

United States Government

Department of Energy

Richland Operations Office

memorandum

DATE: JUN 09 2015
REPLY TO: AMRP:ETG\15-AMRP-0220
ATTN OF:
SUBJECT: MISCELLANEOUS RESTORATION REPORT FOR 100-F/IU-2/IU-6 AREA –
SEGMENT 4 DEBRIS REMOVAL
TO: Memo to File

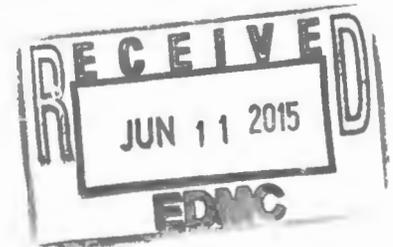
The purpose of this memo is to transmit the subject document to the Administrative Record. If you have any questions, please contact me at (509) 376-5828.



Ellwood T. Glossbrenner, Project Lead
for the 100 Area Field Remediation

Attachment

cc w/attach:
Administrative Record, H6-08



Miscellaneous Restoration Report: 100-F/IU-2/IU-6 – Segment 4 Debris Removal

**Prepared for the U.S. Department of Energy
by Washington Closure Hanford**

June 2014

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	PURPOSE AND SCOPE	1
1.2	REMOVAL REQUIREMENTS.....	1
1.3	HISTORICAL ACTIVITIES.....	3
1.4	KEY TERMS AND DEFINITIONS	3
2.0	MISCELLANEOUS RESTORATION ACTIVITIES	4
2.1	MISCELLANEOUS DEBRIS REMOVAL	4
2.2	MISCELLANEOUS RESTORATION FENCE REMOVAL	8
2.3	MISCELLANEOUS RESTORATION DEBRIS DISPOSAL	8
2.4	VERIFICATION OF REMOVAL.....	8
3.0	PROJECT COST SUMMARY.....	8
4.0	REFERENCES.....	9

FIGURES

1.	Location of the Segment 4 Area Within the River Corridor.....	2
2.	Segment 4 Miscellaneous Restoration Debris Locations.	6
3.	SG4-419 Debris Prior to Removal.	7
4.	SG4-419 Debris Removal Activity.....	7

TABLES

1.	Segment 4 Miscellaneous Restoration Debris Items.....	5
2.	Cost Summary for Removal and Disposal of Miscellaneous Restoration Debris Items.	8

ACRONYMS

CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>
DOE-RL	U.S. Department of Energy, Richland Operations Office
ERDF	Environmental Restoration Disposal Facility
MR	miscellaneous restoration
NSTF	Near-Surface Test Facility
RCCC	River Corridor Closure Contract
WCH	Washington Closure Hanford

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

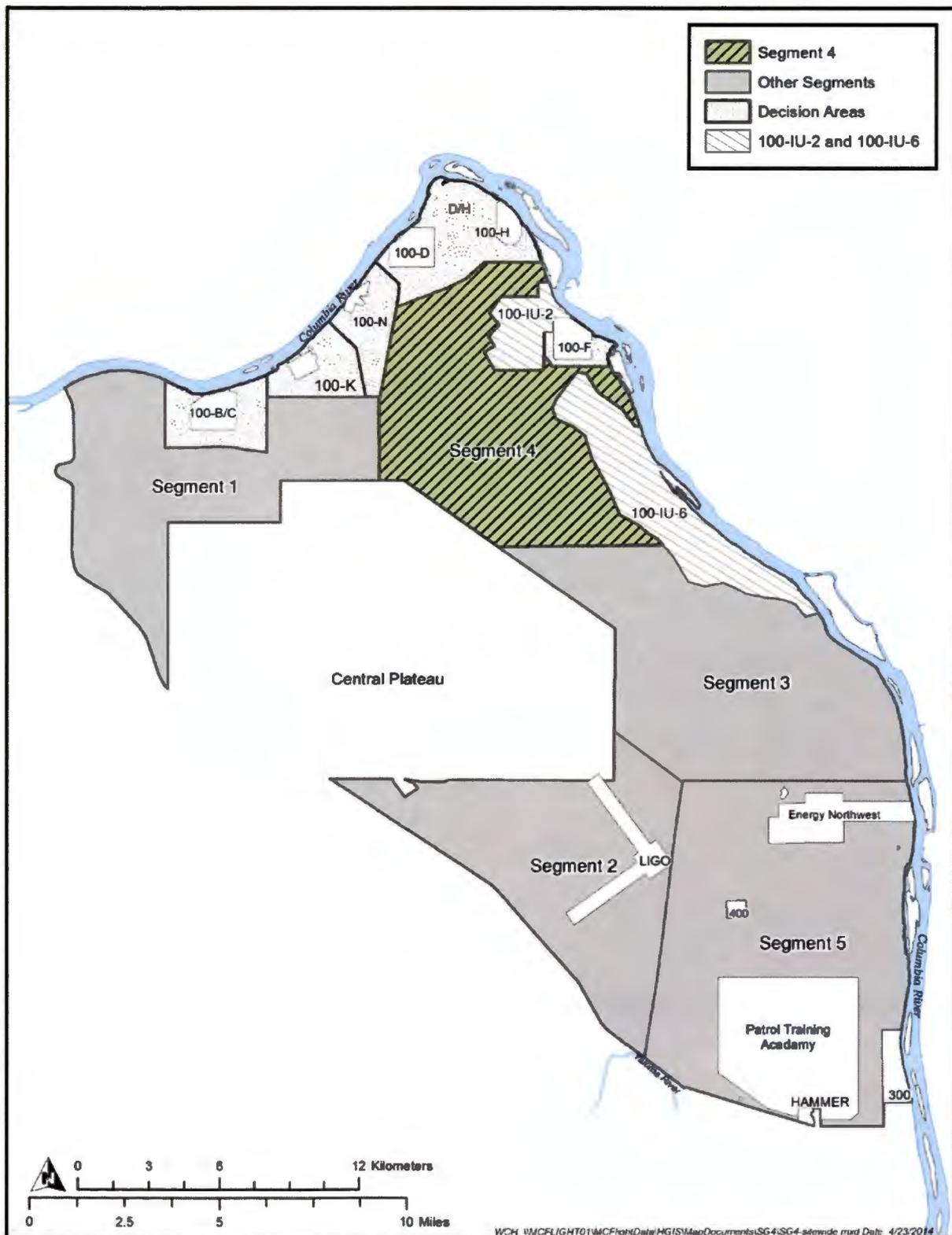
This document summarizes the miscellaneous restoration (MR) activities that were performed by Washington Closure Hanford (WCH) within the 100-F/IU-2/IU-6 – Segment 4 Area (herein referred to as Segment 4). The coverage area described in this report is approximately 8,166 ha (20,180 ac) as shown in Figure 1. The scope was performed per the River Corridor Closure Contract (RCCC) statement of work, Section C.2.10 Activity 10: Miscellaneous Restoration.

Miscellaneous restoration activities involve removal and disposal of materials from the River Corridor lands that have the potential for contamination with *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) hazardous substances. Washington Closure Hanford has implemented the MR work scope within the RCCC in two distinct components: (1) large-scale features and (2) small, isolated scattered debris. The large-scale features typically consist of engineered features that extend into multiple areas of the Hanford Site. These include abandoned railroad lines, abandoned above-grade utilities, and abandoned fencing. The small, isolated scattered debris typically consist of potentially hazardous surface debris that is identified during orphan sites evaluations and includes items such as large concrete debris that stands out above the natural terrain, empty drums, large stockpile areas of wood and debris, transite piping, and isolated piping. Other non-CERCLA debris is documented and identified as stewardship elements as a part of the orphan sites evaluation processes. Stewardship elements include items such as glass, electrical components, metal, wiring, or wood. General trash/garbage and small, isolated pieces of debris are scattered throughout the Hanford Site and are not typically recorded as either MR or stewardship elements. Debris items subject to cleanup were removed and disposed to the Environmental Restoration Disposal Facility (ERDF).

1.2 REMOVAL REQUIREMENTS

Removal and disposal of miscellaneous items to support site completion was selected in DOE/RL-2010-22, *Action Memorandum for General Hanford Site Decommissioning Activities*, and is further described in Sections 2.5 and 2.6 of DOE/RL-2010-34, *Removal Action Work Plan for River Corridor General Decommissioning Activities*. As specified in DOE/RL-2010-34, debris will be removed from any given area using industry standard methods (e.g., front-end loaders, dump truck). Completion documentation for removal and disposal of miscellaneous debris is required to be documented in a report and to include a description of the work performed, quantity of material removed and disposed, and cost information.

Figure 1. Location of the Segment 4 Area Within the River Corridor.



1.3 HISTORICAL ACTIVITIES

Historical activities that occurred within this area prior to 1943 (pre-Hanford) consisted of farming, as well as land surrounding the 100-F Area and the former town of White Bluffs (100-IU-2). Railroad features were also located in Segment 4 prior to 1943, which included the Chicago-Milwaukee-St. Paul rail line. Additional railroad features were constructed in Segment 4 after 1943 to support Hanford Site operations.

Unlike other 100-F/IU-2/IU-6 Areas, Segment 4 contained a limited number of features associated with known Hanford Site operations. The Gable Mountain area was the site of the former Near-Surface Test Facility (NSTF), which was part of a program initiated in 1968 to assess the feasibility of storing Hanford Site defense waste in deep caverns constructed in basalt. An NSTF was conceived for the initial testing program and construction began in 1978. Three tunnels were excavated into Gable Mountain by drilling and blasting and consisted of 180-m-long entrance tunnels connected at their ends by a 105-m-long test room. Excavated materials were used to build a bench on which operations and maintenance facilities were constructed. In December 1987, all research and work activities at the NSTF were suspended. Disassembly of the site began in March 1988 and was completed in December 1988 (PNL-7584). This project consisted of facilities/equipment such as tunnels, support trailers, septic systems, ventilation equipment, emergency generators, explosives storage, and chlorinator buildings. The site was reclaimed (e.g., removing buildings, equipment and buried utilities, backfilling tunnels, and site revegetation) per the *Basalt Waste Isolation Project Near Surface Test Facility Reclamation Plan* (TRAC-0336).

1.4 KEY TERMS AND DEFINITIONS

Miscellaneous Restoration (MR): An RCCC scope element that includes removing abandoned railroad lines, abandoned above-grade utilities, abandoned fences, and surface debris such as concrete that are not otherwise addressed by the CERCLA decision documents that are considered contaminated or potentially contaminated with CERCLA hazardous waste. All below-ground debris and structures are excluded from the MR scope. Miscellaneous restoration also excludes de minimis volumes of non-CERCLA debris (small, scattered nonhazardous surface debris).

Orphan Sites Evaluation: A systematic approach involving historical review and field investigation activities to identify new source unit waste sites within the **River Corridor** that are not identified for characterization or cleanup within the existing CERCLA decision documents (records of decision). Results of each orphan sites evaluation are presented in a summary report including a description of the process and a listing of identified orphan sites. Listings of **MR** items and **stewardship elements** that are captured during the course of the evaluation are also included in the summary report. Orphan sites evaluations are performed for the reactor/operational areas and for the inter-areas of the River Corridor.

Reactor/Operational Areas: The primary activity areas within the **River Corridor** that supported the Hanford Manhattan Project and subsequent Hanford Cold War Era. An **orphan sites evaluation** is conducted for each identified reactor/operational area including the 100-B/C, 100-D, 100-F, 100-H, 100-K, 100-N, 100-IU-2, 100-IU-6, 300, and 400 Areas.

River Corridor: A portion of the Hanford Site that is defined by the RCCC. The River Corridor is more than 56,296 ha (139,000 ac) in size and is bounded on one side by the Columbia River.

Stewardship Elements: Manmade features, items, or activity areas within the **River Corridor** that (1) do not meet the Tri-Party Agreement TPA-MP-14 criteria for waste site identification (RL-TPA-90-0001), (2) are not part of **MR** scope, and (3) are anticipated to remain after completion of the RCCC. Examples may include, but are not limited to, groundwater wells, building foundations, and physical hazards. Stewardship elements also include unsubstantiated historical research artifacts that were investigated.

Stewardship Information System: A WCH relational database consisting of four components: waste sites, facilities, MR items, and **stewardship elements**. The Stewardship Information System is a primary WCH resource for capturing information in support of closure for **River Corridor** waste sites, facilities, reactors, miscellaneous debris items, and stewardship elements.

2.0 MISCELLANEOUS RESTORATION ACTIVITIES

The following section describes the debris removal activities performed in the Segment 4 Area. Specific summary reports regarding individual MR debris item removal, including photographs, are accessible from the WCH Stewardship Information System database.

2.1 MISCELLANEOUS DEBRIS REMOVAL

The Segment 4 surface debris items were identified based on a review of the features recorded during the orphan sites evaluation process. A site evaluation was conducted between July 2010 and January 2011 as documented in OSR-2011-0001, *100-F/IU-2/IU-6 – Segment 4 Orphan Sites Evaluation Report*. Thirty-one debris items identified for removal in the Segment 4 Area were provided in correspondence from WCH to the U.S. Department of Energy, Richland Operations Office (DOE-RL) in Letter 166371, "Identification of Miscellaneous Restoration Items for IU 2 and IU 6 Including Segment 4 and Segment 5." The DOE-RL concurred with the list of MR debris items for the Segment 4 Area in a follow-on letter (Letter 168645, "Contract No. DE-AC06-05RL14655 – Identification of Miscellaneous Restoration Debris Items for IU-2 and IU-6 Including Segment 4 and Segment 5").

Table 1 describes the 28 MR surface debris item locations that were removed within the Segment 4 Area. Locations of these debris items are shown in Figure 2. Debris removal was performed by use of track-hoe, rubber-tired back-hoe, and hand methods. An example of a Segment 4 MR debris item before and after removal is shown in Figures 3 and 4, respectively.

Miscellaneous debris item SG4-477 was not removed as part of this activity. This feature will be removed during the remedial activities at waste site 600-349, which is currently scheduled for completion in 2015. In addition, two features (SG4-001 and SG4-014) identified in Letter 166371 were removed in March 2011 during the 100-F Area MR activities as documented in MRD-2012-0001, *Miscellaneous Restoration Report: 100-F Area Debris Removal*. These sites were not included in the labor and cost calculations associated with this report.

Table 1. Segment 4 Miscellaneous Restoration Debris Items.

Orphan Site Evaluation Identification	Date Removed (month/yr)	Description	Debris Quantity (US tons)
SG4-005 ^a	July 2013	The site consists of an empty 208-L (55-gal) drum and a galvanized bucket with no staining	441 ^b
SG4-007 ^a	July 2013	The site consists of an empty 208-L (55-gal) drum with no staining	b
SG4-019 ^a	February 2009	This site is a 12-m area of rails and ties	b
SG4-022 ^a	July 2013	Empty 208-L (55-gal) cut down drum, no staining	b
SG4-052 ^a	July 2013	113-L (30-gal) empty drum	b
SG4-173 ^a	June 2013	Telephone junction box	b
SG4-174 ^a	June 2013	208-L (55-gal) empty drum	b
SG4-266 ^a	August 2013	208-L (55-gal) empty drum	b
SG4-305 ^a	June 2013	208-L (55-gal) empty drum; no staining visible	b
SG4-335 ^a	June 2013	Three 208-L (55-gal) empty drums with tops and bottoms removed, no staining visible	b
SG4-337 ^a	June 2013	208-L (55-gal) empty drum with no staining visible	b
SG4-362 ^a	June 2013	208-L (55-gal) empty drum that is rusted out; no staining visible.	b
SG4-401 ^a	July 2013	208-L (55-gal) empty drum; no staining visible	b
SG4-415 ^a	October 2013	208-L (55-gal) empty drum and lid; no staining visible	b
SG4-419 ^a	December 2013	3-m area of utility debris consisting of decaying pole sections, insulators, and wire	b
SG4-420 ^a	January 2014	8-m area of decaying utility poles, insulators, and guy wire cable debris	b
SG4-426 ^a	January 2014	Aluminum scaffolding and a standing out of service utility pole	b
SG4-434 ^a	December 2013	3-m round shallow aluminum tank	b
SG4-442 ^a	January 2014	75- by 65-m area with large amounts of debris; wood shack with roofing, stove, and a variety of other debris; associated with Waste Information Data System site 600-147.	b
SG4-465 ^a	January 2014	Two empty 208-L (55-gal) drums in a 15-m-diameter pit along with two 3-in. polyvinyl chloride pipes projecting vertically from the center of the pit; no visible staining	b
SG4-519 ^a	June 2013	208-L (55-gal) empty drum; no staining visible	b
SG4-543 ^a	June 2013	Two 208 (55 gal) empty drums; no staining visible	b
SG4-544 ^a	September 2013	Four 208-L (55-gal) empty drums in a 45-m known farmstead area; no staining visible	b
SG4-546 ^a	June 2013	208-L (55-gal) empty galvanized fuel tank; no staining visible	b
SG4-548 ^a	June 2013	1 113-L (30-gal) empty drum and two empty fuel tanks; no staining visible	b
SG4-557 ^a	December 2013	208-L (55-gal) empty drum and 19-L (5-gal) bucket; no staining visible	b
SG4-562 ^a	December 2013	Telecommunications cable lying on the ground	b
SG4-568 ^a	December 2013	Empty 57-L (15-gal) drum; no staining visible	b

^a Source from OSR-2011-0001, 100-FIU-22/1U-6 Area – Segment 4 Orphan Sites Evaluation Report.

^b All quantities combined from the Segment 4 Area are estimated to equal 441 US tons.

Figure 2. Segment 4 Miscellaneous Restoration Debris Locations.

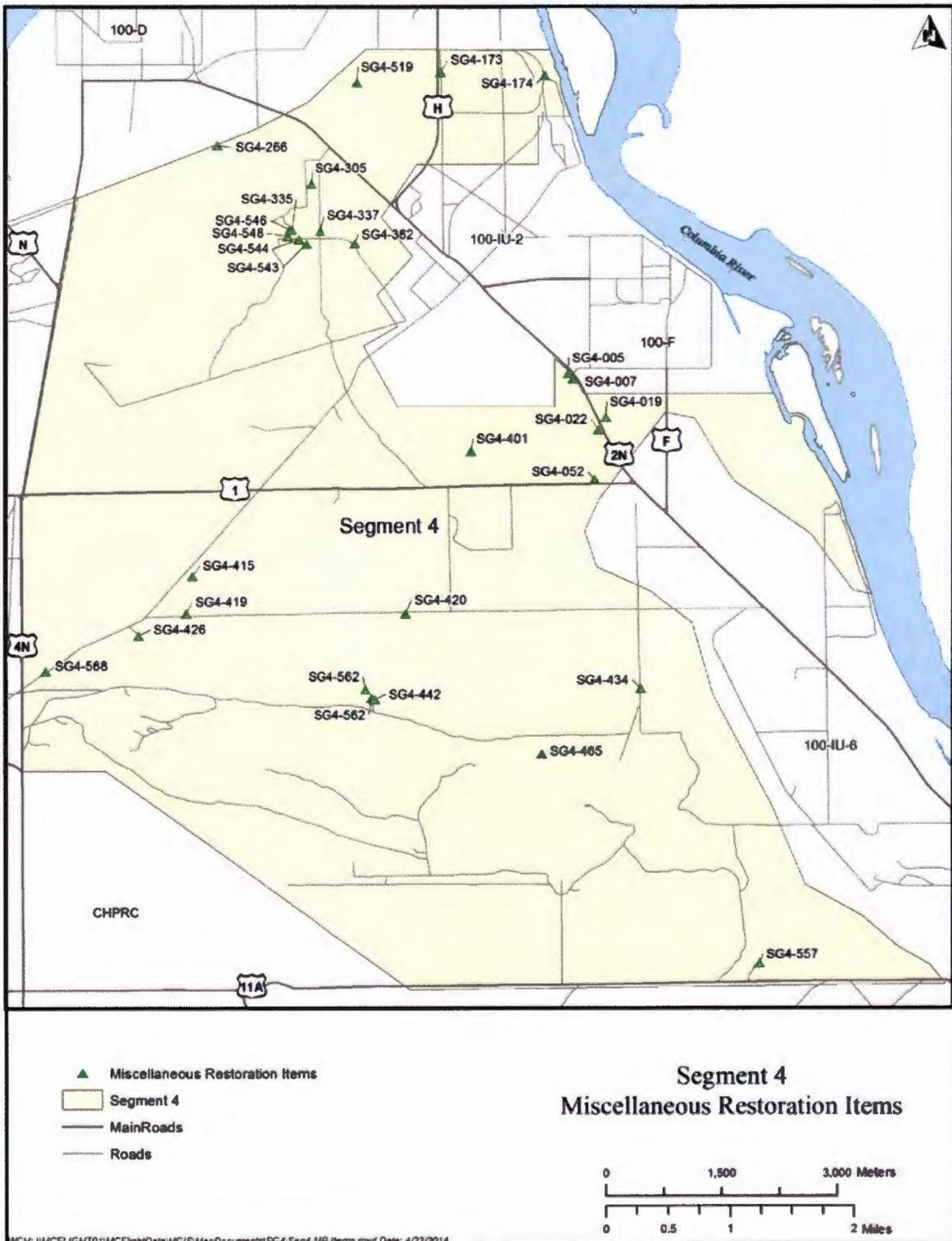


Figure 3. SG4-419 Debris Prior to Removal.



Figure 4. SG4-419 Debris Removal Activity.



2.2 MISCELLANEOUS RESTORATION FENCE REMOVAL

The Segment 4 fencing as identified in Letter 157277, "Identification of Miscellaneous Restoration Fence Removal Scope," has been removed. Fencing associated with the Plutonium Vaults (Waste Information Data System sites 600-108 and 600-257) was removed during remedial activities in 2011 and is not included in this report.

2.3 MISCELLANEOUS RESTORATION DEBRIS DISPOSAL

Collected debris from the remaining MR locations within the Segment 4 Area had a combined total weight of 441 US tons. The debris was collected into ERDF roll-off containers using back-hoes and/or track-hoes. Material removed from the Segment 4 debris locations was transported to ERDF for final disposal.

2.4 VERIFICATION OF REMOVAL

Upon completion of most of the removal activities a field walkdown was performed to verify removal of the surface debris items. The DOE-RL area representative accompanied the WCH project manager into the field and observed selected locations where debris items had been removed. The walkdown was performed in March 2014 and documented in CCN 0655465, "Management Walkthrough Observation Sheet for Segment 4 Miscellaneous Restoration Completion."

3.0 PROJECT COST SUMMARY

This section presents a summary of the project costs associated with the removal and disposal of the Segment 4 MR debris items. These removal activities created minimal surface disturbance; therefore, no revegetation costs were incurred. The total combined cost of work performed for these MR activities was approximately \$40,700. As shown in Table 2, the average unit rate for work performed was approximately \$92/US ton.

Table 2. Cost Summary for Removal and Disposal of Miscellaneous Restoration Debris Items.

Debris Area	Waste Quantity (US tons)	Removal (\$K)	Disposal (\$K)	Total (\$K)	Average Cost (\$K/US ton)
Segment 4	441	31.4	9.3	40.7	0.09

The removal cost data represent the fully burdened labor, equipment, and materials cost for the work performed. Data presented in this summary include project costs for removal and loadout, waste transportation, and disposal at ERDF. The cost data do not include costs associated with removal action work plan document development or other work control documentation.

Details for the ERDF disposal costs (provided in Table 2) are based on an average unit rate of \$21.05/US ton (fiscal year 2013 disposal rate). Transportation costs to ERDF are included in the removal costs.

4.0 REFERENCES

- CCN 0655465, 2014, "Management Walkthrough Observation Sheet for Segment 4 Miscellaneous Restoration Completion" Washington Closure Hanford, Richland, Washington.
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980*, 42 U.S.C. 9601, et seq.
- DOE/RL-2010-22, 2010, *Action Memorandum for General Hanford Site Decommissioning Activities*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE/RL-2010-34, 2013, *Removal Action Work Plan for River Corridor General Decommissioning Activities*, Rev.2, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Letter 157277, 2011, "Identification of Miscellaneous Restoration Fence Removal Scope," external letter to J. J. Short, U.S. Department of Energy, Richland Operations Office, from S. L. Feaster, Washington Closure Hanford, Richland, Washington, March 22.
- Letter 166371, 2012, "Identification of Miscellaneous Restoration Items for IU-2 and IU-6 Including Segment 4 and Segment 5," external letter to J. J. Short, U.S. Department of Energy, Richland Operations Office, from S. L. Feaster, Washington Closure Hanford, Richland, Washington, June 27.
- Letter 168645, 2012, "Contract No. DE-AC06-05RL14655 – Identification of Miscellaneous Restoration Debris Items for IU-2 and IU-6 Including Segment 4 and Segment 5," external letter to C. A. Johnson, Washington Closure Hanford, from J. J. Short, U.S. Department of Energy, Richland Operations Office, Richland, Washington, November 13.
- MRD-2012-0001, 2012, *Miscellaneous Restoration Report: 100-F Area Debris Removal*, Rev. 0, Washington Closure Hanford, Richland, Washington.
- OSR-2011-0001, 2011, *100-F/IU-2/IU-6 – Segment 4 Orphan Sites Evaluation Report*, Rev. 0, Washington Closure Hanford, Richland, Washington.
- PNL-7584, 1991, *Interim Reclamation Report Basalt Waste Isolation Project Near Surface Test Facility 1990*, Pacific Northwest Laboratory, Richland, Washington.
- RL-TPA-90-0001, 1990, *Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Handbook*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- TRAC-0336, 1991, *Basalt Waste Isolation Project Near Surface Test Facility Reclamation Plan*, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

DISTRIBUTION

U.S. Department of Energy
Richland Operations Office

E. B. Dagan	A3-04
M. S. French	A3-04
E. T. Glossbrenner	A3-04
J. P. Neath	A3-04

Washington Closure Hanford

R. A. Carlson	N3-30
C. S. Cearlock	H4-22
J. D. Fancher	N3-31
J. A. Lerch	H4-22

Document Control	H4-11
------------------	-------