



**Department of Energy**  
 Richland Operations Office  
 P.O. Box 550  
 Richland, Washington 99352

14-AMRP-0084

**JAN 09 2014**

Mr. D. A. Faulk, Program Manager  
 Office of Environmental Cleanup  
 Hanford Project Office  
 U.S. Environmental Protection Agency  
 309 Bradley Boulevard, Suite 115  
 Richland, Washington 99352

Dear Mr. Faulk:

TRANSMITTAL OF APPROVED WASTE SITE RECLASSIFICATION FORM AND  
 SUPPORTING DOCUMENTATION FOR THE 100-K-93, DRUM REMNANT WASTE SITE,  
 REVISION 0

Attached for your use is the approved Waste Site Reclassification Form No. 2013-063  
 and supporting documentation for the, "100-K-93, Drum Remnant Waste Site," Rev. 0. If you  
 have questions, please contact me or your staff may contact Ellwood Glossbrenner, of my staff,  
 at (509) 376-5828.

Sincerely,

Mark S. French, Federal Project Director  
 for the River Corridor Closure Project

AMRC:ETG

Attachment

cc w/attach:

C. J. Guzzetti, EPA

Administrative Record, H6-08

cc w/o attach:

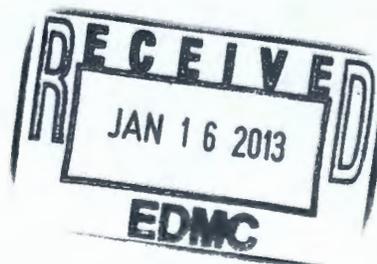
S. L. Feaster, WCH

T. Q. Howell, WCH

D. L. Plung, WCH

J. P. Shearer, CHPRC

C. P. Strand, WCH



100-22.1

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## WASTE SITE RECLASSIFICATION FORM

Operable Unit: 100-KR-1

Control No.: 2013-063

Waste Site Code(s)/Subsite Code(s): 100-K-93

**Reclassification Category:** Interim  Final   
**Reclassification Status:** Closed Out  No Action  Rejected   
RCRA Postclosure  Consolidated  None   
**Approvals Needed:** DOE  Ecology  EPA

**Description of current waste site condition:**

The 100-K-93, Drum Remnant waste site, part of the 100-KR-1 Operable Unit, consisted of a 208-L (55-gal) drum remnant with approximately 0.03 m<sup>3</sup> (1 ft<sup>3</sup>) of solidified gray/black tar-like substance and the underlying soil. No historical processes were identified for this site. The site is located approximately 90 m (300 ft) from the Columbia River in the 100-K Area. The 100-K-93 waste site is encompassed within the 100-K-111, Effluent Seepage Area, from the 116-K-2 waste site and is being consolidated and dispositioned with the 100-K-111 waste site. The 116-K-2 trench received contaminated effluent from the 100-K Area retention basin system consisting of reactor cooling water effluent, fuel storage basin overflows, and discharges from the 105-KE and 105-KW Reactor floor drains. Seepage and overflow from the 116-K-2 waste site and other liquid effluent disposal sites are addressed by the 100-K-111 waste site.

All waste materials associated with the 100-K-93 waste site, including the crushed drum, solid tar-like substance, and the underlying soil was removed (by hand digging) on November 6, 2012, and disposed at the Environmental Restoration Disposal Facility (ERDF). This resulted in a total of approximately 0.5 bank cubic meters (0.7 bank cubic yards) of material being removed and disposed at ERDF. Cleanup verification sampling was performed on February 5, 2013, to determine if the waste site met remedial action objectives and remedial action goals (RAGs) established by the *Interim Action Record of Decision for the 100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-1, 100-FR-2, 100-HR-1, 100-HR-2, 100-KR-1, 100-KR-2, 100-IU-2, 100-IU-6, and 200-CW-3 Operable Units, Hanford Site, Benton County, Washington*, U.S. Environmental Protection Agency, Region 10, Seattle, Washington (Remaining Sites ROD) (EPA 1999) and the *Remedial Design Report/Remedial Action Work Plan for the 100 Area*, DOE/RL-97-17, Rev. 6, U.S. Department of Energy, Richland, Washington (DOE-RL 2009).

The 100-K-93 verification sampling results indicated that the concentration of total chromium in the remaining soil was above the groundwater and river protection RAGs. For informational purposes, hexavalent chromium analyses were performed for the 100-K-93 verification samples. The hexavalent chromium concentrations were 6.54 mg/kg and 8.12 mg/kg for the main and duplicate soil samples, respectively. Hexavalent chromium is not a 100-K-93 waste site contaminant of potential concern, and verification sampling results for hexavalent chromium were comparable to the concentrations observed in the vicinity at the 100-K-111 waste site. It was, therefore, determined that the residual contamination observed within the 100-K-93 waste site will be consolidated and dispositioned with the 100-K-111 waste site.

Figures showing the approximate site location, as-left condition of the 100-K-93 waste site, and cleanup verification data are shown in the *100-K-93, Drum Remnant Waste Site Attachment to Waste Site Reclassification Form 2013-063* (attached).

**Basis for reclassification:**

The 100-K-93 waste site was added to the Remaining Sites ROD (EPA 1999) as a plug-in site for remove, treat, and dispose by the Tri-Party Agreement Administrative Record *Fact Sheet: 100 Area "Plug-In" and Candidate Sites for Fiscal Year 2010, Annual Listing of Waste Sites Plugged into the Remove, Treat and Dispose Remedy in the 1999 Interim Action Record of Decision for the 100 Area*, U.S. Department of Energy, Richland, Washington (DOE-RL 2011). The 100-K-93 waste site components were removed to the extent possible. However, elevated chromium concentrations remain within the 100-K-93 and 100-K-111 waste site areas. It was determined that the observed chromium concentrations are attributable to the effluent leakage that originated at the 116-K-2 waste site and, therefore, will be addressed as part of the 100-K-111 waste site. The 100-K-93 waste site has been consolidated into the 100-K-111 waste site. The 100-K-93 waste site does not require backfill and revegetation due to the size of the excavation (1.6 m<sup>2</sup> [17.4 ft<sup>2</sup>]) and consolidation with the 100-K-111.

### WASTE SITE RECLASSIFICATION FORM

Operable Unit: 100-KR-1

Control No.: 2013-063

Waste Site Code(s)/Subsite Code(s): 100-K-93

**Regulator comments:**

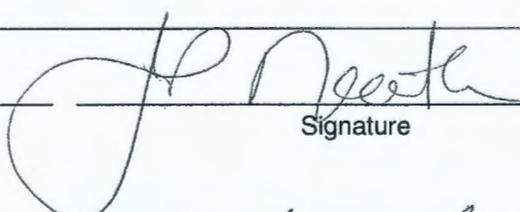
**Waste Site Controls:**

Engineered Controls:       Yes     No      Institutional Controls:       Yes     No      O&M Requirements:       Yes     No

If any of the Waste Site Controls are checked Yes, specify control requirements including reference to the Record of Decision, TSD Closure Letter, or other relevant documents:

Waste site controls will be addressed with the 100-K-111 waste site, as warranted.

J. P. Neath  
DOE Federal Project Director (printed)



Signature

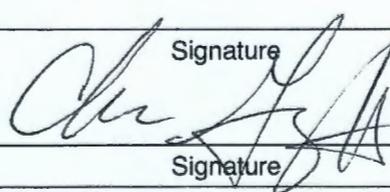
12/8/13  
Date

N/A  
Ecology Project Manager (printed)

Signature

Date

C. Guzzetti  
EPA Project Manager (printed)



Signature

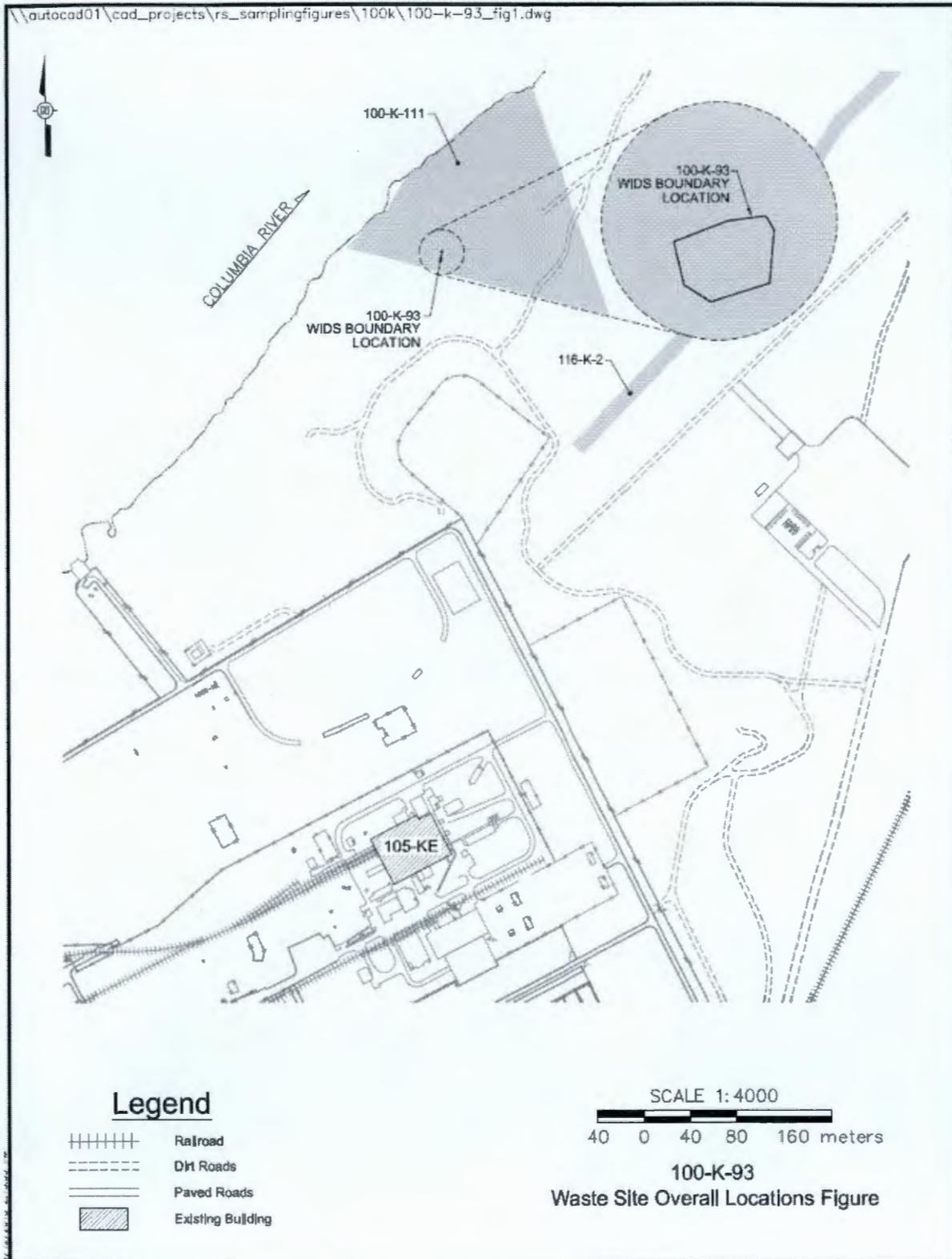
12/17/13  
Date

**100-K-93, DRUM REMNANT WASTE SITE**

**Attachment to Waste Site Reclassification Form 2013-063**

**December 2013**

**Figure 1. 100-K-93 Waste Site Location Map.**



**Figure 2. 100-K-93 Waste Site Before Remediation.**



**Figure 3. 100-K-93 Waste Site Following Remediation.**



Table 1. 100-K-93 Waste Site In-process and Verification Sample Results - Metals.

Sample Location	HEIS number	Sample Date	Aluminum			Antimony			Arsenic			Barium			
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	
In-process composite	J1KTR4	8/30/11	9580		4.9	2.4		1.2		12.1		2.1	92.7		0.24
In-process composite at 3 ft bgs	J1R557	11/6/12	10400		13.8	1.65	U	1.65		12.9		2.76	101		1.38
Composite verif sample	J1RF08	2/5/13	9660		1.6	0.39	U	0.39		12.6	M	0.67	94.0		0.077
Duplicate of J1RF08	J1RF09	2/5/13	10100		1.5	1.9	U	1.9		17.4		0.65	129		0.075
Equipment Blank	J1RF07	2/5/13	223		1.5	0.36	U	0.36		0.63	U	0.63	2.0		0.072

Sample Location	HEIS number	Sample Date	Beryllium			Boron			Cadmium			Calcium		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
In-process composite	J1KTR4	8/30/11	0.10	U	0.10	3.1	U	3.1	1.0		0.13	4560		44.6
In-process composite at 3 ft bgs	J1R557	11/6/12	0.357	B	0.551	1.81	B	5.51	0.80		0.551	4800		276
Composite verif sample	J1RF08	2/5/13	0.36		0.034	1.5	B	1.0	0.52	M	0.042	4290		14.4
Duplicate of J1RF08	J1RF09	2/5/13	0.40		0.033	1.7	B	0.97	0.54		0.041	4620		14.0
Equipment Blank	J1RF07	2/5/13	0.031	U	0.031	0.93	U	0.93	0.039	U	0.039	49.7		13.4

Sample Location	HEIS number	Sample Date	Chromium			Cobalt			Copper			Iron		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
In-process composite	J1KTR4	8/30/11	321		0.18	7.6		0.32	21.2		0.69	21800		12.0
In-process composite at 3 ft bgs	J1R557	11/6/12	157		0.551	7.77		5.51	25.0		2.76	24800		55.1
Composite verif sample	J1RF08	2/5/13	115		0.059	8.5		0.10	30.1		0.22	26000		3.9
Duplicate of J1RF08	J1RF09	2/5/13	978		0.058	9.3		0.099	26.5		0.22	26900		3.8
Equipment Blank	J1RF07	2/5/13	0.11	B	0.055	0.095	U	0.095	0.21	U	0.21	283		3.6

Sample Location	HEIS number	Sample Date	Hexavalent			Lead			Magnesium			Mercury		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
In-process composite	J1KTR4	8/30/11				26.6		0.85	4910		11.7			
In-process composite at 3 ft bgs	J1R557	11/6/12				32.8		1.38	5440		207	0.0143	B	0.0282
Composite verif sample	J1RF08	2/5/13	6.54		0.155	29.9		0.28	5650		3.8	0.016	BM	0.0061
Duplicate of J1RF08	J1RF09	2/5/13	8.12		0.155	33.3		0.27	5180		3.7	0.035		0.0072
Equipment Blank	J1RF07	2/5/13				0.44	BC	0.26	23.5		3.5	0.0056	U	0.0056

Sample Location	HEIS number	Sample Date	Manganese			Molybdenum			Nickel			Potassium		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
In-process composite	J1KTR4	8/30/11	418		0.32	0.87	B	0.82	18.0		0.39	1620		130
In-process composite at 3 ft bgs	J1R557	11/6/12	628		13.8	0.996	B	5.51	20.8		11.0	1640		1100
Composite verif sample	J1RF08	2/5/13	470		0.10	0.40	BM	0.27	20.4		0.13	1680		41.8
Duplicate of J1RF08	J1RF09	2/5/13	660		0.099	0.83	B	0.26	19.3		0.12	1660		40.6
Equipment Blank	J1RF07	2/5/13	5.6		0.095	0.26	B	0.25	0.12	U	0.12	60.8	B	39.1

Sample Location	HEIS number	Sample Date	Selenium			Silicon			Silver			Sodium		
			mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL	mg/kg	Q	PQL
In-process composite	J1KTR4	8/30/11	2.7	U	2.7	653		17.9	0.51	U	0.51	219	B	186
In-process composite at 3 ft bgs	J1R557	11/6/12	0.827	U	0.827	472		5.51	0.551	U	0.551	220		138
Composite verif sample	J1RF08	2/5/13	0.88	U	0.88	398	N	5.8	0.16	U	0.16	254		60.2
Duplicate of J1RF08	J1RF09	2/5/13	0.85	U	0.85	373	N	5.6	0.16	U	0.16	220		58.5
Equipment Blank	J1RF07	2/5/13	0.82	U	0.82	151	N	5.4	0.15	U	0.15	56.2	U	56.2

Sample Location	HEIS number	Sample Date	Vanadium			Zinc		
			mg/kg	Q	PQL	mg/kg	Q	PQL
In-process composite	J1KTR4	8/30/11	63.6		0.30	146		1.3
In-process composite at 3 ft bgs	J1R557	11/6/12	58.9		6.89	167		27.6
Composite verif sample	J1RF08	2/5/13	50.4		0.096	155		0.41
Duplicate of J1RF08	J1RF09	2/5/13	98.5		0.093	165		0.39
Equipment Blank	J1RF07	2/5/13	0.21	B	0.090	1.4	C	0.38

**Table 2. Condensed Comparison of Contaminant Concentrations to Action Levels for the 100-K-93 and 100-K-111 Waste Site Sampling Data.**

Analyte	100-K-93 (mg/kg)	100-K-93 (Duplicate) (mg/kg)	K-111-2 <sup>a</sup> (Relocated to 100-K-93) (mg/kg)	W-11 <sup>a</sup> (Down-Slope from 100-K-93) (mg/kg)	Background (mg/kg)	Direct Exposure RAG (Interim Action) (mg/kg)	Lowest Groundwater Protection/ Surface Water Protection RAG (Interim Action) (mg/kg)
Arsenic	12.6	17.4	BG	10.8	6.5 (20)	20	20
Cadmium	<BG	<BG	<BG	1.3	0.81	13.9	0.81 <sup>b</sup>
Copper	30.1	26.5	<BG	22.3	22	2,960	22 <sup>b</sup>
Chromium (total)	115	978	26.2	257	18.5	80,000	18.5 <sup>b</sup>
Chromium (hexavalent)	6.54	8.12	0.57	8.82	--	2.1	2
Lead	29.9	33.3	11.4	36.4	10.2	353	10.2 <sup>b</sup>
Zinc	155	165	<BG	172	67.8	24,000	67.8 <sup>b</sup>

<sup>a</sup> Preliminary analytical data results.

<sup>b</sup> Site-specific protectiveness modeling can demonstrate higher acceptable residual concentrations.

-- = not available

BG = background

RAG = remedial action goal