatile organic compounds at levels above background and the RWP does not require respirators for radiological purposes.

⁴ If no respiratory protection is required, safety glasses with side shields will be worn.

⁵ If high pressure water is used, 16" high, steel toed rubber boots will be worn. If no respiratory protection is required and high pressure water is used, a hard hat mounted face shield will be worn in addition to the safety glasses.

Field Change No.4

Field Change No.11

Field Change No.16

Field Change No.15

Field Change No.18

Doffing Guidelines

After completion of gross decontamination and washing and rinsing shoe covers and gloves, it is recommended that PPE be removed in the following order:

1. Remove exposed tape
2. Remove rubber overshoes
3. Remove outer gloves
4. Remove hood from front to rear
5. Remove respirator protection, as applicable
6. Remove Anti-C Tyvek® coveralls, inside out, touching inside only
7. Remove each shoe cover, placing shoe onto clean stepoff pad
8. Remove inner gloves and cloth liners as applicable
9. Commence whole body frisking per RFETS Radiological Operating Instructions Manual (ROI), ROI-2.01, "Personal Contamination Monitoring."
10. Monitor dosimeter, and equipment
11. Wash hands and face.
12. Clean and sanitize respirator after receiving radiological clearance from RCTs

Disposable PPE will be discarded in the properly labeled container and handled in accordance with RFETS Field Operations Manual (FO), FO.06, "Handling of Personal Protective Equipment." Decontamination for Modified Level D, Level C and Level B will be per Section 7.5.

7.4 MONITORING REQUIREMENTS

Monitoring of the environmental conditions in and around the excavation and the CSFS must occur because of the potential for contaminants to be present. The following sections describe the monitoring program to be implemented and appropriate exposure limits and actions levels. Where feasible, personnel exposures to hazardous materials (other than radioactive substances) shall be maintained within the TLVs adopted by the ACGIH or the PELs adopted by OSHA, whichever is more stringent. Exposure to radioactive material will be maintained as low as reasonably achievable (ALARA) and below the RFETS administrative control limit of 750 mrem. Table 7.3 presents a summary of the monitoring program.

Table 7.3
 Monitoring Program Summary

RADIATION			
Hazard	Action Level	Action(s) to be Taken	Monitoring Frequency
Equipment and material contamination	Alpha contamination: > 20 dpm/100cm ² removable > 100 dpm/100cm ² total. Not to exceed > 300 dpm/100cm ² total, 100 dpm/100cm ² averaged over 1m ² Beta/gamma contamination: > 1000 dpm/100cm ² removable > 5000 dpm/100cm ² total.	Suspend operations, secure area and notify the Field Supervisor and Radiological Safety.	Prior to removal from radiological control area. As a Best Management Practice (BMP) prior to decontamination of equipment which comes in contact with treated soil during loading, transport, and backfilling and is destined for off site unrestricted release.
Personnel contamination.	> MDC of instrument	Suspend operations, secure area and notify the Field Supervisor and Radiological Safety.	Prior to exiting radiological control areas.
Long-lived radioactive airborne particulates.	10% of the DAC ¹ (if full-facepiece air-purifying respirators are not worn) 50 DAC (if full-facepiece, air-purifying respirators are worn)	Remove personnel from effected area, suspend operations, secure area and notify the Field Supervisor and Radiological Safety.	Per the Radiological Work Permit. As a Best Management Practice (BMP) during loading and backfilling of treated soil.
Low Energy X-Ray and Gamma radiation (FIDLER)	> 5000 cpm	Suspend Operations. Notify the Field Supervisor and Radiological Safety. Segregate soil.	Each bucket or at the discretion of the Radiological Engineer per the Sampling and Analysis Plan. None during the loading, transport, and backfilling of treated soil.

¹ DAC - Derived Air Concentration.

Field Change No.1
Field Change No.16

Field Change No.18

Field Change No.16

Field Change No.18

After any necessary decontamination, all equipment and materials leaving the EZ/SCA will be surveyed, and released by RCTs in accordance with ROI-3.01, "Performance of Surface Contamination Surveys" and ROI-3.02, "Radiological Requirements for Uncontrolled Release".

Instrumentation to be used for personnel and equipment contamination monitoring are those recommended by RFETS Radiological Safety and consist of the following:

- NE Technology, Model Electra, with dual alpha/beta probe;
- Eberline, Model SAC-4, alpha smear counter;
- Eberline, Model BC-4, beta/gamma smear counter; and
- Science Applications International Corp., Model AP-2, portable alpha analyzer.

Any alternate instruments will be approved by RFETS Radiological Engineering. All instruments will be maintained, calibrated, performance tested, and used in accordance with the RFETS Radiological Operating Instructions Manual.

7.4.2.2 Soil Monitoring

During site preparation and excavation, monitoring of the soil will be required. Monitoring of the soil will be conducted using a Bicon, Corp., Model Analyst equipped with a G5 probe which is a field instrument for detecting low energy radiation (FIDLER) The FIDLER will be maintained, calibrated, and used in accordance with the ROI-6.6, "Use of the Bicon FIDLER".

7.4.2.3 Radioactive Air Particulate Monitoring

Radiological air monitoring will be performed in accordance with the RWP and will consist of high volume and low volume air sampling.

High volume air monitoring will be conducted at the EZ/SCZ boundary at both the excavation and the CSFS to ensure that levels of airborne radioactive particulates are < 10% of the DAC. Monitoring will be accomplished using Staplex Company, Inc., Model TFIA, high volume air samplers which will be maintained, calibrated, and used in accordance with ROI-4.02, "Air Sampling".

Low volume air monitoring will be conducted in the support zone perimeter at both the excavation and the CSFS to ensure that levels of airborne radioactive particulates are < 10% of the DAC. Monitoring will be accomplished using Radeco, Model HD-66A, or Gast, Model RV23-14CV low volume air samplers which will be maintained, calibrated, and used in accordance with ROI-4.03, "Portable Low Volume Air Sampling".

Activity	Hazard	Preventative Measures
Front end loader and dump truck operations at the excavation and CSFS	Front end loader or dump trucks in poor operating condition	The dump trucks will be inspected prior to entering RFETS. The operators will inspect and document the front end loader and dump trucks prior to the beginning of each shift.
	Improper operation of the front end loader or dump trucks	Operators will be properly trained in the use and limitations of the front end loaders and dump trucks.
	Ground personnel being struck with front end loader, dump trucks, or falling loads	Ground personnel will wear orange vests, stay at least 20' away from the front end loader and dump trucks, and maintain line of sight with the operators.
	Other equipment being struck with front end loader or dump trucks	The dump trucks will be stationary with the parking brake set prior to loading of soil. All front end loader and dump truck operations will be conducted in a deliberate safe manner. A spotter will be required when backing the front end loader and dump trucks.
	Spills or dust generation during transport	A one foot freeboard will be maintained at all times. Water will be sprayed on the load prior to transport and speed will be limited to 5 mph. Direct observation will ensure prompt response should a spill or dust generation occur.
Dumping treated soil at the excavation	Ground personnel being engulfed by dumped soil	Ground personnel will stay at least 30' from the dump truck and the operator will not dump the load until given a visual hand signal from the spotter.

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