WCH Washington Closure Hanford

Interoffice Memorandum

159981

TO: S. W. Callison N3-30

DATE: July 12, 2011

COPIES: See Below

FROM: M. L. Proctor
Sample Design & Cleanup Verification Manager
H4-22/372-9227

SUBJECT: **300-284 SAND BLASTING AREA NEAR 3221 BUILDING FOR REMEDIAL ACTION**

This interoffice memorandum is to advise you that the 300-284 waste site will require remedial action. The attached *300-284, Sand Blasting Area Near 3221 Building Remove, Treat, and Dispose Report* documents the basis for remediation and other relevant information for use by Field Remediation Engineering in preparing the remedial design for this site.

If you have any questions concerning the information, please call me at 372-9227.

MLP:lrs

Attachment: *300-284, Sand Blasting Area Near 3221 Building Remove, Treat, and Dispose Report*

Copies: w/a
T. M. Blakley N3-30
R. A. Carlson N3-30
L. D. Habel H4-23
R. S. Myers L6-06
J. T. Olsson L6-06
M. L. Proctor H4-22
E. M. Smith H4-23
WCH Document Control H4-11

300-FF-2

300-284 SAND BLASTING AREA NEAR 3221 BUILDING REMOVE, TREAT, AND DISPOSE REPORT

1.0 RECOMMENDATIONS

The 300-284 Sand Blasting Area Near 3221 Building waste site is recommended for remove, treat, and dispose (RTD). This report provides background and supporting information for this recommendation.

2.0 PURPOSE

The purpose of this RTD report is to provide documentation to support the remedial action decision for the 300-284 waste site as required by the *Interim Action Record of Decision for the 300-FF-2 Operable Unit, Hanford Site, Benton County, Washington* (ROD) (EPA 2001). The 300-284 waste site is included as a "plug-in" site in accordance with the ROD and the *Explanation of Significant Differences for the 300-FF-2 Operable Unit Interim Remedial Action Record of Decision* (2009 ESD) (EPA 2009). Per the 2009 ESD (EPA 2009), plug-in sites are documented in the Administrative Record, and an annual fact sheet will be published by the U.S. Department of Energy, Richland Operations Office (DOE-RL) identifying sites that have been added.

3.0 GENERAL SITE INFORMATION AND BACKGROUND

3.1 Site Description

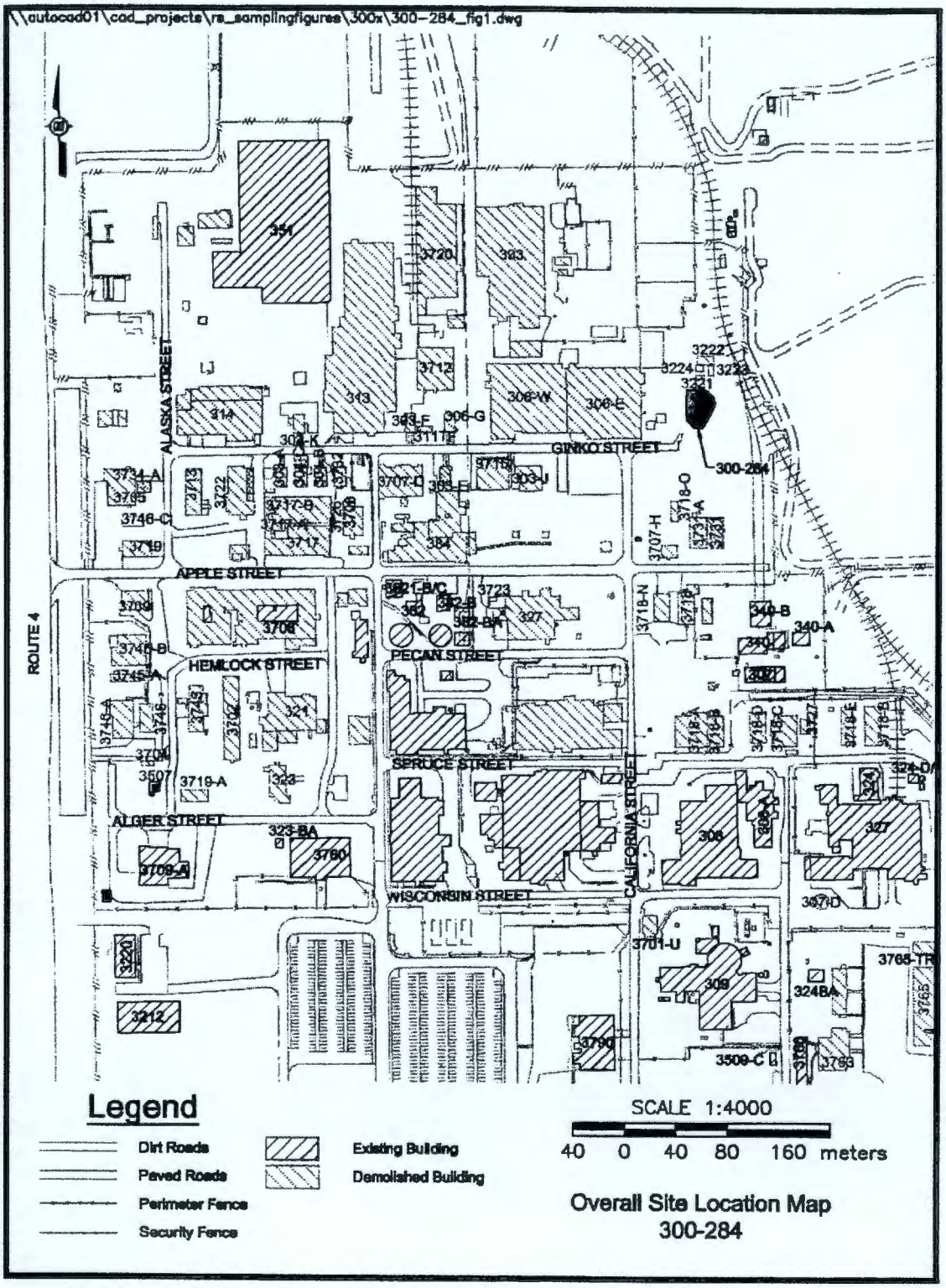
The 300-284 Sand Blasting Area Near 3221 Building waste site is part of the 300-FF-2 Operable Unit and is the historical location of a large, red-stained area that extended from the former 3221 Sandblasting Support Building. The red staining was the result of garnet grit used in sandblasting activities at the 300-284 waste site location when the 3221 Building was an active facility. No evidence of red staining currently appears on the surface of the waste site. The 3221 Building was demolished in May 2002 and the entire area is now covered with gravel (DOE-RL 2007).

The Waste Information Data System and Stewardship Information System summary reports of the 300-284 waste site are provided in Appendix A.

3.2 Location

The 300-284 waste site extends south of the former 3221 Building, which is east of the former 306 Building (Figure 1). The center of the waste site is at Washington State Plane (WSP) coordinates N 116126, E 594109.

Figure 1. The 300-284 Waste Site Location Map.



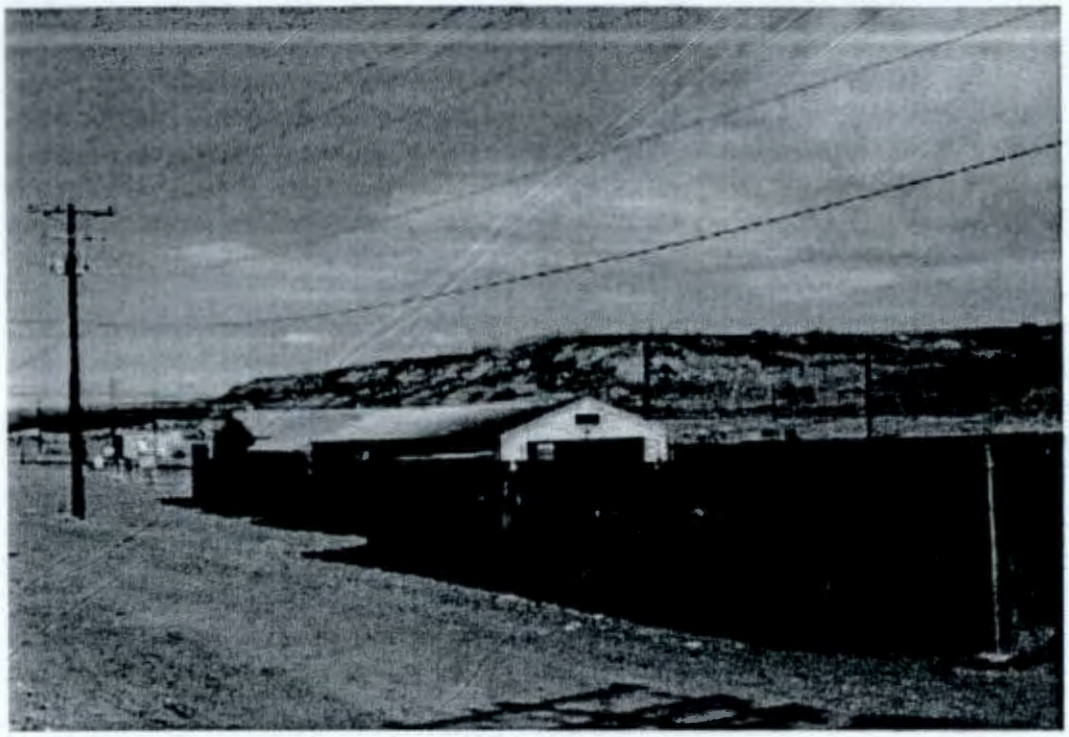
3.3 History

The 300-284 waste site was first identified in an orphan sites evaluation due to historical sandblasting activities in the vicinity of the 3221 Sandblasting Support Building (WCH 2010). The location of the 300-284 waste site was determined based on historical aerial photographs of the 300 Area where red staining is visible south of the 3221 Building (Figure 2). Garnet sand is commonly used in sandblasting to remove rust, paint, or contamination from hard surfaces. Garnet sand on the ground surface indicates a potential for contamination by materials that may have been removed during sandblasting. The garnet sand itself is otherwise nonhazardous.

As seen in the 1986 aerial photograph in Figure 2, the garnet sand covered a large area adjacent to the 3221 Building, where the sandblasting activities would have occurred. A red fence was constructed to enclose the sandblasting area. The photograph shows evidence of garnet sand outside the fence, especially to the south and the east, which is included in the waste site boundary. The red staining is also visible in 1982 and 1984 aerial photographs, which do not include the red fence seen in the 1986 photograph. The 3221 Building and fenced sandblasting area were also photographed prior to removal in 2002 (Figure 3) (DOE-RL 2007).

Figure 2. Aerial Photograph of the 300-284 Sand Blasting Area Near 3221 Building (October 1, 1986).

Figure 3. The 3221 Building and Fenced Sandblasting Area.



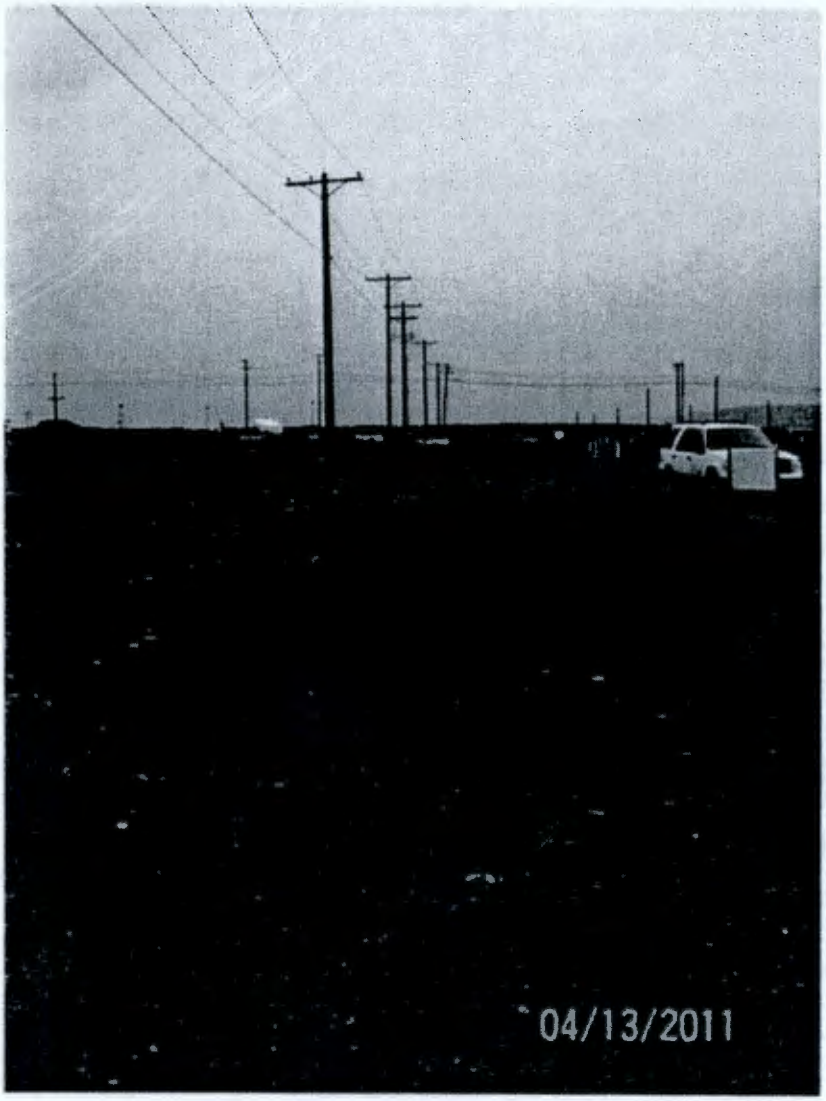
3.4 Ecological and Cultural

Reconnaissance surveys for natural or cultural resources have not been performed to date. Such surveys will be performed prior to initiation of any remedial actions and will assist in the assessment of potential impacts to sensitive sites or receptors.

4.0 SITE WALKDOWN SUMMARY

The 300-284 waste site was walked down on April 13, 2011, to assess existing conditions (Figure 4). The waste site was located using WSP coordinates and a global positioning system (GPS) handheld device. There was no evidence of garnet sand on the surface, and the entire site is covered with gravel, most likely as backfill material. The western boundary of the site is bordered by asphalt and overhead power lines, which are visible in the photographs in Figures 3 and 4. The eastern part of the waste site is being used as a road.

Figure 4. The 300-284 Waste Site, Looking North (April 13, 2011).



5.0 GEOPHYSICAL SURVEY RESULTS

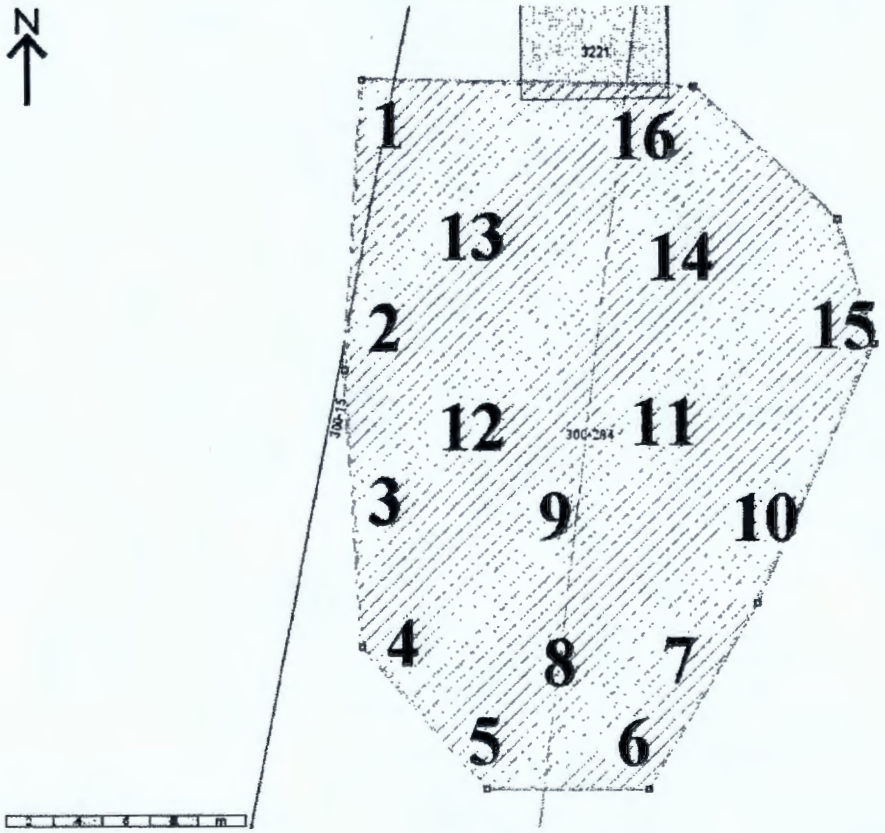
Prior to remedial action activities, a geophysical survey of the 300-284 waste site will be performed. The purpose of the survey will be to identify any subsurface features that may be indicative of pipelines, electrical lines, or disturbed areas.

6.0 X-RAY FLUORESCENCE SCREENING RESULTS

Due to the lack of visible garnet sand, a handheld x-ray fluorescence (XRF) screening was conducted of the 300-284 waste site surface on May 25, 2011. The survey was performed to

determine if metals contamination from historical sandblasting activities was present. The XRF screening was conducted at 16 locations over the surface of the waste site. The locations were recorded with a handheld GPS device (Figure 5). The XRF screening results are provided in Appendix B and indicate no metals above industrial land use cleanup levels provided in Table 2-1 of the *300 Area Remedial Action Sampling and Analysis Plan* (SAP) (DOE-RL 2011). However, the XRF screening results are above soil cleanup levels protective of groundwater and the Columbia River identified in the *Remedial Design Report/ Remedial Action Work Plan for the 300 Area* (RDR/RAWP) (DOE-RL 2009) and DOE-RL and the U.S. Environmental Protection agency (EPA) have agreed to plug this waste site into the remove, treat, and dispose remedy in the EPA 2001 interim action ROD for 300-FF-2 (WCH 2011).

Figure 5. X-Ray Fluorescence Screening Locations at the 300-284 Waste Site.



7.0 CONTAMINANTS OF POTENTIAL CONCERN

Based on information from the 3221 Building process history and results of the XRF screening, the contaminants of potential concern developed for the 300-284 waste site are barium, cobalt, copper, lead, mercury, and inductively coupled plasma (ICP) metals.

8.0 CONCLUSIONS AND REMEDIATION CONSIDERATIONS

The 300-284 waste site is recommended for RTD based on historical evidence of sandblasting activities at this location. In addition, XRF screening results indicate potential soil contamination from barium, chromium, cobalt, copper, lead, mercury, molybdenum, silver, and zinc. These contaminants were found above residential protective of groundwater and/or river cleanup levels.

- The Field Remediation Closure and Waste Operations projects will need to review site information and make a determination about whether existing data and waste profiles are suitable or if additional waste characterization sampling is necessary to support waste characterization and designation.

- Estimate the vertical and lateral extent of contamination at this waste site.

- A cleanup verification sample design to verify adequacy of remediation will need to be developed after remediation, which will require regulatory approval prior to sampling.

9.0 REFERENCES

DOE-RL, 2007, *Removal Action Work Plan for 300 Area Facilities*, DOE/RL-2004-77, Rev. 2, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE-RL, 2009, *Remedial Design Report/Remedial Action Work Plan for the 300 Area*, DOE/RL-2001-47, Rev. 3, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE-RL, 2011, *300 Area Remedial Action Sampling and Analysis Plan*, DOE/RL-2001-48, Rev. 3, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

EPA, 2001, *Interim Action Record of Decision for the 300-FF-2 Operable Unit, Hanford Site, Benton County, Washington*, U.S. Environmental Protection Agency, Region 10, Seattle, Washington.

EPA, 2009, *Explanation of Significant Differences for the 300-FF-2 Operable Unit Interim Action Record of Decision, Hanford Site, Benton County, Washington*, U.S. Environmental Protection Agency, Region 10, Seattle, Washington.

WCH, 2010, *300 Area Orphan Sites Evaluation Report*, OSR-2010-0002, Rev. 0, Washington Closure Hanford, Richland, Washington.

WCH, 2011, "300-FF-2 Fact Sheet 2011 Draft C with Edits," external email 159416 to R. F. Guercia, U.S. Department of Energy, Richland Operations Office, and L. E. Gadbois, U.S. Environmental Protection Agency, from D. E. Faulk, Washington Closure Hanford, Richland, Washington, June 28.

APPENDIX A

WASTE INFORMATION DATA SYSTEM GENERAL SUMMARY REPORT

AND

STEWARDSHIP INFORMATION SYSTEM SITE SUMMARY REPORT

Waste Information Data System
General Summary Report

04/06/2011

Site Code: 300-284 | Site Classification: Accepted | Page 1

Site Name: 300-284, Sand Blasting Area Near 3221 Building

Site Type: Unplanned Release
Status: Inactive
Hanford Area: 300
OU/WMA: 300-FF-2
Closure Zone:

Start Date:
End Date:
Pipe Type:

Site Description: This feature is the historical location of the sand blasting area associated with the former 3221 building location.

Location Description: E594109.22, N116125.98

References: 1. Cearlock, Chris, 5/14/10 WCH request for 17 new sites in 300-FF-2 OU, 300-FF-2 new sites.

Regulatory Information:

Programmatic Responsibility

DOE Program:
Confirmed By Program:
DOE Division:
Responsible Contractor/Subcontractor:
Reclassifying Contractor/Subcontractor:
ResponsibleProject:

Site Evaluation

Solid Waste Management Unit: No
TPA Waste Management Unit Type: Unplanned Release Unit

Permitting

RCRA Part B Permit:
RCRA Part A Permit:
RCRA PermitStatus:
Septic Permit:
Inert Landfill:
Air Operating Permit:
TSD Number:
Closure Plan:
216/218 Permit:
NPDES:
State Waste Discharge Permit:

Tri-Party Agreement

Lead Regulatory Agency:
Unit Category:
TPA Appendix:

Remediation and Closure

Decision Document:
Decision Document Status:
Remediation Design Group:
Closure Document:

Closure Type:

WAC 173-340 (2007) Cleanup Comparison by Ecology:

Post Closure Requirements: Residual Waste:

RCC Stewardship Information System

Site Summary Report

03/29/2011

Site Code: 300-284 | **Site Classification Status: Accepted** | Page 1

Site Names: Sand Blasting Area Near 3221 Building

Site Type: Unplanned Release
Status: Inactive
Decision Unit: 300
Operable Unit: 300-FF-2
Hanford Area: 300
QC Code: **QC Date:**

Start Date:
End Date:
Coordinates:
(E) 594109.2
(N) 116126.0
Washington State Plane

Cleanup Activities:

Cleanup Summary:

Contaminants of Concern:

Excavation Depth (m):
Excavation Area (sq. m):
Site Revegetated (Yes/No):
Site Downposted (Yes/No):
Institutional Controls Required (Yes/No):
Institutional Controls:

Depth to GW below excavation (m):
Material disposed at ERDF (metric tons):

Historical Summary:

Site Description: This feature is the historical location of the sand blasting area associated with the former 3221 building location.

Process Description: The site and associated 3221 building was used for the sand blasting of various items preparatory to these items being painted (DOE/RL-2004-77 Rev.1, Draft A).

Location Description: The central point of the sand blasting site lies at approximately (E) 594109.22, (N) 116125.96, which is a fenced area on the south side of the 3221 building.

Associated Structures:

Site Comment: The walls and the associated buildings close to the sandblast area have been removed, and the associated area has been graded and backfilled with gravel.

As can be seen in photograph 19861024 [6604511-47CN], the site shows evidence of sandblasting both inside the walled area and outside the walled area, especially to the south and the east.

Regulatory Info:

RCRA Permiting:

TSD Number:

RCRA Part A Permit: No

RCRA Part B Permit: No

Closure Plan: No

RCRA Closure Type:

Residual Waste:

Other Permitting:

2126/218 Permit: No

NPDES: No

Air Operating Permit Numbers():

Remediation and Closure:

Closure Contractor: WCH. Washington Closure Hanford, LLC

ESD Document:

Decision Document None

Closure Document:

Site References:

1. DOE/RL-2004-77, 08/29/2005, Removal Action Work Plan For 300 Area Facilities, Rev. 1, U.S. Department of Energy - Richland Operations Office

Image:

Date Taken: 10/1/1986 **Historical Photo Number:** 8604511-47CN

Description: Red staining is visible in the aerial photograph.

APPENDIX B

X-RAY FLOURESCENCE SCREENING RESULTS

Table B-1. 300-284 XRF Screening Results.

Reading Number	Mode	Sample Date	Antimony		Arsenic		Barium		Cadmium		Chromium		Cobalt		Copper		Iron		Lead	
			mg/kg	+/-	mg/kg	+/-	mg/kg	+/-	mg/kg	+/-	mg/kg	+/-	mg/kg	+/-	mg/kg	+/-	mg/kg	+/-	mg/kg	+/-
1	Soil	5/25/2011	<LOD	84	<LOD	11	624	169	<LOD	48	<LOD	130	534	78	48	9	41305	494	28	4
2	Soil	5/25/2011	<LOD	82	<LOD	12	683	165	<LOD	48	<LOD	120	418	72	47	9	35090	429	40	4
3	Soil	5/25/2011	<LOD	82	<LOD	11	718	170	<LOD	49	<LOD	130	342	76	34	9	38203	476	16	4
4	Soil	5/25/2011	<LOD	82	11	3	702	166	<LOD	48	<LOD	125	383	72	<LOD	25	35444	432	<LOD	10
5	Soil	5/25/2011	<LOD	84	<LOD	11	981	186	<LOD	50	199	51	586	87	33	9	46781	578	21	4
6	Soil	5/25/2011	<LOD	87	<LOD	12	612	184	<LOD	50	<LOD	132	647	92	51	10	52244	640	23	4
7	Soil	5/25/2011	<LOD	87	<LOD	10	<LOD	509	<LOD	51	<LOD	138	555	83	33	9	41236	522	11	4
8	Soil	5/25/2011	<LOD	99	<LOD	14	801	237	<LOD	58	<LOD	191	521	140	44	12	95463	1312	26	5
9	Soil	5/25/2011	<LOD	91	<LOD	11	<LOD	576	<LOD	53	<LOD	142	494	93	43	10	49537	639	<LOD	11
10	Soil	5/25/2011	<LOD	80	<LOD	10	540	145	<LOD	47	<LOD	113	372	64	<LOD	24	28497	351	18	4
11	Soil	5/25/2011	<LOD	92	<LOD	12	629	192	<LOD	54	<LOD	149	513	94	40	10	45886	624	12	4
12	Soil	5/25/2011	<LOD	107	<LOD	13	<LOD	714	<LOD	62	<LOD	183	657	133	56	12	74992	1106	<LOD	14
13	Soil	5/25/2011	<LOD	96	<LOD	10	844	219	<LOD	56	<LOD	167	929	110	<LOD	31	58964	796	<LOD	11
14	Soil	5/25/2011	<LOD	89	<LOD	11	1077	196	<LOD	52	<LOD	146	560	90	<LOD	27	46574	598	16	4
15	Soil	5/25/2011	<LOD	88	<LOD	12	663	178	<LOD	51	<LOD	146	510	91	<LOD	25	49884	626	31	4
16	Soil	5/25/2011	<LOD	90	<LOD	18	<LOD	500	<LOD	53	<LOD	137	541	82	71	11	35863	486	75	6

Reading Number	Mode	Sample Date	Manganese		Mercury		Molybdenum		Nickel		Selenium		Silver		Strontium		Tin		Zinc	
			mg/kg	+/-	mg/kg	+/-	mg/kg	+/-	mg/kg	+/-	mg/kg	+/-	mg/kg	+/-	mg/kg	+/-	mg/kg	+/-	mg/kg	+/-
1	Soil	5/25/2011	669	50	<LOD	12	<LOD	9	<LOD	53	5	1	47	13	383	7	<LOD	80	117	8
2	Soil	5/25/2011	511	46	<LOD	11	<LOD	9	<LOD	53	<LOD	3	<LOD	37	410	7	<LOD	79	79	7
3	Soil	5/25/2011	549	49	<LOD	11	<LOD	10	<LOD	52	<LOD	3	<LOD	38	407	7	<LOD	78	83	7
4	Soil	5/25/2011	434	44	<LOD	11	<LOD	9	<LOD	52	<LOD	3	<LOD	37	380	7	<LOD	78	48	6
5	Soil	5/25/2011	782	56	<LOD	11	<LOD	10	<LOD	59	<LOD	3	<LOD	39	361	7	<LOD	80	123	8
6	Soil	5/25/2011	792	57	<LOD	12	<LOD	10	<LOD	58	<LOD	3	<LOD	39	363	7	<LOD	83	104	8
7	Soil	5/25/2011	529	50	<LOD	10	<LOD	10	<LOD	56	<LOD	3	<LOD	39	372	7	<LOD	83	62	6
8	Soil	5/25/2011	2347	104	<LOD	15	<LOD	11	<LOD	81	<LOD	4	<LOD	45	263	6	<LOD	95	565	19
9	Soil	5/25/2011	670	57	17	5	11	3	<LOD	60	<LOD	4	<LOD	41	395	7	<LOD	86	73	7
10	Soil	5/25/2011	356	40	<LOD	11	<LOD	9	<LOD	49	<LOD	3	<LOD	37	722	10	<LOD	76	42	5
11	Soil	5/25/2011	791	61	<LOD	12	<LOD	11	<LOD	58	<LOD	4	<LOD	43	331	7	<LOD	88	77	7
12	Soil	5/25/2011	1798	96	<LOD	14	<LOD	12	<LOD	76	<LOD	5	<LOD	48	313	7	<LOD	101	117	10
13	Soil	5/25/2011	690	63	<LOD	13	<LOD	11	<LOD	69	<LOD	3	<LOD	44	291	6	<LOD	92	61	7
14	Soil	5/25/2011	679	56	<LOD	11	<LOD	10	<LOD	58	<LOD	4	<LOD	41	391	7	<LOD	85	83	7
15	Soil	5/25/2011	1029	63	<LOD	13	<LOD	10	<LOD	59	<LOD	3	<LOD	40	334	6	<LOD	82	134	8
16	Soil	5/25/2011	549	52	<LOD	12	<LOD	10	<LOD	54	<LOD	4	<LOD	41	351	7	<LOD	86	74	7

Document/CCN Number: 159981

Customer to Complete:

- ☐ **This has action** - Written response required: Yes_____ No _____
  Actionee_____ Due Date _____
- ☐ **Distribution Completed:** Yes_____ No _____ Initials _____
- ☐ **This closes CCN** _____
- ☒ **Please call me for pick up/hand delivery** Lacey Shelp 372-9144
- ☐ **Please expedite** – Please hand deliver to WCH Document Control, do not put in basket

Any Special Directions (i.e., added distribution, reproduction instructions, colored items, extra attachments, sensitive documents, etc.) **Please include name and telephone number of the person to contact if WCH Document Control has questions.**

Please provide one copy for Len Hubel, H4-23, and one copy for pickup and delivery.
-Thanks!

Additional distribution (please include MSINs):

Name:	MSIN:	NAME:	MSIN:

To be Completed by Document Control:

- ☐ **Provided copy to RL Correspondence Control, A7-80 (w/ Addressee's copy).**
- ☐ **Access limited, assign the following DOCCTL "Restricted" Security Account in UCM:**

☐ RESTRICT	☐ IT	☐ PFTBLTD	☐ QA
☐ CTRL	☐ LEGAL	☐ PFTBTM	☐ SECURITY
☐ HR	☐ NUCSAFE	☐ PROJINT	☐ SIGN
☐ IH	☐ PAYROLL	☐ PROCURE	☐ WASTEOP

RECORD TYPE _____

DATA ENTRY BY _____

REPRO BY _____

SCANNED/# PGS _____

CONTENT ID # _____