Enclosure 6
GDP 11-0014

REVERSE WORK AUTHORIZATION

Reverse Work Authorization Form
(For Services provided to United States Enrichment Corporation)

Reverse Work Authorization		
WA Title: PORTS Source, Special Nuclear, and/or Byproduct Material Project	Date Prepared: June 27, 2011	
USEC Contact: Brian Bell (Technical) Dale Bauer (Contracts)	Work Authorization No.: 815763	
USEC Phone No.: 270-441-6698 (Technical) 740-897-2185 (Contracts)	Requester, USEC	
DOE Contact: Matt Vick	Work Order No.: n/a	
Phone No.: 740-897-2089	**MODIFICATION**	
Start Date: Return Date as defined in the MBFA	Modification No.: 0	Date of Modification :
End Date: * Thirty-six months after Return Date (as defined in MBFA)	Funding (+/-): + $	
Estimated Cost: $7,817,915.05		
Funding Obligation: $642,321.78 (60 days)		

WORK EXPLANATION/REQUIREMENTS: SCOPE (Define deliverables, milestones, quantities, special requirements, etc.) (If modification, describe change.)

DOE shall provide the services as set forth in the attached "Source, Special Nuclear, and/or Byproduct Material Project for the UNITED STATES ENRICHMENT CORPORATION Portsmouth Facility" number SOW-11-360-001 (Attachment A) and subject to all the terms and conditions included therein.

Work will be performed under the September 2006 "Agreement for Services between the United States Department of Energy and the United States Enrichment Corporation" (the "Services Agreement") and under the December 2006 "Memorandum of Agreement between United States Department of Energy and United States Enrichment Corporation for the Supply of Services, Modification No. 1" (the "Services MOA"), as set forth in Exhibit F to the Lease Agreement dated July 1, 1993 (the "GDP Lease"), and modified by the March 2011 "Master Binding Facility Agreement For Return and Transfer of Property Leased by United States Enrichment Corporation at the Former Gaseous Diffusion Plant in Piketon, Ohio" (the "MBFA"), and shall be in accordance with Article IV – CHARGES of the Services MOA except as modified in the attached SOW.

INVOICING AND PAYMENTS

a) Invoicing will occur on a monthly basis. Invoices will be submitted electronically to acctspay@PORTS.USEC.com and Bellba@pgdp.usec.com. Invoices must include:
   (i) Invoice date;
   (ii) Work Authorization number;
   (iii) Description, quantity, unit of measure, unit price and extended price of services performed; and
   (iv) Name, title and mailing address of the person or office to whom payment is to be sent;

b) Cost will be full cost recovery, consistent with DOE Order DOE O 522.1, Pricing of Departmental Materials and Services and applicable Government Cost Accounting Standards. DOE and its contractors reserve the right to revisit the cost estimate to accommodate full cost recovery. DOE will include an appropriate and reasonable fee structure to incentivize DOE's

contractor to perform the Work in a timely manner

c) Incremental funds in the amount of $642,321.78 are obligated herewith and shall be made available within five (5) business days after the date of the last signature below for payment of allowable costs incurred for an estimated sixty calendar days from the effective date of this work authorization (WA).DOE agrees to use its best efforts to perform the work specified under this WA within the estimated cost. USEC and DOE contemplate that USEC will provide additional funds as necessary to ensure DOE is reimbursed full costs for this work. DOE shall notify USEC in writing whenever it has reason to believe that the costs it expects to incur under this WA in the next 60 days, when added to all costs previously incurred, will exceed 75 percent of the total amount allotted to the WA by USEC. DOE shall include in this notification the estimated amount of additional funds, if any, required to continue timely performance under the WA for the next 60 days. USEC will within 15 (fifteen) days of DOE's notice, provide an additional advance payment equal to the amount indicated in DOE's notice.

d) On or before the Return Date (as defined in the MBFA) USEC shall provide advance payment or a payment bond by any one of the following: (1) additional funds to DOE in an amount that, together with any funds previously provided to DOE under this WA, equals the total estimated costs of this WA; (2) a payment bond in favor of DOE in an amount that, together with any funds previously provided to DOE under this WA, equals the total estimated costs of this WA; or (3) a combination of additional funds and payment bond in favor of DOE in an amount that, together with any funds previously provided to DOE under this WA, equals the Estimated Cost of this WA.

Any payment bond shall be acceptable to DOE and provide payment to DOE of any monies due to DOE under this WA in the event USEC fails to make such payments within fifteen (15) days of notice from DOE under paragraph (c).

e) Upon final closeout of this WA, DOE will return to USEC any unexpended funds.

***END DATE**

DOE though its contractor performing the services currently anticipates completing the work within 24 months of the Start Date. If DOE, despite its good faith efforts, cannot complete the activities under the SOW within 36 months after the Start Date, DOE and USEC shall mutually agree to exercise one of the following options (a) agree upon a final lump sum payment that is adequate to cover DOE's remaining costs for completing disposition of Attachment 1 items; or (b) agree to extend the End Date for such period as needed for DOE in good faith to complete work under the SOW.;

USEC Approval:	U.S. DEPARTMENT OF ENERGY APPROVAL:
	Work Authorization Technical Representative:
	Signature: [signature] Date: 6/27/11
	Contracting Officer:
	Signature: [signature] Date: 6/28/11
	DOE-ORO Management Approval
	Signature: [signature] Date: 6/28/11
	DOE Management Approval:
Signature: [signature] Date: 6/27/11	Signature: [signature] Date: 6/27/11
Title Manager, Government Contracts	Title: PPPO Mgr

ATTACHMENT A

STATEMENT OF WORK

SOURCE, SPECIAL NUCLEAR, AND/OR BYPRODUCT MATERIAL PROJECT

for the

UNITED STATES ENRICHMENT CORPORATION
Portsmouth Facility

NUMBER: SOW-11-360-003
Revision: 0

DATE: June 27, 2011

United States Enrichment Corporation
P.O. Box 628
3930 US Route 23 South
Piketon, Ohio 45601

Type of Service:
Non-Safety

USEC Source, Special Nuclear, and/or Byproduct Material Project

I. SCOPE:

Disposition of certain source, special nuclear, and/or byproduct material at the Portsmouth Gaseous Diffusion Plant as identified in Attachment (1). USEC has indicated to DOE that the disposition of the Attachment 1 items will delay the return of the facilities listed for return under the March 2011 "Master Binding Facility Agreement For Return and Transfer of Property Leased by United States Enrichment Corporation at the Former Gaseous Diffusion Plant in Piketon, Ohio" (MBFA) so long as those items remained owned by USEC. USEC asserts this delay is attributable to NRC's approval of USEC's termination of its Certificate for the Portsmouth Gaseous Diffusion Plant. DOE desires to have the return of these facilities as soon as possible, consistent with all legal/regulatory and Lease requirement, to expedite the ultimate Decontamination and Decommissioning of the Portsmouth Gaseous Diffusion Plant. Therefore, as of the Return Date, as defined in the MBFA, ownership and possession of these Attachment 1 items shall be transferred from USEC to DOE. Despite this change in ownership and possession, USEC shall remain responsible for fully reimbursing DOE for all costs associated with performing the work associated with the acceptance of ownership and possession and the disposition of the Attachment 1 items. Further, all work conducted by DOE or its contractors related to the Attachment 1 items shall for the purposes of Section 5.3 of the GDP Lease be considered as attributable to or arising out of the operations of the GDPs by the Corporation after July 1, 1993.
This Work Authorization provides for the payment to DOE of the costs for work performed to prepare containers for off-site shipment per applicable Department of Transportation (DOT) requirements and selected Treatment, Storage & Disposal Facility (TSDF) Waste Acceptance Criteria (WAC), arrange for disposal, load trailers, coordinate with approved transportation carriers, document final disposal of the Attachment 1 items, and take other actions necessary to disposition Attachment 1 items.

II. ROLES AND RESPONSIBILITIES:

A. DOE:

Upon the Return Date, DOE shall accept ownership and possession of the items listed in Attachment 1, updated as of the Return Date.

During the period of performance of this Work Authorization DOE though its contractor performing the services currently anticipates performing the following activities related to the Attachment 1 items:

- Storage, surveillance and maintenance of the items
- Prepare containers for shipment to TSDF. This will include the following actions:
  - Re-packaging of the content to reduce the level of radioisotope activity per container, if required, in order to meet the requirements of the DOT and the requirements of the TSDF WAC.

- Potential blending/treatment/solidification of low level radioactive contaminated oils in order to meet the requirements of the DOT and the TSDF WAC for disposal/destruction.

- Batching of small diameter containers into DOT compliant containers, as necessary to meet the requirements of both the DOT and the TSDF WAC for disposal.

- Provide all necessary support services (e.g. HP technician, IH technician, Safety Officer and Non Destructive Analysis [NDA] measurement process, and characterization as required), for all aspects of the project.

- Provide logistics and oversight of shipment of the Attachment 1 items to the TSDF in compliance with all applicable regulations.

- Ship Attachment 1 items to a licensed TSDF site for disposal in accordance with applicable regulations. Licensed TSDF include, but are not limited to:

  - Nevada National Security Site (NNSS)
  - Energy Solutions (Clive, Utah; Bear Creek)
  - Perma-Fix (Florida, DSSI, Permafix NW, M&EC)
  - Impact Services
  - Studsvik

- Maintain documentation required to meet regulatory requirements

- Permit access to USEC personnel with reasonable notice to observe activities under this Work Authorization.

- Maintain all required waste tracking documents (e.g. request for disposal or equivalent) and shipping documentation (including Certificates of Destruction and Certificates of Disposal); and, at USEC's request, provide copies of same to USEC.

- Provide periodic reporting on project status and costs.

- Take other actions necessary to disposition Attachment 1 items in accordance with applicable regulations.

- Complete work within 24 months of the Return Date, unless extended in accordance with this WA.

B. USEC:

USEC shall provide a projection of the items which will remain at the leased facilities as of the Return Date. (Attachment 1) Upon the Return Date, USEC shall provide an updated Attachment 1 reflecting the actual remaining inventory.

USEC shall provide copies of the current approved TSDF Waste Profiles to DOE. (Attachment 3)

USEC shall provide its Sampling and Analysis Plan for the Characterization for the Attachment 1items. (Attachment 4)

USEC shall reimburse DOE for the costs incurred by DOE in performing the work detailed in Section II. A. during the period of performance of this Work Authorization above in accordance with the payment terms of the Work Authorization. An estimate of the costs to perform such work is attached as Attachment 2. DOE shall provide an updated Attachment 2 estimate based on the updated Attachment 1 reflecting any changes costs due to changes in the actual remaining inventory.

ATTACHMENTS:

- Attachment 1: Source and/or byproduct materials
- Attachment 2: Cost estimate.
- Attachment 3: USEC Waste Profiles.
- Attachment 4: Sampling and Analysis Plan for the Characterization of Attachment 1 Items.

Source And/Or Byproduct Materials

USEC Inventory Projected as of 6/27/11														
RFD Number	Owner	Wastestream	Container number	Container Volume (Gallons)	Container Volume (Ft. 3)	Total Volume (Ft. 3)	Waste Location	Row	Position	Waste Description	Gross Weight (lbs)	Net Weight (lbs)	Grams U-235	Activity U-235 (pCi/g)
55298	USEC	RD-101	1	55P	7.4	7.40	C5	16	6	Batch 197	126.12	103.12	234.92	11023.0022
49394	USEC	RD-101	1	B-25 box	90	90.00	CW			DAW	1592	845	1	5.7262
63488	USEC	RD-101	1	B-25 box	90	90	NH			DAW	872			#DIV/0!
61963	USEC	RD-101	1	B-25 box	90	90.00	NR			DAW	1022			#DIV/0!
64256	USEC	RD-101	1	B-25 box	90	90	SA			DAW				#DIV/0!
65248	USEC	RD-101	1	B-25 box	90	90	NR			DAW	964			#DIV/0!
65552	USEC	RD-101	1	B-25 box	90	90	NR			DAW	1048			#DIV/0!
65557	USEC	RD-101	1	B-25 box	90	90	NR			DAW	1198			#DIV/0!
65558	USEC	RD-101	1	B-25 box	90	90	NR			DAW	1157			#DIV/0!
65559	USEC	RD-101	1	B-25 box	90	90	NR			DAW	1157			#DIV/0!
65851	USEC	RD-101	1	B-25 box	90	90	CH			DAW	1045			#DIV/0!
65852	USEC	RD-101	1	B-25 box	90	90	CH			DAW	1216			#DIV/0!
65876	USEC	RD-101	1	B-25 box	90	90	NR			DAW	929			#DIV/0!
65887	USEC	RD-101	1	B-25 box	90	90	NR			DAW	1607			#DIV/0!
65888	USEC	RD-101	1	B-25 box	90	90	NR			DAW	1212			#DIV/0!
65889	USEC	RD-101	1	B-25 box	90	90	NR			DAW	1168			#DIV/0!
65890	USEC	RD-101	1	B-25 box	90	90	NR			DAW	1191			#DIV/0!
65895	USEC	RD-101	1	B-25 box	90	90	CH			DAW	1219			#DIV/0!
65536	USEC	RD-101	1	55	7.4	7.4	S3-3			DAW	88.48	24.48	58.82	11626.1631
65535	USEC	RD-101	1	55	7.4	7.4	S3-3			DAW	85.56	21.56	58.56	13142.4132
General DAW waste			15	B-25 box	1350									
Total			35		2902.2									
59308	USEC	RD-101	1	55P	7.4	7.40	N4	1	1	Floor sweepings, chessecloth	187.95	164.95	279.12	8187.6910
53073	USEC	RD-101	1	55P	7.4	7.40	N4	8	2A	Misc. scrap(rags, wipes)	250	227	120	2557.8684
50982	USEC	RD-101	1	55P	7.4	7.40	N4	6	7A	Misc. scrap(rags, wipes)	181	159	151.94	4623.7868
50981	USEC	RD-101	1	55P	7.4	7.40	N4	7	8	Misc. scrap(rags, wipes)	154	132	249	9127.4239
48886	USEC	RD-101	1	55M	7.4	7.40	C6	2	6A	PCB cont. dirt, rubber, plastic	486	422	15	171.9894
23285	USEC	RD-101	1	5M	0.65	0.65	N4	3	6C	PG, Plastic, Paper	25	20	22	5322.4978
34876	USEC	RD-101	1	5M	0.65	0.65	C6	5	14G	Pigs, sponges& H2O	25	20	1	241.9317
55280	USEC	RD-101	1	55P	7.4	7.40	N4	6	5C	Rags, wipes, shoe covers	101.01	78.01	64.45	3997.5642
56041	USEC	RD-101	1	55P	7.4	7.40	N4	11	4B	Rags, wipes, shoe covers	105.23	83.23	155.03	9012.7777
50979	USEC	RD-101	1	55P	7.4	7.40	N4	2	4D	Yellow cloth, gaskets, rubber tubing	234	212	28	639.0649
65550	USEC	RD-101	1	55	7.4	7.4	S3-3			Floor Sweepings	77.24	13.24	35.2	12864.0430
65549	USEC	RD-101	1	55	7.4	7.4	S3-3			Floor Sweepings	77.46	13.46	25	8987.0623

65313	USEC	RD-101	1	55	7.4	7.4	S3-3			PG Dust, Rags	151.77	87.77	50.14	2764.1464
65307	USEC	RD-101	1	55	7.4	7.4	S3-3			PG Dust, Rags	80.71	16.71	34.17	9894.4426
65308	USEC	RD-101	1	55	7.4	7.4	S3-3			PG Dust, Rags	77.91	13.91	36.15	12574.8837
65302	USEC	RD-101	1	55	7.4	7.4	S3-3			PG Dust, Rags	84.22	20.22	46.51	11129.8162
65548	USEC	RD-101	1	55	7.4	7.4	S3-3			PG Dust, Rags	77.21	13.21	60.58	22189.5889
65301	USEC	RD-101	1	55	7.4	7.4	S3-3			PG Dust, Rags	90.65	26.65	57.5	10439.8302
65309	USEC	RD-101	1	55	7.4	7.4	S3-3			Sweeper Bags &Debris	89.48	25.48	33.52	6365.4248
65310	USEC	RD-101	1	55	7.4	7.4	S3-3			Sweeper Bags &Debris	72.18	8.18	50.4	29812.6127
65531	USEC	RD-101	1	55	7.4	7.4	S3-3			Tephlon gasket & plastic			1	#DIV/0!
Total			21		141.9									
64145	USEC	RD-101G	1	55	7.4	7.4	N1			Oily 3M Cloth, PPE	252			#DIV/0!
65316	USEC	RD-101G	1	55	7.4	7.4	S3-3			Oily rags, 3M	110.88	46.88	52.7	5439.3351
65315	USEC	RD-101G	1	55	7.4	7.4	S3-3			Oily rags, 3M	109.77	45.77	43.96	4647.2879
65314	USEC	RD-101G	1	55	7.4	7.4	S3-3			Oily rags, 3M	112.93	48.93	51.31	5073.9900
Total			4		29.6									
53686	USEC	RD-101P	1	55M	7.4	7.40	C4	2	3C	Fire Debris (used pigs, filter bags, etc.)	115.00	51.00	17	1612.8781
53374	USEC	RD-101P	1	55M	7.4	7.40	C4	5	1D	Fire Debris (used pigs, filter bags, etc.)	110.00	46.00	15.54	1634.6169
53667	USEC	RD-101P	1	55M	7.4	7.40	C4	6	6C	Fire Debris (used pigs, filter bags, etc.)	110.00	46.00	17.39	1829.2142
53452	USEC	RD-101P	1	55M	7.4	7.40	C4	7	2A	Fire Debris (used pigs, filter bags, etc.)	110.00	46.00	18	1893.3787
53464	USEC	RD-101P	1	55M	7.4	7.40	C4	7	5B	Fire Debris (used pigs, filter bags, etc.)	105.00	41.00	17	2006.2630
53661	USEC	RD-101P	1	55M	7.4	7.40	C4	6	4B	Fire Debris (used pigs, filter bags, etc.)	95.00	31.00	13.14	2050.9566
53390	USEC	RD-101P	1	55M	7.4	7.40	C4	5	4C	Fire Debris (used pigs, filter bags, etc.)	81.00	17.00	7.26	2066.3815
53399	USEC	RD-101P	1	55M	7.4	7.40	C4	3	4D	Fire Debris (used pigs, filter bags, etc.)	85.00	21.00	9	2073.7004
53697	USEC	RD-101P	1	55M	7.4	7.40	C4	5	2C	Fire Debris (used pigs, filter bags, etc.)	75.00	11.00	4.98	2190.5817
53672	USEC	RD-101P	1	55M	7.4	7.40	C4	1	3A	Fire Debris (used pigs, filter bags, etc.)	75.00	11.00	5	2199.3793
53689	USEC	RD-101P	1	55M	7.4	7.40	C4	6	5A	Fire Debris (used pigs, filter bags, etc.)	80.00	16.00	7.36	2225.7718
53485	USEC	RD-101P	1	55M	7.4	7.40	C4	1	4A	Fire Debris (used pigs, filter bags, etc.)	155.00	91.00	42	2233.2159

53478	USEC	RD-101P	1	55M	7.4	7.40	C4	8	5D	Fire Debris (used pigs, filter bags, etc.)	120.00	56.00	28	2419.3172
53489	USEC	RD-101P	1	55M	7.4	7.40	C4	3	4C	Fire Debris (used pigs, filter bags, etc.)	70.00	6.00	3	2419.3172
53495	USEC	RD-101P	1	55M	7.4	7.40	C4	3	3C	Fire Debris (used pigs, filter bags, etc.)	80.00	16.00	8	2419.3172
53400	USEC	RD-101P	1	55M	7.4	7.40	C4	3	4A	Fire Debris (used pigs, filter bags, etc.)	85.00	21.00	11	2534.5228
51801	USEC	RD-101P	1	55M	7.4	7.40	C4	7	3B	Fire Debris (used pigs, filter bags, etc.)	75.00	11.00	5.82	2560.0775
53474	USEC	RD-101P	1	55M	7.4	7.40	C4	8	2A	Fire Debris (used pigs, filter bags, etc.)	85.00	21.00	11.25	2592.1256
53664	USEC	RD-101P	1	55M	7.4	7.40	C4	6	2A	Fire Debris (used pigs, filter bags, etc.)	90.00	26.00	14.81	2756.1606
53492	USEC	RD-101P	1	55M	7.4	7.40	C4	3	2B	Fire Debris (used pigs, filter bags, etc.)	90.00	26.00	15	2791.5198
53398	USEC	RD-101P	1	55M	7.4	7.40	C4	1	1A	Fire Debris (used pigs, filter bags, etc.)	115.00	51.00	33.55	3183.0624
51797	USEC	RD-101P	1	55M	7.4	7.40	C4	3	5C	Fire Debris (used pigs, filter bags, etc.)	112.00	48.00	31.65	3190.4745
53457	USEC	RD-101P	1	55M	7.4	7.40	C4	7	5C	Fire Debris (used pigs, filter bags, etc.)	100.00	36.00	24	3225.7562
53493	USEC	RD-101P	1	55M	7.4	7.40	C4	3	2A	Fire Debris (used pigs, filter bags, etc.)	85.00	21.00	14	3225.7562
53484	USEC	RD-101P	1	55M	7.4	7.40	C4	9	1B	Fire Debris (used pigs, filter bags, etc.)	125.00	61.00	40.73	3230.7800
53436	USEC	RD-101P	1	55M	7.4	7.40	C4	5	3D	Fire Debris (used pigs, filter bags, etc.)	160.00	96.00	68.18	3436.4384
53455	USEC	RD-101P	1	55M	7.4	7.40	C4	6	1B	Fire Debris (used pigs, filter bags, etc.)	75.00	11.00	8.16	3589.3869
53682	USEC	RD-101P	1	55M	7.4	7.40	C4	9	4D	Fire Debris (used pigs, filter bags, etc.)	95.00	31.00	23	3589.9545
53397	USEC	RD-101P	1	55M	7.4	7.40	C4	5	5A	Fire Debris (used pigs, filter bags, etc.)	105.00	41.00	31.12	3672.6415
53482	USEC	RD-101P	1	55M	7.4	7.40	C4	8	5C	Fire Debris (used pigs, filter bags, etc.)	95.00	31.00	28	4370.3794
53691	USEC	RD-101P	1	55M	7.4	7.40	C4	8	4A	Fire Debris (used pigs, filter bags, etc.)	115.00	51.00	46.34	4396.5160

51795	USEC	RD-101P	1	55M	7.4	7.40	C4	3	5A	Fire Debris (used pigs, filter bags, etc.)	108.00	44.00	40.06	4405.3566
53467	USEC	RD-101P	1	55M	7.4	7.40	C4	8	2C	Fire Debris (used pigs, filter bags, etc.)	95.00	31.00	29.47	4599.8243
53389	USEC	RD-101P	1	55M	7.4	7.40	C4	5	6A	Fire Debris (used pigs, filter bags, etc.)	73.00	9.00	8.63	4639.7127
53476	USEC	RD-101P	1	55M	7.4	7.40	C4	3	2D	Fire Debris (used pigs, filter bags, etc.)	80.00	16.00	17	5141.0490
53393	USEC	RD-101P	1	55M	7.4	7.40	C4	5	5C	Fire Debris (used pigs, filter bags, etc.)	75.00	11.00	11.73	5159.7437
53698	USEC	RD-101P	1	55M	7.4	7.40	C4	8	3B	Fire Debris (used pigs, filter bags, etc.)	90.00	26.00	28	5210.8370
53459	USEC	RD-101P	1	55M	7.4	7.40	C4	7	6C	Fire Debris (used pigs, filter bags, etc.)	85.00	21.00	23	5299.4567
53677	USEC	RD-101P	1	55M	7.4	7.40	C4	6	6A	Fire Debris (used pigs, filter bags, etc.)	100.00	36.00	42.23	5675.9869
53394	USEC	RD-101P	1	55M	7.4	7.40	C4	5	5B	Fire Debris (used pigs, filter bags, etc.)	90.00	26.00	30.72	5717.0326
51794	USEC	RD-101P	1	55M	7.4	7.40	C4	7	3D	Fire Debris (used pigs, filter bags, etc.)	75.00	11.00	13.31	5854.7476
53456	USEC	RD-101P	1	55M	7.4	7.40	C4	7	6A	Fire Debris (used pigs, filter bags, etc.)	135.00	71.00	90	6133.4802
53468	USEC	RD-101P	1	55M	7.4	7.40	C4	6	4A	Fire Debris (used pigs, filter bags, etc.)	120.00	56.00	71.49	6177.0352
53688	USEC	RD-101P	1	55M	7.4	7.40	C4	9	4C	Fire Debris (used pigs, filter bags, etc.)	80.00	16.00	21	6350.7076
53449	USEC	RD-101P	1	55M	7.4	7.40	C4	8	3A	Fire Debris (used pigs, filter bags, etc.)	140.00	76.00	113	7194.2853
53469	USEC	RD-101P	1	55M	7.4	7.40	C4	2	5B	Fire Debris (used pigs, filter bags, etc.)	140.00	76.00	113	7194.2853
53497	USEC	RD-101P	1	55M	7.4	7.40	C4	7	6B	Fire Debris (used pigs, filter bags, etc.)	135.00	71.00	107	7292.0264
53660	USEC	RD-101P	1	55M	7.4	7.40	C4	7	1C	Fire Debris (used pigs, filter bags, etc.)	120.00	56.00	87	7517.1641
53388	USEC	RD-101P	1	55M	7.4	7.40	C4	5	4A	Fire Debris (used pigs, filter bags, etc.)	92.00	28.00	45.12	7797.1137
53386	USEC	RD-101P	1	55M	7.4	7.40	C4	5	6B	Fire Debris (used pigs, filter bags, etc.)	82.00	18.00	29.81	8013.3161

53446	USEC	RD-101P	1	55M	7.4	7.40	C4	8	3D	Fire Debris (used pigs, filter bags, etc.)	80.00	16.00	29	8770.0248
51799	USEC	RD-101P	1	55M	7.4	7.40	C4	3	6	Fire Debris (used pigs, filter bags, etc.)	101.00	37.00	69.57	9097.9403
53679	USEC	RD-101P	1	55M	7.4	7.40	C4	5	1A	Fire Debris (used pigs, filter bags, etc.)	130.00	66.00	126.11	9245.4573
53453	USEC	RD-101P	1	55M	7.4	7.40	C4	7	4A	Fire Debris (used pigs, filter bags, etc.)	110.00	46.00	90	9466.8933
51798	USEC	RD-101P	1	55M	7.4	7.40	C4	7	3C	Fire Debris (used pigs, filter bags, etc.)	97.00	33.00	65.22	9562.9010
51796	USEC	RD-101P	1	55M	7.4	7.40	C4	3	5B	Fire Debris (used pigs, filter bags, etc.)	111.00	47.00	96.62	9946.9969
53440	USEC	RD-101P	1	55M	7.4	7.40	C4	1	4D	Fire Debris (used pigs, filter bags, etc.)	120.00	56.00	120	10368.5022
53458	USEC	RD-101P	1	55M	7.4	7.40	C4	1	2B	Fire Debris (used pigs, filter bags, etc.)	105.00	41.00	89	10503.3770
53461	USEC	RD-101P	1	55M	7.4	7.40	C4	2	2A	Fire Debris (used pigs, filter bags, etc.)	115.00	51.00	113	10720.8957
53685	USEC	RD-101P	1	55M	7.4	7.40	C4	5	1B	Fire Debris (used pigs, filter bags, etc.)	75.00	11.00	25.39	11168.4479
53477	USEC	RD-101P	1	55M	7.4	7.40	C4	8	5A	Fire Debris (used pigs, filter bags, etc.)	75.00	11.00	28	12316.5238
53659	USEC	RD-101P	1	55M	7.4	7.40	C4	1	2A	Fire Debris (used pigs, filter bags, etc.)	150.00	86.00	242	13615.6920
53448	USEC	RD-101P	1	55M	7.4	7.40	C4	2	4C	Fire Debris (used pigs, filter bags, etc.)	145.00	81.00	231	13799.0684
53395	USEC	RD-101P	1	55M	7.4	7.40	C4	1	1B	Fire Debris (used pigs, filter bags, etc.)	80.00	16.00	53.99	16327.3668
53483	USEC	RD-101P	1	55M	7.4	7.40	C4	8	5B	Fire Debris (used pigs, filter bags, etc.)	130.00	66.00	252	18474.7857
53443	USEC	RD-101P	1	55M	7.4	7.40	C4	8	3C	Fire Debris (used pigs, filter bags, etc.)	70.00	6.00	29	23386.7327
65080A	USEC	RD-101P	1	Lab Packs			N2			Fire Debris Samples	45.6			#DIV/0!
65080B	USEC	RD-101P	1	Lab Packs			N2			Fire Debris Samples	49.1			#DIV/0!
65080C	USEC	RD-101P	1	Lab Packs			N2			Fire Debris Samples	45.3			#DIV/0!
65080D	USEC	RD-101P	1	Lab Packs			N2			Fire Debris Samples	45.6			#DIV/0!
65080E	USEC	RD-101P	1	Lab Packs			N2			Fire Debris Samples	47.6			#DIV/0!
65080F	USEC	RD-101P	1	Lab Packs			N2			Fire Debris Samples	58.8			#DIV/0!
65538	USEC	RD-101P	1	55	7.4	7.4	S3-3			Fire Ash, rags	85.87	21.87	44.28	9796.7412

65537	USEC	RD-101P	1	55	7.4	7.4	S3-3			Fire Ash, rags	82.28	18.28	44.6	11805.4208
65539	USEC	RD-101P	1	55	7.4	7.4	S3-3			Fire Ash, rags	80.03	16.03	44.55	13447.3588
65540	USEC	RD-101P	1	55	7.4	7.4	S3-3			Fire Ash, rags	77.88	13.88	44.51	15516.3988
65544	USEC	RD-101P	1	55	7.4	7.4	S3-3			Fire Ash, rags	83.99	19.99	39.96	9672.4277
65543	USEC	RD-101P	1	55	7.4	7.4	S3-3			Fire Ash, rags	85.06	21.06	39.89	9164.9157
65542	USEC	RD-101P	1	55	7.4	7.4	S3-3			Fire Ash, rags	79.44	15.44	44.29	13879.7355
65541	USEC	RD-101P	1	55	7.4	7.4	S3-3			Fire Ash, rags	75.79	11.79	35.8	14692.3758
65545	USEC	RD-101P	1	55	7.4	7.4	S3-3			Fire Ash, rags	80.85	16.85	43.63	12528.7607
65546	USEC	RD-101P	1	55	7.4	7.4	S3-3			Fire Ash, rags	79.61	15.61	36.8	11406.9023
65547	USEC	RD-101P	1	55	7.4	7.4	S3-3			Fire Ash, rags	102.71	38.71	26.59	3323.6706
Total			83		569.8									
60272	USEC	RD-101U	1	55P	7.4	7.40	N4	2	3B	dust and rags	105.12	82.12	247.72	14596.0363
60271	USEC	RD-101U	1	55P	7.4	7.40	N4	2	4C	Grease and oily rags	85.76	62.76	38.53	2970.5638
Total			2		14.8									
52912	USEC	RD-102	1	B-25 box	90	90	NR			Category 1 Scrap Metal	5439	4670	5.8	6.0094
59621	USEC	RD-102	1	B-25 box	90	90	NH			Scrap Metal	1269	1264		0.0000
54988	USEC	RD-102	1	B-25 box	90	90.00	CW			Scrap metal	2190	1446	1	3.3462
57458	USEC	RD-102	1	B-25 box	90	90.00	CW			Scrap metal	1552	810	1	5.9736
57677	USEC	RD-102	1	B-25 box	90	90.00	NH			Scrap Metal	1358			#DIV/0!
63811	USEC	RD-102	1	B-25 box	90	90	NH			Scrap Metal	1738			#DIV/0!
64449	USEC	RD-102	1	B-25 box	90	90	NH			Scrap Metal	1765			#DIV/0!
65582	USEC	RD-102	1	B-25 box	90	90	NH			Scrap Metal	1731			#DIV/0!
65583	USEC	RD-102	1	B-25 box	90	90	NH			Scrap Metal	1823			#DIV/0!
65584	USEC	RD-102	1	B-25 box	90	90	NH			Scrap Metal	1293			#DIV/0!
65585	USEC	RD-102	1	B-25 box	90	90	NH			Scrap Metal	1253			#DIV/0!
65590	USEC	RD-102	1	B-25 box	90	90	NH			Scrap Metal	2820			#DIV/0!
65591	USEC	RD-102	1	B-25 box	90	90	NH			Scrap Metal	3103			#DIV/0!
65877	USEC	RD-102	1	B-25 box	90	90	NH			Scrap Metal	1914			#DIV/0!
65926	USEC	RD-102	1	B-25 box	90	90	NH			Scrap Metal	1046			#DIV/0!
65927	USEC	RD-102	1	B-25 box	90	90	NH			Scrap Metal	994			#DIV/0!
52714	USEC	RD-102	1	B-25 box	90	90.00	CW			Steelcans, plastic, sorbal	1362	615	53.5	420.9219
65530	USEC		1	55	7.4	7.4	S3-3			Nuts, bolts, floor sweepings, plastic	173.1	109.1	4	177.4018
65532	USEC	RD-102	1	55	7.4	7.4	S3-3			Scrap Metal	170.22	106.22	14.02	638.6524
65533	USEC	RD-102	1	55	7.4	7.4	S3-3			Scrap Metal			16.53	#DIV/0!
65534	USEC	RD-102	1	55	7.4	7.4	S3-3			Scrap Metal	170.41	106.41	49.83	2265.8505
64775	USEC	RD-102	1	55	7.4	7.4	S3-3			Scrap Metal	151.93	87.93	16.27	895.3097
General Scrap Metal Waste			5		450									
Total			27		2017									
53066	USEC	RD-103	1	55P	7.4	7.40	C5	1	12C	Alumina	413	390	13.5	167.4912

54511	USEC	RD-103	1	55P	7.4	7.40	C5	17	9	Alumina	304	281	20	344.3868
53052	USEC	RD-103	1	55P	7.4	7.40	C5	9	6A	Alumina	455	432	45.9	514.1049
48899	USEC	RD-103	1	55P	7.4	7.40	C5	5	7C	Alumina	381	359	41.9	564.7320
48337	USEC	RD-103	1	55P	7.4	7.40	C5	8	9B	Alumina	418	399	46.97	569.6006
48363	USEC	RD-103	1	55P	7.4	7.40	C5	3	1D	Alumina	335	313	38.2	590.5298
48360	USEC	RD-103	1	55P	7.4	7.40	C5	8	6B	Alumina	327	305	41.26	654.5641
48358	USEC	RD-103	1	55P	7.4	7.40	C5	5	2D	Alumina	335	314	44.85	691.1234
40559	USEC	RD-103	1	55P	7.4	7.40	C5	8	6C	Alumina	347	328	48.46	714.8787
48327	USEC	RD-103	1	55P	7.4	7.40	C5	7	1C	Alumina	452	433	69.95	781.6685
48341	USEC	RD-103	1	55P	7.4	7.40	C5	8	7A	Alumina	436	417	80.12	929.6676
54036	USEC	RD-103	1	55P	7.4	7.40	C5	9	9B	Alumina	465	442	90.68	992.6863
48333	USEC	RD-103	1	55P	7.4	7.40	C5	8	7B	Alumina	332	313	65.45	1011.7847
55276	USEC	RD-103	1	55P	7.4	7.40	C5	11	3	Alumina	307.14	284.14	75	1277.1788
48339	USEC	RD-103	1	55P	7.4	7.40	C5	9	4B	Alumina	368	349	102.33	1418.7320
54034	USEC	RD-103	1	55P	7.4	7.40	C5	9	9A	Alumina	455	432	194.59	2179.5136
48362	USEC	RD-103	1	55P	7.4	7.40	C5	5	4C	Alumina	483	461	210.33	2207.6138
48361	USEC	RD-103	1	55P	7.4	7.40	C5	5	9D	Alumina	392	370	185.39	2424.4174
54509	USEC	RD-103	1	55P	7.4	7.40	C5	13	6	Alumina	320	298	206.36	3350.6731
54510	USEC	RD-103	1	55P	7.4	7.40	C5	14	5	Alumina	310	288	206.89	3475.9204
54507	USEC	RD-103	1	55P	7.4	7.40	C5	13	11	Alumina	279	257	190.7	3590.3797
54521	USEC	RD-103	1	55P	7.4	7.40	C5	12	3	Alumina	339.06	317.06	236.18	3604.3293
54508	USEC	RD-103	1	55P	7.4	7.40	C5	11	2	Alumina	306	283	222.93	3811.5787
53068	USEC	RD-103	1	55P	7.4	7.40	C5	15	5	Alumina	314	292	248.91	4124.6044
54525	USEC	RD-103	1	55P	7.4	7.40	C5	10	6	Alumina	276.5	253.5	218.12	4163.3252
54522	USEC	RD-103	1	55P	7.4	7.40	C5	14	7	Alumina	250.26	227.26	214.99	4577.3915
54516	USEC	RD-103	1	55P	7.4	7.40	C5	13	8	Alumina	269	247	235.56	4614.5292
55278	USEC	RD-103	1	55P	7.4	7.40	C5	14	8	Alumina	252.02	229.02	259.37	5479.8559
55279	USEC	RD-103	1	55P	7.4	7.40	C5	12	8	Alumina	224.95	201.95	263.05	6302.5638
61461A	USEC	RD-103	1	5	0.65	0.65	C5	1	8A	Alumina	21		1	#DIV/0!
61461B	USEC	RD-103	1	5	0.65	0.65	C5	1	8B	Alumina	21		1	#DIV/0!
61461C	USEC	RD-103	1	5	0.65	0.65	C5	1	8C	Alumina	21		1	#DIV/0!
61461D	USEC	RD-103	1	5	0.65	0.65	C5	1	8D	Alumina	21		1	#DIV/0!
61461E	USEC	RD-103	1	5	0.65	0.65	C5	1	8E	Alumina	21		1	#DIV/0!
61461F	USEC	RD-103	1	5	0.65	0.65	C5	1	8F	Alumina	20		1	#DIV/0!
61461G	USEC	RD-103	1	5	0.65	0.65	C5	1	8G	Alumina	22		1	#DIV/0!
61461H	USEC	RD-103	1	5	0.65	0.65	C5	1	8H	Alumina	22		1	#DIV/0!
61461I	USEC	RD-103	1	5	0.65	0.65	C5	1	8I	Alumina	21		1	#DIV/0!
61461J	USEC	RD-103	1	5	0.65	0.65	C5	1	8J	Alumina	20		1	#DIV/0!
61461K	USEC	RD-103	1	5	0.65	0.65	C5	1	8K	Alumina	21		1	#DIV/0!

61461L	USEC	RD-103	1	5	0.65	0.65	C5	1	8L	Alumina	20		1	#DIV/0!
48359	USEC	RD-103	1	55P	7.4	7.40	C5	5	2B	Alumina accountable container	339	318	43.96	668.8879
60996	USEC	RD-103	1	55P	7.4	7.40	C5	1	10D	Alumina and Soda lime	65.22	42.22	9	1031.4474
50519H	USEC	RD-103	1	55M	7.4	7.40	C5	2	8D	Alumina pellets from air plant dryers	506	442	15	164.2070
50519D	USEC	RD-103	1	55M	7.4	7.40	C5	2	7B	Alumina pellets from air plant dryers	468	404	15	179.6523
50519A	USEC	RD-103	1	55M	7.4	7.40	C5	2	7C	Alumina pellets from air plant dryers	444	380	15	190.9987
50519C	USEC	RD-103	1	55M	7.4	7.40	C5	2	8C	Alumina pellets from air plant dryers	444	380	15	190.9987
50519B	USEC	RD-103	1	55M	7.4	7.40	C5	2	7D	Alumina pellets from air plant dryers	424	360	15	201.6098
50519E	USEC	RD-103	1	55M	7.4	7.40	C5	2	7A	Alumina pellets from air plant dryers	404	340	15	213.4692
50519F	USEC	RD-103	1	55M	7.4	7.40	C5	2	8A	Alumina pellets from air plant dryers	397	333	15	217.9565
50519G	USEC	RD-103	1	55M	7.4	7.40	C5	2	8B	Alumina pellets from air plant dryers	341	277	15	262.0199
62202G	USEC	RD-103	1	20	2.7	2.70	N3			Alumina Sample returns	29	16	0.5	151.2073
62202H	USEC	RD-103	1	20	2.7	2.70	N3			Alumina Sample returns	27	14	0.5	172.8084
62202O	USEC	RD-103	1	20	2.7	2.70	N3			Alumina Sample returns	24	11	0.5	219.9379
63114A	USEC	RD-103	1	55	7.4	7.4	N3			Alumina, U, Tc	222			#DIV/0!
63114B	USEC	RD-103	1	55	7.4	7.4	N3			Alumina, U, Tc	242			#DIV/0!
64327A	USEC	RD-103	1	55	7.4	7.4	N3			Alumina, U, Tc	246			#DIV/0!
64327B	USEC	RD-103	1	55	7.4	7.4	N3			Alumina, U, Tc	252			#DIV/0!
48313	USEC	RD-103	1	55P	7.4	7.40	C5	2	10C	Alumina, Waste code 801	467	445	8.63	93.8369
48311	USEC	RD-103	1	55P	7.4	7.40	C5	2	12B	Alumina, Waste code 801	464	442	11.4	124.7974
48316	USEC	RD-103	1	55P	7.4	7.40	C5	3	5B	Alumina, Waste code 801	473	451	15.57	167.0455
48317	USEC	RD-103	1	55P	7.4	7.40	C5	3	5D	Alumina, Waste code 801	465	443	30.94	337.9398
48319	USEC	RD-103	1	55P	7.4	7.40	C5	3	4C	Alumina, Waste code 801	465	443	31.34	342.3088
48322	USEC	RD-103	1	55P	7.4	7.40	C5	3	1B	Alumina, Waste code 801	466	444	37.35	407.0338
48318	USEC	RD-103	1	55P	7.4	7.40	C5	7	7A	Alumina, Waste code 801	465	443	41.23	450.3316
48312	USEC	RD-103	1	55P	7.4	7.40	C5	4	2D	Alumina, Waste code 801	456	434	42.35	472.1571
48366	USEC	RD-103	1	55P	7.4	7.40	C5	12	10	Alumina, Waste code 801	464	442	43.5	476.2004
48323	USEC	RD-103	1	55P	7.4	7.40	C5	3	1A	Alumina, Waste code 801	471	449	49.72	535.8060
48368	USEC	RD-103	1	55P	7.4	7.40	C5	3	4B	Alumina, Waste code 801	420	398	49.22	598.3859
48320	USEC	RD-103	1	55P	7.4	7.40	C5	3	2C	Alumina, Waste code 801	471	449	85.49	921.2803
48303	USEC	RD-103	1	55P	7.4	7.40	C5	6	6A	Alumina, Waste code 801	472	451	96.59	1036.2831

48367	USEC	RD-103	1	55P	7.4	7.40	C5	6	6C	Alumina, Waste code 801	426	404	110.07	1318.2883
48306	USEC	RD-103	1	55P	7.4	7.40	C5	17	11	Alumina, Waste code 801	404	382	165.13	2091.6327
48310	USEC	RD-103	1	55P	7.4	7.40	C5	4	3C	Alumina, Waste code 801	446	424	188.8	2154.5617
50986	USEC	RD-103	1	55P	7.4	7.40	C5	7	7B	Alumina, Waste code 801	442	420	198.23	2283.7202
50987	USEC	RD-103	1	55P	7.4	7.40	C5	9	2C	Alumina, Waste code 801	510	488	255.8	2536.3169
53069	USEC	RD-103	1	55P	7.4	7.40	C5	15	4	Alumina, Waste code 801	291	269	264.4	4755.8919
53053	USEC	RD-103	1	55P	7.4	7.40	C5	3	6C	Alumina, Waste code 803	440	417	101.34	1175.8926
53051	USEC	RD-103	1	55P	7.4	7.40	C5	9	8A	Alumina, Waste code 803	450	427	106.7	1209.0920
54519	USEC	RD-103	1	55P	7.4	7.40	C5	10	9	Alumina, Waste code 803	351	329	189.31	2784.2002
54520	USEC	RD-103	1	55P	7.4	7.40	C5	14	6	Alumina, Waste code 810	77	55	28.15	2476.5010
54027	USEC	RD-103	1	55P	7.4	7.40	C5	8	3A	Alumina, Waste code 820	515	492	173.83	1709.5525
48924	USEC	RD-103	1	55P	7.4	7.40	C5	2	12D	Alumina, Waste code 821	370	347	2.16	30.1195
40564	USEC	RD-103	1	55	7.4	7.40	C5	2	12C	Alumina, Waste code 821	336	317	2.35	35.8700
54029	USEC	RD-103	1	55P	7.4	7.40	C5	2	11B	Alumina, Waste code 821	305	282	2.34	40.1504
46188	USEC	RD-103	1	55P	7.4	7.40	C5	2	13A	Alumina, Waste code 821	332	309	2.87	44.9414
45142	USEC	RD-103	1	55P	7.4	7.40	C5	2	13B	Alumina, Waste code 821	366	344	3.41	47.9644
52717	USEC	RD-103	1	55P	7.4	7.40	C5	3	8C	Alumina, Waste code 821	471	448	17.87	193.0053
50054	USEC	RD-103	1	55P	7.4	7.40	C5	1	11C	Alumina, Waste code 821	340	318	13.48	205.1094
50053	USEC	RD-103	1	55P	7.4	7.40	C5	5	4D	Alumina, Waste code 821	395	373	22.15	287.3345
48678	USEC	RD-103	1	55P	7.4	7.40	C5	4	6C	Alumina, Waste code 821	343	321	21.06	317.4506
48679	USEC	RD-103	1	55P	7.4	7.40	C5	4	6D	Alumina, Waste code 821	334	312	20.75	321.8002
52712	USEC	RD-103	1	55P	7.4	7.40	C5	7	6B	Alumina, Waste code 821	505	483	44.73	448.0996
48676	USEC	RD-103	1	55P	7.4	7.40	C5	4	5A	Alumina, Waste code 821	347	325	30.38	452.3007
50209	USEC	RD-103	1	55P	7.4	7.40	C5	8	1A	Alumina, Waste code 821	338	316	29.9	457.8328
48921	USEC	RD-103	1	55P	7.4	7.40	C5	3	9C	Alumina, Waste code 821	397	374	36.18	468.0797
52722	USEC	RD-103	1	55P	7.4	7.40	C5	3	8B	Alumina, Waste code 821	382	359	35.45	477.7983
48920	USEC	RD-103	1	55P	7.4	7.40	C5	8	9A	Alumina, Waste code 821	237	215	22.61	508.8443
48900	USEC	RD-103	1	55P	7.4	7.40	C5	5	7B	Alumina, Waste code 821	392	370	40.08	524.1418
40554	USEC	RD-103	1	55P	7.4	7.40	C5	8	4A	Alumina, Waste code 821	339	320	35.03	529.6793
50213	USEC	RD-103	1	55P	7.4	7.40	C5	5	5C	Alumina, Waste code 821	337	315	36.43	559.5919
52719	USEC	RD-103	1	55P	7.4	7.40	C5	3	8D	Alumina, Waste code 821	365	342	39.87	564.0829
52716	USEC	RD-103	1	55P	7.4	7.40	C5	7	6C	Alumina, Waste code 821	520	497	60	584.1410
50050	USEC	RD-103	1	55P	7.4	7.40	C5	8	5C	Alumina, Waste code 821	410	387	48.27	603.5165
40574	USEC	RD-103	1	55P	7.4	7.40	C5	5	5D	Alumina, Waste code 821	435	416	52.59	611.6918
50221	USEC	RD-103	1	55P	7.4	7.40	C5	5	9A	Alumina, Waste code 821	345	323	41.17	616.7386
50205	USEC	RD-103	1	55P	7.4	7.40	C5	5	7A	Alumina, Waste code 821	341	319	41.01	622.0451
50210	USEC	RD-103	1	55P	7.4	7.40	C5	8	1B	Alumina, Waste code 821	346	324	41.71	622.8995
40573	USEC	RD-103	1	55	7.4	7.40	C5	5	4B	Alumina, Waste code 821	423	404	52.45	628.1841
50212	USEC	RD-103	1	55P	7.4	7.40	C5	5	3D	Alumina, Waste code 821	331	309	41.14	644.2117

50211	USEC	RD-103	1	55P	7.4	7.40	C5	8	1C	Alumina, Waste code 821	347	325	43.38	645.8460
48919	USEC	RD-103	1	55P	7.4	7.40	C5	3	9B	Alumina, Waste code 821	486	464	64.64	674.0718
48677	USEC	RD-103	1	55P	7.4	7.40	C5	4	5B	Alumina, Waste code 821	333	311	44.16	687.0550
50058	USEC	RD-103	1	55P	7.4	7.40	C5	9	2A	Alumina, Waste code 821	325	302	42.98	688.6242
46200	USEC	RD-103	1	55P	7.4	7.40	C5	4	5C	Alumina, Waste code 821	313	290	41.59	693.9269
52723	USEC	RD-103	1	55P	7.4	7.40	C5	3	8A	Alumina, Waste code 821	365	342	49.173	695.7022
48456	USEC	RD-103	1	55P	7.4	7.40	C5	8	7D	Alumina, Waste code 821	340	318	46.08	701.1455
40571	USEC	RD-103	1	55P	7.4	7.40	C5	8	7C	Alumina, Waste code 821	420	401	60.31	727.7258
40578	USEC	RD-103	1	55P	7.4	7.40	C5	3	7D	Alumina, Waste code 821	337	318	50.27	764.8998
40557	USEC	RD-103	1	55P	7.4	7.40	C5	7	1D	Alumina, Waste code 821	320	297	47.2	768.9682
50052	USEC	RD-103	1	55P	7.4	7.40	C5	5	9C	Alumina, Waste code 821	405	382	61.36	777.2215
40583	USEC	RD-103	1	55P	7.4	7.40	C5	4	2C	Alumina, Waste code 821	344	323	53.7	804.4417
50069	USEC	RD-103	1	55P	7.4	7.40	C5	3	2D	Alumina, Waste code 821	390	368	62.01	815.3362
48922	USEC	RD-103	1	55P	7.4	7.40	C5	5	7D	Alumina, Waste code 821	466	444	78.73	857.9858
40582	USEC	RD-103	1	55P	7.4	7.40	C5	5	3B	Alumina, Waste code 821	354	333	59.86	869.7918
50074	USEC	RD-103	1	55P	7.4	7.40	C5	8	8D	Alumina, Waste code 821	370	347	64.43	898.4242
50059	USEC	RD-103	1	55P	7.4	7.40	C5	7	7C	Alumina, Waste code 821	375	352	65.36	898.4464
50045	USEC	RD-103	1	55P	7.4	7.40	C5	8	5A	Alumina, Waste code 821	390	367	68.46	902.5965
40572	USEC	RD-103	1	55	7.4	7.40	C5	5	4A	Alumina, Waste code 821	425	406	76.21	908.2570
40563	USEC	RD-103	1	55P	7.4	7.40	C5	9	7A	Alumina, Waste code 821	325	306	57.49	909.0624
50204	USEC	RD-103	1	55P	7.4	7.40	C5	4	6B	Alumina, Waste code 821	352	330	63.44	930.1908
40579	USEC	RD-103	1	55P	7.4	7.40	C5	3	7C	Alumina, Waste code 821	342	321	62.18	937.2781
40581	USEC	RD-103	1	55P	7.4	7.40	C5	5	3A	Alumina, Waste code 821	344	323	62.6	937.7663
50072	USEC	RD-103	1	55P	7.4	7.40	C5	8	8C	Alumina, Waste code 821	380	358	71.03	960.0229
40569	USEC	RD-103	1	55P	7.4	7.40	C5	9	4A	Alumina, Waste code 821	345	326	65.19	967.5784
40585	USEC	RD-103	1	55P	7.4	7.40	C5	4	2B	Alumina, Waste code 821	357	336	67.68	974.6392
50071	USEC	RD-103	1	55P	7.4	7.40	C5	3	2B	Alumina, Waste code 821	375	353	72.96	1000.0758
50073	USEC	RD-103	1	55P	7.4	7.40	C5	8	8B	Alumina, Waste code 821	375	353	73.7	1010.2191
50219	USEC	RD-103	1	55P	7.4	7.40	C5	5	9B	Alumina, Waste code 821	375	353	74.38	1019.5400
40584	USEC	RD-103	1	55P	7.4	7.40	C5	4	2A	Alumina, Waste code 821	372	351	76.34	1052.3685
40560	USEC	RD-103	1	55P	7.4	7.40	C5	8	6A	Alumina, Waste code 821	366	347	76.16	1061.9896
40555	USEC	RD-103	1	55P	7.4	7.40	C5	8	4B	Alumina, Waste code 821	243	224	49.92	1078.3242
40565	USEC	RD-103	1	55P	7.4	7.40	C5	8	9D	Alumina, Waste code 821	335	316	70.74	1083.1804
40575	USEC	RD-103	1	55P	7.4	7.40	C5	5	5B	Alumina, Waste code 821	394	375	86.26	1113.0149
48301	USEC	RD-103	1	55P	7.4	7.40	C5	6	6B	Alumina, Waste code 821	472	450	104.5	1123.6384
50070	USEC	RD-103	1	55P	7.4	7.40	C5	3	2A	Alumina, Waste code 821	380	358	84.15	1137.3494
40553	USEC	RD-103	1	55P	7.4	7.40	C5	8	4C	Alumina, Waste code 821	343	324	76.59	1143.7994
40580	USEC	RD-103	1	55P	7.4	7.40	C5	5	3C	Alumina, Waste code 821	408	387	92.8	1160.2720
40576	USEC	RD-103	1	55P	7.4	7.40	C5	5	5A	Alumina, Waste code 821	403	384	94.55	1191.3877

48897	USEC	RD-103	1	55P	7.4	7.40	C5	4	6A	Alumina, Waste code 821	424	402	99.28	1194.9742
40577	USEC	RD-103	1	55P	7.4	7.40	C5	3	7A	Alumina, Waste code 821	416	397	99.07	1207.4648
52720	USEC	RD-103	1	55P	7.4	7.40	C5	3	6B	Alumina, Waste code 821	361	338	85.89	1229.5571
52721	USEC	RD-103	1	55P	7.4	7.40	C5	3	6D	Alumina, Waste code 821	366	343	87.41	1233.0759
40567	USEC	RD-103	1	55P	7.4	7.40	C5	3	1C	Alumina, Waste code 821	367	348	89.9	1249.9805
50049	USEC	RD-103	1	55P	7.4	7.40	C5	8	5B	Alumina, Waste code 821	400	378	98.67	1263.0372
40561	USEC	RD-103	1	55P	7.4	7.40	C5	8	6D	Alumina, Waste code 821	371	352	93.72	1288.2864
40586	USEC	RD-103	1	55P	7.4	7.40	C5	5	2A	Alumina, Waste code 821	360	339	101.21	1444.5964
40558	USEC	RD-103	1	55P	7.4	7.40	C5	7	1B	Alumina, Waste code 821	355	332	99.41	1448.8212
37717	USEC	RD-103	1	85M	11	11.00	C5	17	5	Alumina, Waste code 821	438	416	125.65	1461.4769
39466	USEC	RD-103	1	85M	11	11.00	C5	18	9	Alumina, Waste code 821	480	457	163.8	1734.2851
37716	USEC	RD-103	1	85M	11	11.00	C5	18	11	Alumina, Waste code 821	393	370	137	1791.6025
52725	USEC	RD-103	1	55P	7.4	7.40	C5	8	3B	Alumina, Waste code 821	475	452	168.25	1801.1067
37709	USEC	RD-103	1	85M	11	11.00	C5	18	3	Alumina, Waste code 821	374	351	144	1985.0808
37711	USEC	RD-103	1	85M	11	11.00	C5	18	7	Alumina, Waste code 821	435	412	183.497	2155.0361
37721	USEC	RD-103	1	85M	11	11.00	C5	18	6	Alumina, Waste code 821	475	452	203.18	2175.0304
37715	USEC	RD-103	1	85M	11	11.00	C5	17	2	Alumina, Waste code 821	443	420	191.37	2204.6892
37714	USEC	RD-103	1	85M	11	11.00	C5	17	6	Alumina, Waste code 821	445	422	215.86	2475.0417
37720	USEC	RD-103	1	85M	11	11.00	C5	17	3	Alumina, Waste code 821	512	490	257.22	2539.9868
37713	USEC	RD-103	1	85M	11	11.00	C5	18	12	Alumina, Waste code 821	375	352	198.98	2735.2030
53063	USEC	RD-103	1	55P	7.4	7.40	C5	12	9	Alumina, Waste code 821	459	437	283.08	3134.3721
53062	USEC	RD-103	1	55P	7.4	7.40	C5	13	9	Alumina, Waste code 821	426	404	281.57	3372.3126
53075	USEC	RD-103	1	55P	7.4	7.40	C5	14	3	Alumina, Waste code 821	306	284	252.28	4298.2066
45141	USEC	RD-103	1	55P	7.4	7.40	C5	2	13C	Alumina, Waste code 821	324	302	3.74	59.9222
49777	USEC	RD-103	1	85M	11	11.00	C5	18	4	Alumina, Waste code 821	600		327.6	#DIV/0!
48369	USEC	RD-103	1	55P	7.4	7.40	C5	3	3C	Alumina, Waste code 823	417	395	133.47	1634.9684
52083	USEC	RD-103	1	55P	7.4	7.40	C5	9	6B	Alumina, Waste code 823	465	442	180.4	1974.8634
52084	USEC	RD-103	1	55P	7.4	7.40	C5	9	8B	Alumina, Waste code 823	451	428	178.58	2018.8863
54514	USEC	RD-103	1	55P	7.4	7.40	C5	11	6	Alumina, Waste code 823	256	333	188.78	2743.0552
53067	USEC	RD-103	1	55P	7.4	7.40	C5	15	6	Alumina, Waste code 823	363	341	231.7	3287.7172
52076	USEC	RD-103	1	55P	7.4	7.40	C5	15	3	Alumina, Waste code 823	436	414	329.7	3853.3762
55277	USEC	RD-103	1	55P	7.4	7.40	C5	11	5	Alumina, Waste code 823	230.67	207.67	250.2	5829.5677
54524	USEC	RD-103	1	55P	7.4	7.40	C5	13	5	Alumina, Waste code 823, 827	304.24	281.24	233.55	4018.1448
55281	USEC	RD-103	1	55P	7.4	7.40	C5	11	7	Alumina, Waste code 823, 827	275.82	252.82	265.15	5074.6140
54523	USEC	RD-103	1	55P	7.4	7.40	C5	13	3	Alumina, Waste code 823, 827	222.39	199.39	252.07	6117.0298
54515	USEC	RD-103	1	55P	7.4	7.40	C5	11	4	Alumina, Waste code 827	329	307	243.57	3838.9126
47995	USEC	RD-103	1	85M	11	11.00	C5	1	14A	Alumina, Waste code 828	526	425	0	0.0000
47996	USEC	RD-103	1	85M	11	11.00	C5	1	14D	Alumina, Waste code 828	537	436	1	11.0978
52506	USEC	RD-103	1	85M	11	11.00	C5	1	12D	Alumina, Waste code 828	484	461	14.8	155.3401

53056	USEC	RD-103	1	85M	11	11.00	C5	1	13D	Alumina, Waste code 828	480	379	13	165.9690
53058	USEC	RD-103	1	85M	11	11.00	C5	18	10	Alumina, Waste code 828	540	439	15.21	167.6438
52077	USEC	RD-103	1	85M	11	11.00	C5	1	12B	Alumina, Waste code 828	500	399	14	169.7766
50325	USEC	RD-103	1	85M	11	11.00	C5	1	13C	Alumina, Waste code 828	360	259	9.5	177.4789
50989	USEC	RD-103	1	85M	11	11.00	C5	1	13B	Alumina, Waste code 828	416	393	14.5	178.5247
50976	USEC	RD-103	1	55P	7.4	7.40	C5	5	2C	Alumina, Waste code 828	406	384	15	189.0092
50990	USEC	RD-103	1	85M	11	11.00	C5	7	4A	Alumina, Waste code 828	500	399	17.13	207.7339
52078	USEC	RD-103	1	85M	11	11.00	C5	7	5A	Alumina, Waste code 828	445	344	17.22	242.2130
52079	USEC	RD-103	1	85M	11	11.00	C5	7	4B	Alumina, Waste code 828	496	395	20.36	249.4040
50988	USEC	RD-103	1	55P	7.4	7.40	C5	9	2B	Alumina, Waste code 828	429	407	21	249.6593
54512	USEC	RD-103	1	85M	11	11.00	C5	17	4	Alumina, Waste code 828	341	240	16	322.5756
50977	USEC	RD-103	1	55P	7.4	7.40	C5	3	3D	Alumina, Waste code 828	436	414	28	327.2506
48466	USEC	RD-103	1	85M	11	11.00	C5	7	3B	Alumina, Waste code 828	492	391	27	334.1256
50978	USEC	RD-103	1	85M	11	11.00	C5	7	2B	Alumina, Waste code 828	495	394	28	343.8623
50980	USEC	RD-103	1	55P	7.4	7.40	C5	6	2B	Alumina, Waste code 828	417	395	29.73	364.1838
48296	USEC	RD-103	1	85M	11	11.00	C5	6	3B	Alumina, Waste code 828	494	393	30	369.3614
55292	USEC	RD-103	1	55P	7.4	7.40	C5	4	7A	Alumina, Waste code 828	217	194	18	448.9455
48297	USEC	RD-103	1	85M	11	11.00	C5	7	2A	Alumina, Waste code 828	494	393	42	517.1060
48302	USEC	RD-103	1	55P	7.4	7.40	C5	7	1A	Alumina, Waste code 828	430	407	62	737.0893
52080	USEC	RD-103	1	85M	11	11.00	C5	7	8A	Alumina, Waste code 828	490	389	67.71	842.2209
52081	USEC	RD-103	1	55P	7.4	7.40	C5	6	2C	Alumina, Waste code 828	415	392	83	1024.5068
48285	USEC	RD-103	1	55P	7.4	7.40	C5	6	3C	Alumina, Waste code 828	410	388	100	1247.0707
50991	USEC	RD-103	1	55P	7.4	7.40	C5	5	6D	Alumina, Waste code 828	417	395	137	1678.2099
48308	USEC	RD-103	1	55P	7.4	7.40	C5	6	2A	Alumina, Waste code 828	522	499	188.98	1832.4752
53061	USEC	RD-103	1	55P	7.4	7.40	C5	13	4	Alumina, Waste code 828	411	389	275.06	3421.3747
53060	USEC	RD-103	1	55P	7.4	7.40	C5	14	10	Alumina, Waste code 828	416	394	309.82	3804.8368
52082	USEC	RD-103	1	85M	11	11.00	C5	7	8B	Alumina, Waste code 828	515		125.4	#DIV/0!
53074	USEC	RD-103	1	85M	11	11.00	C5	2	10B	Alumina, Waste code 828	540		14.5	#DIV/0!
54502	USEC	RD-103	1	85M	11	11.00	C5	18	5	Alumina, Waste code 828	435		29.4	#DIV/0!
56047	USEC	RD-103	1	55P	7.4	7.40	C5	16	9	Alumina, Waste code 841, 842	302.06	279.06	250.77	4348.1127
53065	USEC	RD-103	1	55P	7.4	7.40	C5	14	4	Alumina, Waste code 846	305	283	255.05	4360.7551
58053	USEC	RD-103	1	55M	7.4	7.40	C5	2	5A	DAW and Alumina	217	153	15	474.3759
54077	USEC	RD-103	1	5M	0.65	0.65	C5	1	12A	Excess Alumina samples	17	12	0.5	201.6098
54078	USEC	RD-103	1	5M	0.65	0.65	C5	2	14B	Excess Alumina samples	10	5	0.5	483.8634
54082	USEC	RD-103	1	5M	0.65	0.65	C5	1	13A	Excess Alumina samples	27	22	2.68	589.4336
51355	USEC	RD-103	1	30M	4	4.00	C5	2	4B	Excess Alumina samples	60	23	4.9	1030.8395
61435B	USEC	RD-103	1	5M	0.65	0.65	C5	19	12C	Filter Media, Alumina trap material	43	38	100	12733.2483

61435A	USEC	RD-103	1	5M	0.65	0.65	C5	19	12B	Filter Media, Alumina trap material	39	34	100	14231.2775
61435C	USEC	RD-103	1	5M	0.65	0.65	C5	19	12A	Filter Media, Alumina trap material	24	19	100	25466.4966
62135	USEC	RD-103	1	55P	7.4	7.40	C5	1	10C	Magnesium Fluoride Pellets and powder unused	466	402	1	12.0364
53777	USEC	RD-103	1	55M	7.4	7.40	C6	2	9D	NAF Powder/Dust	367	303	1	15.9691
62142	USEC	RD-103	1	5M	0.65	0.65	C5	2	3A	New Alumina from floor sweeping X-760	22.8	17.8	1	271.8334
49797	USEC	RD-103	1	55M	7.4	7.40	C5	17	7	Sample jars of Alumina	338	274	251	4432.4716
53064	USEC	RD-103	1	55P	7.4	7.40	C5	1	11B	Sodium Fluoride	430	407	4.5	53.4984
48460	USEC	RD-103	1	55P	7.4	7.40	C5	2	12A	Sodium Fluoride	471	449	5.66	60.9948
48461	USEC	RD-103	1	55P	7.4	7.40	C5	1	14B	Sodium Fluoride	473	451	6.89	73.9206
50992	USEC	RD-103	1	55P	7.4	7.40	C5	5	6B	Sodium Fluoride	481	459	16.8	177.1003
48455	USEC	RD-103	1	55P	7.4	7.40	C5	3	3B	Sodium Fluoride	469	447	35.44	383.6268
50995	USEC	RD-103	1	55P	7.4	7.40	C5	5	6A	Sodium Fluoride	477	454	36.7	391.1407
48458	USEC	RD-103	1	55P	7.4	7.40	C5	3	3A	Sodium Fluoride	462	440	42.96	472.4267
50993	USEC	RD-103	1	55P	7.4	7.40	C5	5	6C	Sodium Fluoride	483	461	50.24	527.3167
48462	USEC	RD-103	1	55P	7.4	7.40	C5	3	5C	Sodium Fluoride	465	443	63.9	697.9430
48457	USEC	RD-103	1	55P	7.4	7.40	C5	3	4D	SOdium Fluoride	470	448	74.56	805.2870
53072	USEC	RD-103	1	55P	7.4	7.40	C5	7	6A	Sodium Fluoride	358	336	70.01	1008.1928
45139	USEC	RD-103	1	55P	7.4	7.40	C5	8	9C	Used Alumina	367	344	66.07	929.3272
45140	USEC	RD-103	1	55P	7.4	7.40	C5	9	7B	Used Alumina	400	378	76.22	975.6633
45137	USEC	RD-103	1	85M	11	11.00	C5	7	3A	Used Alumina	462	361	74.66	1000.6993
47363	USEC	RD-103	1	55M	7.4	7.40	C5	2	13D	Vent sampler alumina trap change outs	469	405	0.5	5.9736
49160	USEC	RD-103	1	55M	7.4	7.40	C5	4	2A	Vent sampler alumina trap change outs	456	392	0.5	6.1717
52294	USEC	RD-103	1	55M	7.4	7.40	C5	2	4D	Vent sampler alumina trap change outs	400	336	5	72.0035
52295	USEC	RD-103	1	55M	7.4	7.40	C5	2	4C	Vent sampler alumina trap change outs	330	266	4	72.7614
53185	USEC	RD-103	1	55M	7.4	7.40	C5	2	5B	Vent sampler alumina trap change outs	336	272	5	88.9455
54432	USEC	RD-103	1	55M	7.4	7.40	C5	2	11C	Vent sampler alumina trap change outs	330	266	10	181.9035
54433	USEC	RD-103	1	55M	7.4	7.40	C5	2	11D	Vent sampler alumina trap change outs	330	266	10	181.9035
65319	USEC	RD-103	1	55	7.4	7.4	S3-3			Alumina	108.45	44.45	47.62	5183.7068

65320	USEC	RD-103	1	55	7.4	7.4	S3-3			Alumina	99.18	35.18	41.5	5707.8831
64760	USEC	RD-103	1	55	7.4	7.4	S3-3			Alumina	223.24	159.24	26	790.0307
64762	USEC	RD-103	1	55	7.4	7.4	S3-3			Alumina	238.24	174.24	25	694.2485
64761	USEC	RD-103	1	55	7.4	7.4	S3-3			Alumina	225.68	161.68	23	688.3263
65759	USEC	RD-103	1	55	7.4	7.4	S3-3			Alumina	226.28	162.28	25	745.4145
65324	USEC	RD-103	1	55	7.4	7.4	S3-3			Alumina	89.12	25.12	43.8	8436.7908
65323	USEC	RD-103	1	55	7.4	7.4	S3-3			Alumina	105.91	41.91	59	6811.7258
Total			260		1893.45									
62203A	USEC	RD-104	1	20	2.7	2.70	N3			Sample Returns	95	82	0.5	29.5039
62203B	USEC	RD-104	1	20	2.7	2.70	N3			Sample Returns	63	50	0.5	48.3863
62203D	USEC	RD-104	1	20	2.7	2.70	N3			Sample Returns	31	18	0.5	134.4065
62203C	USEC	RD-104	1	20	2.7	2.70	N3			Sample Returns	16	3	0.5	806.4391
47929	USEC	RD-114	1	5M	0.65	0.65	N3	5	1D	4 gunk samples	11	6	8.24	6645.0579
Sample Returns			5	5	3.25									
Total			10		14.7									
58999	USEC	RD-105	1	5M	0.65	0.65	C6	5	16B	Excess U Standard	12	7	0	0.0000
59278A	USEC	RD-105	1	5M	0.65	0.65	C6	5	16G	Radioactive sources	68	63	0	0.0000
59278B	USEC	RD-105	1	5M	0.65	0.65	C6	5	16E	Radioactive sources	21	16	0	0.0000
59278C	USEC	RD-105	1	5M	0.65	0.65	C6	5	16I	Radioactive sources	86	81	0	0.0000
59278D	USEC	RD-105	1	5M	0.65	0.65	C6	5	16H	Radioactive sources	31	26	0	0.0000
61667	USEC	RD-105	1	5M	0.65	0.65	C6	5	16D	Radioactive sources	6	1	0	0.0000
61556	USEC	RD-105	1	30M	4	4.00	C6	1	6C	Smoke detectors	85	48	1	100.8049
60707	USEC	RD-105	1	5M	0.65	0.65	C6	5	16A	Smoke head sources	25	20	0	0.0000
63106	USEC	RD-105	1	5	0.65	0.65	C6			Smoke head sources				#DIV/0!
63235	USEC	RD-105	1	55	7.4	7.4	C6	2	13D	Smokeheads	119	55	0	0.0000
61466	USEC	RD-105	1	5	0.65	0.65	C6	5	17C	Smokeheads	8		1	#DIV/0!
62915A	USEC	RD-105	1	5	0.65	0.65	C6	5	17A	Sources	51	46	0	0.0000
62915B	USEC	RD-105	1	5	0.65	0.65	C6	5	17B	Sources	55	50	0	0.0000
61179	USEC	RD-105	1	5M	0.65	0.65	C6	5	16F	U-233 Standard	42	37	0	0.0000
Total			14		19.2									
19573	USEC	RD-107	1	85M	11	11.00	C6	3	10A	absorbal to soak up water, some grease and new PCB oil	460	318	5	76.0792
Total			1		11									
48548A	USEC	RD-107	1	55M	7.4	7.40	C6	2	7A	Black Beauty sand from sand blasting	891	827	1	5.8508
48548D	USEC	RD-107	1	55M	7.4	7.40	C6	2	1A	Black Beauty sand from sand blasting	624	560	1	8.6404
48548B	USEC	RD-107	1	85M	11	11.00	C6	1	10B	Black Beauty sand from sand blasting	613	471	1	10.2731

56373	USEC	RD-107	1	30M	4	4	C6	1	11A	Blasting media	460	423	1	11.4389
48548C	USEC	RD-107	1	55M	7.4	7.40	C6	2	7D	Black Beauty sand from sand blasting	321	257	1	18.8274
49792A	USEC	RD-107	1	55M	7.4	7.40	C6	1	3B	Sand bags	396	332	2	29.1484
54976B	USEC	RD-107	1	85M	11	11.00	C6	5	12A	Black Beauty sand from sand blasting	415	273	3	53.1718
54976A	USEC	RD-107	1	55M	7.4	7.40	C6	4	10B	Black Beauty sand from sand blasting	330	266	3	54.5711
49792C	USEC	RD-107	1	55M	7.4	7.40	C6	1	3A	Sand bags	503	439	6	66.1317
49792B	USEC	RD-107	1	55M	7.4	7.40	C6	1	3D	Sand bags	611	547	8	70.7661
50145A	USEC	RD-107	1	85M	11	11.00	C6	1	10A	Filters from sand blasting unit	665	523	15	138.7754
54301	USEC	RD-107	1	55M	7.4	7.40	C6	2	7B	Blasting media	541	477	15	152.1583
50145B	USEC	RD-107	1	85M	11	11.00	C6	2	10B	Filters from sand blasting unit	586	444	15	163.4674
58806	USEC	RD-107	1	55M	7.4	7.4	C6	4	10C	Blasting media	177	113	15	642.2966
54569B	USEC	RD-107	1	5M	0.65	0.65	C6	5	16B	Blasting media	65	60	15	1209.6586
54569D	USEC	RD-107	1	5M	0.65	0.65	C6	5	15D	Blasting media	65	60	15	1209.6586
54569A	USEC	RD-107	1	5M	0.65	0.65	C6	5	15E	Blasting media	60	55	15	1319.6276
49813A	USEC	RD-107	1	5M	0.65	0.65	C6	5	14F	Blasting media	52	47	15	1544.2450
49813B	USEC	RD-107	1	5M	0.65	0.65	C6	5	14A	Blasting media	36	31	15	2341.2747
54569C	USEC	RD-107	1	5M	0.65	0.65	C6	5	15C	Blasting media	20	15	15	4838.6344
50137	USEC	RD-107	1	30M	4	4.00	C6	5	13C	Blasting media (Glass beads)	291	254	1	19.0497
57898	USEC	RD-107	1	55M	7.4	7.4	C6	1	2D	Blasting media (Glass beads)	402	338	15	214.7323
53753	USEC	RD-107	1	55M	7.4	7.40	N4	6	2A	Blasting media (Glass beads)	368	304	17	270.5815
49847	USEC	RD-107	1	5M	0.65	0.65	C6	5	13D	Blasting media (Glass beads)	50	45	15	1612.8781
56533A	USEC	RD-107	1	5M	0.65	0.65	C6	5	14D	Blasting media (Glass beads)	47	42	15	1728.0837
59605B	USEC	RD-107	1	5M	0.65	0.65	C6	5	14K	Blasting media (Glass beads)	45	40	15	1814.4879
56533B	USEC	RD-107	1	5M	0.65	0.65	C6	5	14J	Blasting media (Glass beads)	44	39	15	1861.0132
57425A	USEC	RD-107	1	5M	0.65	0.65	C6	5	14I	Blasting media (Glass beads)	42	37	15	1961.6085
59605A	USEC	RD-107	1	5M	0.65	0.65	C6	5	14H	Blasting media (Glass beads)	37	32	15	2268.1099
57425B	USEC	RD-107	1	5M	0.65	0.65	C6	5	14C	Blasting media (Glass beads)	28	23	15	3155.6311
59553A	USEC	RD-107	1	5M	0.65	0.65	C6	5	14E	Blasting media (Glass beads) possible metals	47	42	15	1728.0837
59553B	USEC	RD-107	1	5M	0.65	0.65	C6	5	14B	Blasting media (Glass beads) possible metals	47	42	15	1728.0837
57418	USEC	RD-107	1	85M	11	11	C6	1	6B	Ceramic tumbling media	788	646	15	112.3522
Total			33		154.15									
55026	USEC	RD-107	1	55M	7.4	7.40	N4	6	3C	Concrete	483	419	69	796.8157
55028	USEC	RD-107	1	55M	7.4	7.4	N4	6	3B	Concrete	379	315	63	967.7269
55027	USEC	RD-107	1	55M	7.4	7.4	N4	6	4C	Concrete	424	360	236	3171.9936

62501	USEC	RD-107	1	30	4	4	C6	2	12D	Concrete			1	#DIV/0!
52120	USEC	RD-107	1	55M	7.4	7.40	C6	3	6B	Concrete	473	409	10	118.3040
55034	USEC	RD-107	1	55M	7.4	7.4	N4	6	4A	Concrete and ceramic tile	252	188	32	823.5973
55033	USEC	RD-107	1	55M	7.4	7.4	N4	6	4B	Concrete and ceramic tile	327	263	60	1103.8710
55035	USEC	RD-107	1	55M	7.4	7.4	N4	6	3A	Concrete and ceramic tile	494	430	189	2126.7486
32902D	USEC	RD-107	1	5M	0.65	0.65	C6	5	13G	Concrete saturated with lube oil, < 50 ppm PCB	52	47	15	1544.2450
32902C	USEC	RD-107	1	5M	0.65	0.65	C6	5	13E	Concrete saturated with lube oil, < 50 ppm PCB	47	42	15	1728.0837
32902B	USEC	RD-107	1	5M	0.65	0.65	C6	5	13B	Concrete saturated with lube oil, < 50 ppm PCB	41	36	15	2016.0977
32902A	USEC	RD-107	1	5M	0.65	0.65	C6	5	13A	Concrete saturated with lube oil, < 50 ppm PCB	40	35	15	2073.7004
Total			12		58.4									
55932	USEC	RD-107	1	85M	11	11	N4	3	5	rust, metal dirt	1092	950	350	1782.6548
54632	USEC	RD-107	1	55M	7.4	7.40	C6	4	10D	Soils	350	286	15	253.7745
55645	USEC	RD-108	1	B-25 box	90	90.00	NR			Soils	2587			#DIV/0!
55646	USEC	RD-108	1	B-25 box	90	90.00	NR			Soils	2581			#DIV/0!
Total			4		198.4									
62147A	USEC	RD-109	1	55	7.4	7.40	C6	2	13C	Welding slag for #3 econimizer tubes			1	#DIV/0!
62147B	USEC	RD-109	1	55	7.4	7.40	C6	2	13B	Welding slag for #3 econimizer tubes			1	#DIV/0!
62147C	USEC	RD-109	1	55	7.4	7.40	C6	2	13A	Welding slag for #3 econimizer tubes			1	#DIV/0!
Total			3		22.2									
61474	USEC	RD-111	1	5	0.65	0.65	N3			Grease /Oil Mixture				#DIV/0!
62217	USEC	RD-111	1	20	2.7	2.70	N3			Misc. grease from XT-847 sorting				#DIV/0!
19628	USEC	RD-111	1	5	0.65	0.65	N3	5	1C	Used Oil	42.00	37.00	15	1961.6085
45474	USEC	RD-111	1	5	0.65	0.65	N3	3	2B	Used Oil	46.00	41.00	20.8	2454.7218
45488	USEC	RD-111	1	55	7.4	7.40	N3	4	2A	Used Oil	376.00	329.00	167.2	2459.0263
44821	USEC	RD-111	1	5	0.65	0.65	N3	3	5F	Used Oil	50.00	45.00	35.7	3838.6499
44019	USEC	RD-111	1	5	0.65	0.65	N3	3	2A	Used Oil	44.00	39.00	31.38	3893.2396
43990	USEC	RD-111	1	5	0.65	0.65	N3	3	4A	Used Oil	45.00	40.00	33.76	4083.8074
44785	USEC	RD-111	1	5	0.65	0.65	N3	3	1E	Used Oil	46.00	41.00	38.1	4496.3895
44372	USEC	RD-111	1	5	0.65	0.65	N3	3	5A	Used Oil	44.00	39.00	36.65	4547.0756
44014	USEC	RD-111	1	5	0.65	0.65	N3	3	1C	Used Oil	45.00	40.00	39.09	4728.5554
44387	USEC	RD-111	1	5	0.65	0.65	N3	3	5B	Used Oil	45.00	40.00	39.24	4746.7003
43698	USEC	RD-111	1	5	0.65	0.65	N3	3	2C	Used Oil	45.00	40.00	46.2	5588.6227

44388	USEC	RD-111	1	5	0.65	0.65	N3	3	5G	Used Oil	49.00	44.00	52.25	5745.8783
44021	USEC	RD-111	1	5	0.65	0.65	N3	3	1B	Used Oil	44.00	39.00	46.4	5756.7342
44379	USEC	RD-111	1	5	0.65	0.65	N3	3	1G	Used Oil	52.00	47.00	60.6	6238.7498
43981	USEC	RD-111	1	5	0.65	0.65	N3	3	2G	Used Oil	51.00	46.00	59.9	6300.7434
44024	USEC	RD-111	1	5	0.65	0.65	N3	4	6A	Used Oil	50.00	45.00	63.8	6860.1083
44001	USEC	RD-111	1	5	0.65	0.65	N3	3	4C	Used Oil	51.00	46.00	71.2	7489.3645
44025	USEC	RD-111	1	5	0.65	0.65	N3	4	6C	Used Oil	48.00	43.00	70.1	7888.0993
44398	USEC	RD-111	1	5	0.65	0.65	N3	3	1F	Used Oil	44.00	39.00	73.4	9106.5580
44786	USEC	RD-111	1	5	0.65	0.65	N3	3	4D	Used Oil	54.00	49.00	92.7	9153.9062
43685	USEC	RD-111	1	5	0.65	0.65	N3	3	4E	Used Oil	53.00	48.00	98.5	9929.2809
61434B	USEC	RD-111	1	5	0.65	0.65	N3	1	2A	Used Oil	42.00	37.00	100	13077.3902
61433A	USEC	RD-111	1	5	0.65	0.65	N3	1	2B	Used Oil	41.00	36.00	100	13440.6510
61433B	USEC	RD-111	1	5	0.65	0.65	N3	1	2C	Used Oil	41.00	36.00	100	13440.6510
61434A	USEC	RD-111	1	5	0.65	0.65	N3	1	2D	Used Oil	24.00	19.00	100	25466.4966
61413	USEC	RD-111	1	5	0.65	0.65	N3	1	1	Used Oil	43.00	38.00	350	44566.3691
44009	USEC	RD-111	1	5 (Overpack)	0.65	0.65	N3	3	3B	Used Oil	49.00		45.04	#DIV/0!
44016	USEC	RD-111	1	5 (Overpack)	0.65	0.65	N3	3	3A	Used Oil	48.00		24.66	#DIV/0!
44358	USEC	RD-111	1	5 (Overpack)	0.65	0.65	N3	3	3D	Used Oil	42.00		20.88	#DIV/0!
50062	USEC	RD-111	1	55	7.4	7.40	N3	3	6D	Used Seal Exhaust Oil	398.00	351.00	31.2	430.1008
50063	USEC	RD-111	1	55	7.4	7.40	N3	4	5B	Used Seal Exhaust Oil	404.00	357.00	52.8	715.6300
54042	USEC	RD-111	1	55	7.4	7.40	N3	2	5B	Used Seal Exhaust Oil	390.00	343.00	54	761.7675
50046	USEC	RD-111	1	55	7.4	7.40	N3	4	5C	Used Seal Exhaust Oil	387.00	340.00	58.6	833.9529
50066	USEC	RD-111	1	55	7.4	7.40	N3	2	6A	Used Seal Exhaust Oil	384.00	337.00	58.3	837.0694
44761	USEC	RD-111	1	55	7.4	7.40	N3	4	5A	Used Seal Exhaust Oil	407.00	360.00	68.5	920.6846
50067	USEC	RD-111	1	55	7.4	7.40	N3	2	6B	Used Seal Exhaust Oil	361.00	314.00	60.5	932.2846
50041	USEC	RD-111	1	55	7.4	7.40	N3	3	6A	Used Seal Exhaust Oil	395.00	348.00	75.3	1046.9804
50040	USEC	RD-111	1	55	7.4	7.40	N3	3	6B	Used Seal Exhaust Oil	365.00	318.00	75.7	1151.8384
44760	USEC	RD-111	1	55	7.4	7.40	N3	2	6D	Used Seal Exhaust Oil	397.00	350.00	90.2	1246.9852
39440	USEC	RD-111	1	55	7.4	7.40	N3	4	3A	Used Seal Exhaust Oil	317.00	270.00	78.612	1408.7953
50038	USEC	RD-111	1	55	7.4	7.40	N3	3	6C	Used Seal Exhaust Oil	404.00	357.00	106.2	1439.3921
38526B	USEC	RD-111	1	55	7.4	7.40	N3	2	5C	Used Seal Exhaust Oil	392.00	345.00	113.6	1593.2431
38526A	USEC	RD-111	1	55	7.4	7.40	N3	2	5D	Used Seal Exhaust Oil	381.00	334.00	121.8	1764.5080
38534	USEC	RD-111	1	55	7.4	7.40	N3	4	4B	Used Seal Exhaust Oil	412.00	365.00	144	1908.9407
39443	USEC	RD-111	1	55	7.4	7.40	N3	4	5D	Used Seal Exhaust Oil	331.00	284.00	112.24	1912.2828
44759	USEC	RD-111	1	55	7.4	7.40	N3	4	2C	Used Seal Exhaust Oil	402.00	355.00	140.3	1912.2828
45225	USEC	RD-111	1	5	0.65	0.65	N3	2	1B	Used Seal Exhaust Oil	48.00	43.00	17.5	1969.2117

39451	USEC	RD-111	1	55	7.4	7.40	N3	4	3B	Used Seal Exhaust Oil	359.00	312.00	165.6	2568.1982
44766	USEC	RD-111	1	55	7.4	7.40	N3	4	4A	Used Seal Exhaust Oil	391.00	344.00	184.6	2596.5462
45301	USEC	RD-111	1	5	0.65	0.65	N3	2	1I	Used Seal Exhaust Oil	45.00	40.00	21.6	2612.8626
44822	USEC	RD-111	1	5	0.65	0.65	N3	2	1E	Used Seal Exhaust Oil	44.00	39.00	21.5	2667.4523
43688	USEC	RD-111	1	5	0.65	0.65	N3	2	2D	Used Seal Exhaust Oil	47.00	42.00	28.8	3317.9207
45455	USEC	RD-111	1	5	0.65	0.65	N3	2	1A	Used Seal Exhaust Oil	48.00	43.00	29.6	3330.7809
45102	USEC	RD-111	1	5	0.65	0.65	N3	4	6F	Used Seal Exhaust Oil	45.00	40.00	28.7	3471.7202
44007	USEC	RD-111	1	5	0.65	0.65	N3	2	4A	Used Seal Exhaust Oil	50.00	45.00	33	3548.3319
45112	USEC	RD-111	1	5	0.65	0.65	N3	2	1D	Used Seal Exhaust Oil	43.00	38.00	31.4	3998.2400
44384	USEC	RD-111	1	5	0.65	0.65	N3	2	4D	Used Seal Exhaust Oil	46.00	41.00	34	4012.5261
43697	USEC	RD-111	1	5	0.65	0.65	N3	3	2D	Used Seal Exhaust Oil	44.00	39.00	32.4	4019.7885
44013	USEC	RD-111	1	5	0.65	0.65	N3	3	1D	Used Seal Exhaust Oil	46.00	41.00	36.94	4359.4915
43998	USEC	RD-111	1	5	0.65	0.65	N3	3	1A	Used Seal Exhaust Oil	47.00	42.00	39	4493.0176
44804	USEC	RD-111	1	5	0.65	0.65	N3	2	3E	Used Seal Exhaust Oil	50.00	45.00	43.7	4698.8516
44825	USEC	RD-111	1	5	0.65	0.65	N3	4	6D	Used Seal Exhaust Oil	46.00	41.00	40.1	4732.4204
43994	USEC	RD-111	1	5	0.65	0.65	N3	2	2A	Used Seal Exhaust Oil	46.00	41.00	41.1	4850.4359
45105	USEC	RD-111	1	5	0.65	0.65	N3	4	6B	Used Seal Exhaust Oil	48.00	43.00	44.5	5007.4239
44811	USEC	RD-111	1	5	0.65	0.65	N3	2	4E	Used Seal Exhaust Oil	49.00	44.00	45.6	5014.5847
44378	USEC	RD-111	1	5	0.65	0.65	N3	2	4C	Used Seal Exhaust Oil	56.00	51.00	53.8	5104.2849
43681	USEC	RD-111	1	5	0.65	0.65	N3	2	3B	Used Seal Exhaust Oil	48.00	43.00	47.5	5345.0031
44385	USEC	RD-111	1	5	0.65	0.65	N3	3	5C	Used Seal Exhaust Oil	50.00	45.00	52.6	5655.8259
45306	USEC	RD-111	1	5	0.65	0.65	N3	2	1C	Used Seal Exhaust Oil	49.00	44.00	54	5938.3240
43979	USEC	RD-111	1	5	0.65	0.65	N3	2	1H	Used Seal Exhaust Oil	45.00	40.00	49.4	5975.7134
44351	USEC	RD-111	1	5	0.65	0.65	N3	3	5D	Used Seal Exhaust Oil	47.00	42.00	51.9	5979.1696
44824	USEC	RD-111	1	5	0.65	0.65	N3	2	1F	Used Seal Exhaust Oil	45.00	40.00	50.6	6120.8725
45208	USEC	RD-111	1	5	0.65	0.65	N3	2	2C	Used Seal Exhaust Oil	52.00	47.00	60.9	6269.6347
44002	USEC	RD-111	1	5	0.65	0.65	N3	2	2E	Used Seal Exhaust Oil	52.00	47.00	62	6382.8794
44394	USEC	RD-111	1	5	0.65	0.65	N3	3	5E	Used Seal Exhaust Oil	50.00	45.00	60.6	6516.0276
44823	USEC	RD-111	1	5	0.65	0.65	N3	3	4B	Used Seal Exhaust Oil	47.00	42.00	57.7	6647.3620
44395	USEC	RD-111	1	5	0.65	0.65	N3	2	2F	Used Seal Exhaust Oil	52.00	47.00	67.2	6918.2176
45209	USEC	RD-111	1	5	0.65	0.65	N3	2	4F	Used Seal Exhaust Oil	53.00	48.00	69.1	6965.6174
45309	USEC	RD-111	1	5	0.65	0.65	N3	2	1G	Used Seal Exhaust Oil	51.00	46.00	67.2	7068.6137
44023	USEC	RD-111	1	5	0.65	0.65	N3	2	3C	Used Seal Exhaust Oil	49.00	44.00	65.4	7191.9702
44790	USEC	RD-111	1	5	0.65	0.65	N3	3	2F	Used Seal Exhaust Oil	50.00	45.00	68.8	7397.7343
44397	USEC	RD-111	1	5	0.65	0.65	N3	2	2B	Used Seal Exhaust Oil	51.00	46.00	75.8	7973.2279
45104	USEC	RD-111	1	5	0.65	0.65	N3	4	6E	Used Seal Exhaust Oil	49.00	44.00	73.2	8049.7281
43695	USEC	RD-111	1	5	0.65	0.65	N3	4	1A	Used Seal Exhaust Oil	49.00	44.00	73.7	8104.7126
44393	USEC	RD-111	1	5	0.65	0.65	N3	2	3A	Used Seal Exhaust Oil	52.00	47.00	80.7	8308.0381
44383	USEC	RD-111	1	5	0.65	0.65	N3	2	4B	Used Seal Exhaust Oil	49.00	44.00	77.2	8489.6039

44380	USEC	RD-111	1	5	0.65	0.65	N3	3	2E	Used Seal Exhaust Oil	51.00	46.00	82.3	8656.9480
44399	USEC	RD-111	1	5	0.65	0.65	N3	2	3D	Used Seal Exhaust Oil	50.00	45.00	87	9354.6931
44389	USEC	RD-111	1	5 (Overpack)	0.65	0.65	N3	3	3C	Used Seal Exhaust Oil	48.00		30.22	#DIV/0!
54043	USEC	RD-111	1	55	7.4	7.40	N3	2	5A	Used Seal Exhaust Oil (10 buckets)	372.00	325.00	19	282.8740
Total			92		203.6									
General HMS Waste			8		118.4									
Total			8		118.4									
Sewage Sludge		RD-114	14	B-25 box	1260									
Total			14		1260									
54086B	USEC	RD-114	1	85M	7.4	7.40	C6	1	4C	Ion Exchange Resin	238	174	0.004	0.1112
54086A	USEC	RD-114	1	55M	7.4	7.40	C6	1	4D	Ion Exchange Resin	328	264	0.25	4.5820
57673B	USEC	RD-114	1	55M	7.4	7.40	N4	2	7A	Ion Exchange Resin	278	198	6.76	165.1978
59403	USEC	RD-114	1	55M	7.4	7.4	C6	4	6B	Ion Exchange Resin	307	243	8.63	171.8412
19940C	USEC	RD-114	1	85M	11	11.00	C6	1	9A	Ion Exchange Resin	340	276	15	262.9693
53003A	USEC	RD-114	1	55M	7.4	7.40	C6	4	6C	Ion Exchange Resin	265	201	12.03	289.5959
53003B	USEC	RD-114	1	55M	7.4	7.40	C6	4	6A	Ion Exchange Resin	256	192	11.577	291.7545
53003C	USEC	RD-114	1	55M	7.4	7.40	C6	4	6D	Ion Exchange Resin	244	180	11.78	316.6617
58834C	USEC	RD-114	1	55M	7.4	7.4	C6	1	11C	Ion Exchange Resin	272	208	15	348.9400
58834A	USEC	RD-114	1	55M	7.4	7.4	C6	4	10A	Ion Exchange Resin	271	207	15	350.6257
58834B	USEC	RD-114	1	55M	7.4	7.4	C6	4	9A	Ion Exchange Resin	267	203	15	357.5346
19940B	USEC	RD-114	1	55M	7.4	7.40	C6	3	9D	Ion Exchange Resin	261	197	15	368.4239
57673C	USEC	RD-114	1	55M	7.4	7.40	N4	2	7B	Ion Exchange Resin	262	178	16.16	439.2828
57673A	USEC	RD-114	1	55M	7.4	7.40	N4	2	7D	Ion Exchange Resin	238	174	100	2780.8243
57673D	USEC	RD-114	1	55M	7.4	7.40	N4	2	7C	Ion Exchange Resin	236	172	100	2813.1595
63595	USEC	RD-114	1	55	7.4	7.4	N1			Ion Exchange Resin	309	245		0.0000
63596	USEC	RD-114	1	55	7.4	7.4	N1			Ion Exchange Resin	260	196		0.0000
63597	USEC	RD-114	1	55	7.4	7.4	N1			Ion Exchange Resin	232	168		0.0000
63612A	USEC	RD-114	1	55	7.4	7.4	N1			Ion Exchange Resin	259	195		0.0000
63612B	USEC	RD-114	1	55	7.4	7.4	N1			Ion Exchange Resin	225	161		0.0000
63612C	USEC	RD-114	1	55	7.4	7.4	N1			Ion Exchange Resin	229	165		0.0000
63613A	USEC	RD-114	1	55	7.4	7.4	N1			Ion Exchange Resin	230	166		0.0000
63613B	USEC	RD-114	1	55	7.4	7.4	N1			Ion Exchange Resin	265	201		0.0000
63613C	USEC	RD-114	1	55	7.4	7.4	N1			Ion Exchange Resin	222	158		0.0000
63634A	USEC	RD-114	1	55	7.4	7.4	N1			Ion Exchange Resin	304	240		0.0000
63634B	USEC	RD-114	1	55	7.4	7.4	N1			Ion Exchange Resin	301	237		0.0000
63634C	USEC	RD-114	1	55	7.4	7.4	N1			Ion Exchange Resin	248	184		0.0000
54087	USEC	RD-114	1	85M	11	11.00	C6	1	7B	Spent resin	360	282	0.003	0.0515
50103	USEC	RD-114	1	55M	7.4	7.40	C6	2	8B	Spent resin	340	276	0.56	9.8175

50104	USEC	RD-114	1	55M	7.4	7.40	C6	2	5B	Spent resin	268	204	1	23.7188
59402	USEC	RD-114	1	55M	7.4	7.4	C6	2	4D	Spent resin	278	214	8.9	201.2329
47039	USEC	RD-114	1	55M	7.4	7.40	C6	4	8D	Spent resin	309	245	10.35	204.4076
22405B	USEC	RD-114	1	85M	11	11.00	C6	1	9B	Spent resin	487	345	15	210.3754
50105	USEC	RD-114	1	55M	7.4	7.40	C6	2	2D	Spent resin	278	214	9.92	224.2956
46300	USEC	RD-114	1	55M	7.4	7.40	C6	2	2A	Spent resin	342	276	15	262.9693
37693	USEC	RD-114	1	55M	7.4	7.40	C6	1	5B	Spent resin	335	271	15	267.8211
45570	USEC	RD-114	1	55M	7.4	7.40	C6	1	4B	Spent resin	298	234	13.53	279.7723
45572	USEC	RD-114	1	55M	7.4	7.40	C6	1	4A	Spent resin	264	200	11.99	290.0761
21838A	USEC	RD-114	1	85M	11	11.00	C6	1	6A	Spent resin	356	214	15	339.1566
50100	USEC	RD-114	1	55M	7.4	7.40	C6	2	2C	Spent resin	267	203	15	357.5346
50099	USEC	RD-114	1	55M	7.4	7.40	C6	2	3C	Spent resin	265	201	15	361.0921
21838B	USEC	RD-114	1	85M	11	11.00	C6	5	12B	Spent resin	340	198	15	366.5632
51337	USEC	RD-114	1	55M	7.4	7.40	C6	2	3D	Spent resin	261	195	15	372.2026
22405A	USEC	RD-114	1	55M	7.4	7.40	C6	3	9B	Spent resin	258	194	15	374.1212
51339	USEC	RD-114	1	55M	7.4	7.40	C6	2	3B	Spent resin	258	194	15	374.1212
21838C	USEC	RD-114	1	55M	7.4	7.40	C6	1	5A	Spent resin	250	186	15	390.2124
51338	USEC	RD-114	1	55M	7.4	7.40	C6	2	3A	Spent resin	251	184	15	394.4539
37695	USEC	RD-114	1	85M	11	11.00	C6	1	12A	Spent resin	395		15	#DIV/0!
General Ion Exchange Resin			3	55	22.2									
Total			51		399									
58816	USEC	RD-114	1	55M	7.4	7.40	C6	1	1C	Liquid and sludge from V-12 tank	482	418	15	173.6352
Total			1		7.4									
52516	USEC	RD-114	1	B-25 box	90	90.00	N4	9	4	Micro and Ogru sludge	4781		327.97	#DIV/0!
22804	USEC	RD-114	1	55M	7.4	7.40	C6	4	7B	Micro Sludge	399	335	3	43.3311
22440	USEC	RD-114	1	55M	7.4	7.40	C6	4	8B	Micro Sludge	375	311	3	46.6749
41459	USEC	RD-114	1	55M	7.4	7.40	C6	2	5A	Micro Sludge	163	99	1	48.8751
25465	USEC	RD-114	1	55M	7.4	7.40	C6	1	2A	Micro Sludge	276	212	5	114.1187
41453	USEC	RD-114	1	55M	7.4	7.40	C6	2	6D	Micro Sludge	380	316	7.7	117.9034
44747	USEC	RD-114	1	55M	7.4	7.40	C6	1	2B	Micro Sludge	378	314	11.2	172.5882
44734	USEC	RD-114	1	55M	7.4	7.40	C6	2	8A	Micro Sludge	296	232	9.5	198.1337
41452	USEC	RD-114	1	55M	7.4	7.40	C6	2	1B	Micro Sludge	279	215	9.09	204.5730
53778	USEC	RD-114	1	55M	7.4	7.40	C6	1	11B	Micro Sludge	376	312	14.09	218.5140
46323	USEC	RD-114	1	55M	7.4	7.40	C6	1	1D	Micro Sludge	342	278	12.82	223.1341
25469	USEC	RD-114	1	55M	7.4	7.40	C6	1	2C	Micro Sludge	323	259	13.3	248.4704
43630	USEC	RD-114	1	55M	7.4	7.40	N4	3	8D	Micro Sludge	350	284	15.2	258.9692
46346	USEC	RD-114	1	55M	7.4	7.40	N4	6	5B	Micro Sludge	343	279	19.75	342.5198
22412	USEC	RD-114	1	55M	7.4	7.40	N4	3	7A	Micro Sludge	302	238	17.8	361.8811
25090	USEC	RD-114	1	55M	7.4	7.40	N4	3	7D	Micro Sludge	324	260	20.2	375.9247

38191	USEC	RD-114	1	55M	7.4	7.40	N4	3	2	Micro Sludge	172	108	9	403.2195
22411	USEC	RD-114	1	55M	7.4	7.40	N4	7	5	Micro Sludge	324	260	23	428.0330
25463	USEC	RD-114	1	55M	7.4	7.40	N4	6	5A	Micro Sludge	311	247	23.19	454.2831
38118	USEC	RD-114	1	55M	7.4	7.40	N4	7	9	Micro Sludge	144	80	8	483.8634
25081	USEC	RD-114	1	55M	7.4	7.40	N4	7	2	Micro Sludge	324	260	27	502.4736
42639	USEC	RD-114	1	55M	7.4	7.40	C6	2	6C	Micro Sludge	207	143	15	507.5491
46327	USEC	RD-114	1	55M	7.4	7.40	N4	6	2C	Micro Sludge	274	209	22.45	519.7480
38190	USEC	RD-114	1	55M	7.4	7.40	N4	7	6	Micro Sludge	161	97	11	548.7111
25456	USEC	RD-114	1	55M	7.4	7.40	N4	6	6B	Micro Sludge	170	109	21.2	941.0922
18989	USEC	RD-114	1	55M	7.4	7.40	N4	3	7C	Micro Sludge	250	186	37.5	975.5311
52368	USEC	RD-114	1	55M	7.4	7.40	N4	6	2D	Micro Sludge	318	257	52.82	994.4617
18991	USEC	RD-114	1	55M	7.4	7.40	N4	2	5C	Micro Sludge	222	158	38.5	1179.0343
46318	USEC	RD-114	1	55M	7.4	7.40	N4	3	7B	Micro Sludge	302	235	62.7	1290.9888
62012	USEC	RD-114	1	55	7.4	7.40	N4	9	1B	Micro Sludge	361	297	80.01	1303.4988
46331	USEC	RD-114	1	55M	7.4	7.40	N4	8	1A	Micro Sludge	315	249	86.49	1680.6967
56581	USEC	RD-114	1	55M	7.4	7.40	N4	8	7	Micro Sludge	355	293	106.18	1753.4682
25455	USEC	RD-114	1	55M	7.4	7.40	N4	8	1B	Micro Sludge	181	120	46.45	1872.9547
53001	USEC	RD-114	1	55M	7.4	7.40	N4	6	1A	Micro Sludge	368	308	121.17	1903.5627
46638	USEC	RD-114	1	55M	7.4	7.40	N4	6	2B	Micro Sludge	338	270	127.21	2279.7136
53793	USEC	RD-114	1	55M	7.4	7.40	N4	3	6B	Micro Sludge	352	292	142.67	2364.1369
46341	USEC	RD-114	1	55M	7.4	7.40	N4	6	7B	Micro Sludge	264	198	104.38	2550.7912
18756	USEC	RD-114	1	55M	7.4	7.40	N4	2	5A	Micro Sludge	284	220	119.4	2626.0588
56580	USEC	RD-114	1	55M	7.4	7.40	N4	3	3	Micro Sludge	351	291	160.365	2666.4866
18759	USEC	RD-114	1	55M	7.4	7.40	N4	2	5B	Micro Sludge	331	267	153	2772.7006
53013	USEC	RD-114	1	55M	7.4	7.40	N4	1	7	Micro Sludge	376	315	196.43	3017.3109
41454	USEC	RD-114	1	55M	7.4	7.40	C6	2	7C	Micro Sludge	322	258	166.58	3124.1074
57206	USEC	RD-114	1	55M	7.4	7.40	N4	1	8	Micro Sludge	425	365	249.03	3301.2743
53787	USEC	RD-114	1	55M	7.4	7.40	N4	6	1B	Micro Sludge	328	267	183.25	3320.8979
41339	USEC	RD-114	1	55M	7.4	7.40	C6	2	5D	Micro Sludge	282	218	155.94	3461.1773
13822	USEC	RD-114	1	55M	7.4	7.40	N4	8	2B	Micro Sludge	208	147	169.26	5571.3419
41458	USEC	RD-114	1	55M	7.4	7.40	N4	7	1	Micro Sludge	346	282	350	6005.3973
44750	USEC	RD-114	1	55M	7.4	7.40	N4	7	4	Micro Sludge	340	276	350	6135.9494
22414	USEC	RD-114	1	55M	7.4	7.40	N4	2	2	Micro Sludge	300	236	321.9	6599.8153
41342	USEC	RD-114	1	55M	7.4	7.40	N4	7	7	Micro Sludge	304	240	350	7056.3418
25460	USEC	RD-114	1	55M	7.4	7.40	N4	6	6C	Micro Sludge	184	123	215.6	8481.3786
24497	USEC	RD-114	1	55M	7.4	7.40	N4	11	3	Micro Sludge	154	93	228	11862.4584
56583	USEC	RD-114	1	55	7.4	7.40	N4			Micro Sludge	358			#DIV/0!
General Microsludge			2	55	14.8									
Total			55		489.6									

52985	USEC	RD-114	1	55M	7.4	7.40	C6	2	1D	Ogru sludge, gloves, absorbent	523	459	0.1065	1.1227
52984	USEC	RD-114	1	85M	11	11.00	C6	2	10A	Ogru sludge, gloves, absorbent	553	411	0.222	2.6136
46629	USEC	RD-114	1	55M	7.4	7.40	C6	2	2B	Oil and grease sludge	473	409	0.06	0.7098
49419	USEC	RD-114	1	55M	7.4	7.40	C6	1	8A	Oil and grease sludge	576	512	0.49	4.6307
49403	USEC	RD-114	1	55M	7.4	7.40	C6	4	9D	Oil and grease sludge	483	419	1	11.5481
53779	USEC	RD-114	1	55M	7.4	7.40	C6	2	9C	Oil and grease sludge	466	402	6.2173	74.8339
52982	USEC	RD-114	1	85M	11	11.00	N4	3	6A	Oil and grease sludge	588	446	15.856	172.0210
55070	USEC	RD-114	1	55M	7.4	7.40	C6	4	10C	Oil and grease sludge	303	239	9.09	184.0301
55970	USEC	RD-114	1	55M	7.4	7.40	C6	4	8A	Oil and grease sludge	90	26	1	186.1013
53764	USEC	RD-114	1	55M	7.4	7.40	C6	2	1C	Oil and grease sludge	325	261	13.84	256.5774
53780	USEC	RD-114	1	55M	7.4	7.40	N4	3	8B	Oil and grease sludge	501	437	32.967	365.0235
46324	USEC	RD-114	1	55M	7.4	7.40	N4	6	6A	Oil and grease sludge	362	298	27.472	446.0636
55045	USEC	RD-114	1	55M	7.4	7.40	N4	3	8A	Oil and grease sludge	355	291	46.058	765.8344
50086	USEC	RD-114	1	55M	7.4	7.40	N4	3	8C	Oil and grease sludge	420	356	58.9	800.5493
62255	USEC	RD-114	1	55M	7.4	7.40	N4	11	2B	Oil and grease sludge	418	354	70.91	969.2304
59905	USEC	RD-114	1	55M	7.4	7.4	N4	2	6A	Oil and grease sludge	412	348	185.609	2580.7301
49417	USEC	RD-114	1	85M	11	11.00	N4	5	2	Oil and grease sludge	530	388	250.66	3125.9074
50084	USEC	RD-114	1	55M	7.4	7.40	N4	7	3	Oil and grease sludge	481	417	350	4061.2039
64071	USEC	RD-114	1	55	7.4	7.4	N1			Oil and grease sludge	520			#DIV/0!
64225	USEC	RD-114	1	55	7.4	7.4	N1			Oil and grease sludge	514			#DIV/0!
42660	USEC	RD-114	1	55M	7.4	7.40	C6	4	9C	Press sludge, gloves, rags	292	228	2	42.4442
49794	USEC	RD-114	1	55M	7.4	7.40	C6	2	8D	Sample jars of micro & heavy metal sludge	346	282	13.7	235.0684
49795	USEC	RD-114	1	55M	7.4	7.40	C6	2	8C	Sample jars of micro & heavy metal sludge	339	275	13.4	235.7735
49796	USEC	RD-114	1	55M	7.4	7.40	C6	4	5C	Sample jars of micro & heavy metal sludge	126	62	15	1170.6373
47095	USEC	RD-114	1	55M	7.4	7.40	N4	8	8	sludge, gloves, cheese cloth	370	306	227.15	3591.8163
49434	USEC	RD-114	1	55M	7.4	7.40	C6	4	9B	Sludge, paper, gloves, cheesecloth	448	384	2	25.2012
Total			26		203.2									
X-710 Waste	USEC		5	5	3.25									
Total					3.25									
65322	USEC		1	55	7.4	7.4	S3-3			Gunk			37.81	#DIV/0!
65317	USEC		1	55	7.4	7.4	S3-3			Gunk	101.89	37.89	51.95	6634.1266
65318	USEC		1	55	7.4	7.4	S3-3			Gunk	111.05	47.05	51.11	5256.1658
65321	USEC		1	55	7.4	7.4	S3-3			Gunk			45.93	#DIV/0!
65312	USEC		1	55	7.4	7.4	S3-3			Gunk	263.81	199.81	86.7	2099.5426
65311	USEC		1	55	7.4	7.4	S3-3			Gunk	147.39	83.39	41.58	2412.6444

Total			6		44.4									
Small Diameter Containers Remaining to be batched or remaining in the field			160		48									
X-700 Tank Waste (Liquid)			39	275	1053									
X-705 Tunnel Waste			1	55	7.4						167	116.3	111	4618.1291
Items that have approved profiles and will be shipped prior to 6/24/11														
Items that the profiles have been submitted to the disposal facility and will be projected to be shipped														
Items not shaded will not be shipped and will remain after 6/27/11														
Items currently NOT in XT-847 or projected to be generated prior to 6/27/11														
Small Diameter Containers Remaining to be batched or remaining in the field														
Currently located in the X-326 RCRA storage														

Cost Estimate

ACTIVITY ID	USEC DAW COST	USEC Floor Sweepings COST
WASTE CHARACTERIZATION USEC-Owned X-847 (Sampling, NDA, Profile Development)	$114,473.94	$125,421.66
ENCLOSURE - APPLIES TO ALL WASTE IN 847	$165,652.64	
MGMT ASSESSMENT FOR ENCLOSURE	$144,643.68	
NCSE DEVELOPMENT	$21,046.56	
LEVEL 1 READINESS ASSESSMENT	$159,043.68	
WORK PACKAGE DEVELOPMENT	$66,979.68	
DRAFT & ISSUE OPERATING PROCEDURE(S)	$42,232.56	
BRIEF & TRAIN ON OPERATIONS	$96,295.20	
WASTE OPERATIONS FOR DISPOSAL	$147,238.90	$111,068.89
LOAD FOR SHIPMENT	$11,167.68	$10,368.77
TRANSPORTATION	$37,500.00	$15,000.00
DISPOSAL	$80,594.21	$39,007.56
Operational Surveillance (25% of 3 FTEs at 2 yrs)		
Total Cost By Waste Stream	$1,086,868.73	$300,866.88

G & A

Sub-total

Fee (9%)

FBP Total

DOE est. for Oversight and Support (3.3%)

Facility Administrative Charge (3%) -(DOE on subtotal, not Fee) (Invoiced as applicable)

TOTAL

USEC Oily 3M	USEC Fire Debris	USEC Dust/Rags	USEC Scrap Metal	USEC Alumina
COST	COST	COST	COST	COST
$57,858.24	$183,518.64	$19,135.80	$19,135.80	$383,812.08
$10,304.87	$171,015.19	$5,910.34	$8,498.12	$510,958.18
$2,214.46	$18,595.78	$599.14	$3,351.38	$17,867.42
$750.00	$37,500.00	$1,125.00	$23,250.00	$112,500.00
$3,560.22	$295,498.26	$2,179.28	$40,316.68	$178,011.00
$74,687.79	$706,127.87	$28,949.55	$94,551.99	$1,203,148.68

USEC Sample Returns	USEC Sources	USEC Absorbal	USEC Black Beauty	USEC Concrete
COST	COST	COST	COST	COST
$15,267.48	$11,654.40	$7,108.45	$128,086.92	$16,611.14
	$13,755.36	$3,844.61	$35,251.90	$13,728.25
	$6,273.48	$381.11	$3,646.32	$3,072.94
	$7,500.00	$375.00	$7,500.00	
		$1,167.00	$17,801.10	$7,120.44
$15,267.48	$39,183.24	$12,876.17	$192,286.24	$40,532.76

USEC Soils COST	USEC Welding Slag COST	USEC Used Oil COST	USEC HM Sludge COST	USEC Resin COST
$10,313.57	$10,294.02	$189,859.28	$62,980.94	$105,755.28
$9,160.29	$5,164.95	$284,217.66	$19,840.18	$58,412.47
$1,732.12	$883.37	$31,093.54	$6,928.46	$4,680.24
$8,250.00	$750.00	$112,500.00	$52,500.00	$15,000.00
$8,900.55	$855.91	$789,680.20	$8,169.00	$29,094.87
$38,356.52	$17,948.25	$1,407,350.67	$150,418.58	$212,942.86

USEC V-12 Tank	USEC Microsludge	USEC Oil & Grease	USEC Gunk
COST	COST	COST	COST
$11,897.95	$100,518.24	$47,720.88	$67,363.44
$3,844.61	$148,496.66	$24,550.48	$27,037.08
$383.08	$8,075.23	$3,646.32	$3,646.32
$750.00	$15,000.00	$7,500.00	$7,500.00
$1,167.00	$71,817.51	$19,581.21	$16,020.99
$18,042.64	$343,907.65	$102,998.89	$121,567.83

USEC Oil To-Be Collected	USEC X-700 Aqueous Waste	USEC L-Cage Drum	DOE X-700 Sludge/Solids
COST	COST	COST	COST
Moved out of the estimate	$16,154.75	$6,990.96	Moved out of estimate
USEC to self perform oil is not contaminated	$2,805.16		DOE-owned
	$505.68		
	$15,332.71	$5,237.80	
	$4,676.50	$406.73	
	$30,000.00	$750.00	
	$184,183.35	$3,555.65	
$0.00	$253,658.15	$16,941.13	$0.00

USEC

	TOTAL COST
$	1,711,933.87
$	165,652.64
$	144,643.68
$	21,046.56
$	159,043.68
$	69,784.84
$	42,232.56
$	96,800.88
$	1,632,869.48
$	143,690.36
$	493,500.00
$	1,798,281.99
$	170,732.20
$	6,650,212.75

$	127,684.09	G & A
$	6,777,896.83	Sub-total
$	610,010.72	Fee (9%)
$	7,387,907.55	FBP Total
$	223,670.60	
$	203,336.91	Facility Administrative Charge (3%) -As Applicable
$	7,814,915.05	TOTAL

USEC Waste Profiles

ENERGYSOLUTIONS

CL-WM-PR-001 F2 (EC-0230)
Revision 7

RADIOACTIVE WASTE PROFILE RECORD

A. GENERATOR AND WASTE STREAM INFORMATION

GENERAL: Complete this form for one waste stream. Contact EnergySolutions at (801) 532-1330 if you have any questions while completing this form. Please indicate "N/A" if a category does not apply.

1. GENERATOR INFORMATION

Generator Name: USEC/ Portsmouth EPA ID #: OHD987054723

Generator Contact: Elizabeth D. Lamerson Title: Environmental Engineer

Mailing Address: P.O. Box 628 M/S 9030

Piketon, OH 45661 Utah Site Access Permit #: 0111000043

Phone: 740-897-2812 Fax: 740-897-2143 Email: lamersoned@ports.usec.com

Contractor Name: N/A Location of Waste (City, State): Portsmouth

Name & Title of Person Completing Form: Elizabeth Lamerson/Env. Eng. Phone: 740-897-2812 Email: lamersoned@ports.usec.com

2. WASTE STREAM INFORMATION

Waste Stream ID: 0691A-07 Waste Stream Name: Varnish Chunks State of Origin: OH

Revision: 0 Date: 04/20/2011 Volume (ft^3): TBD Delivery Date: Ongoing

CHECK APPROPRIATE BOXES BELOW. Please verify the required forms requested below are completed and submitted with the Radioactive Waste Profile Record.

HAZARDOUS WASTE: Is the waste classified as hazardous waste as defined by 40 CFR 261?

N ☒ If **NO**, complete and attach the **"Low-Level Radioactive Waste Certification Attachment"**.

Y ☐ If **YES**, complete and attach the **"Hazardous Waste Certification Attachment"** and check applicable box below.
Has the waste been treated to meet applicable treatment standards per 40 CFR 268? Y ☐ N ☐
Is the waste to be treated by EnergySolutions? Y ☐ N ☐

LOW-LEVEL RADIOACTIVE WASTE: Is the radioactive waste defined as Low-Level Radioactive Waste in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 435.1?

Y ☒ If **YES**, a current copy of a LLRW Compact Export letter authorizing export must be submitted if applicable. This authorization is applicable for non-DOE LLRW (i.e., Mixed Waste, NORM/NARM, 11e.(2) material, and waste from DOE do not require a Compact Export Letter).

N ☐ If **NO**, check appropriate box: NORM/NARM ☐ 11e.(2) Byproduct Material ☐ Other: _____

SPECIAL NUCLEAR MATERIAL: Does the waste stream contain material with uranium enriched in U-235 or any of the following radionuclides: U-233, Pu-236, Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Pu-243, or Pu-244?

Y ☒ N ☐ If Yes, complete and attach the "SNM Exemption Certification" form (EC-0230-SNM). Supporting statements, analytical results, and documentation must be included with the submittal.

PCB WASTE: Does the waste contain Polychlorinated Biphenyls (PCB) that are regulated for disposal per 40 CFR 761?

Y ☐ N ☒ If Yes, complete and attach the "PCB Waste Certification" form (EC-98279).

ASBESTOS: Does the waste contain Asbestos Containing Material?

Y ☐ N ☒ If Yes, Asbestos Containing Material must be managed in accordance with applicable federal regulations. Provide a detailed description of the waste containing asbestos in Section B.5 of the waste profile.

RADIOACTIVE WASTE PROFILE RECORD

B. WASTE PHYSICAL PROPERTIES & PACKAGE INFORMATION

1. GENERAL CHARACTERISTICS

Does the waste contain free liquids? Y ☐ N ☒ If Yes, what is the percent of free liquid by waste volume? _____ %

If Yes, is the liquid aqueous (water-based)? Y ☐ N ☐

Does the waste contain absorbent? Y ☒ N ☐ Density range of the waste: 0.47 – 0.9 g/cc ☒ lb/ft^3 ☐

List percentage of waste type by volume: Soil _____% Concrete & Metal _____% DAW 5% Resins 95% Sludge _____%

Other constituents and percentage by volume? N/A

2. MATERIAL SIZE

Gradation of Material: Indicate the percentage of waste material that would **pass through** the following grid sizes. For example, 95% of the material would pass through a 12" square, 90% passes through a 4" square, 80% passes through a 1" square, etc.

12" 95 % 4" 50 % 1" 20 % 1/4" 2 % 1/40" ≤1 % 1/200" ≤1 %

Does the waste stream contain oversize debris (i.e., no dimension < 10 inches and any dimension > 12 feet)? Y ☐ N ☒
If Yes, include a detailed description (i.e., weight, size, drawings, etc.) of the oversize debris in the narrative of Section B.5.

3. MOISTURE CONTENT

For soil or soil-like materials, please use **Std. Proctor Method ASTM D-698** to determine the optimum moisture content. The waste material must not exceed 3 percentage points above optimum moisture upon arrival at EnergySolutions' disposal facility unless approved by EnergySolutions.

Optimum Moisture Content: N/A % at Maximum Dry Density (lb/ft^3): N/A

Average Moisture Content: N/A % Moisture Content Range: N/A% - N/A%

4. WASTE SHIPPING & PACKAGING

Transportation Mode: ☒ Highway ☒ Rail

Shipping & Container Packages: (Check all that apply) ☒ Drums* (≤ 85 gallons) ☒ Boxes (≤ 100 ft^3) ☒ Soft-Sided Bags (≤ 10 yd^3)

☒ Intermodal ☒ Sealand ☐ Gondola** ☐ Box Car

Other:

*Palletized drums are preferred by the disposal site. Please specify in the "Other" field if drums will not be palletized.
**Dimensions of gondola railcars must be between 48 to 65 feet in length and 8.5 to 12.5 feet in height as measured from the top of the rail to the top of the railcar unless approved by EnergySolutions.

5. NARRATIVE DESCRIPTION AND HISTORY OF WASTE

Please submit a narrative description and history of the waste as an attachment to the Radioactive Waste Profile Record. This attachment should include the following:

- Process that generated the waste
- Waste material physical composition and characteristics
- Radiological and chemical characterization method
- Basis for determining manifested radionuclide concentrations
- Description and amounts of absorbents, if applicable
- Basis of non-hazardous or hazardous waste determinations
- Treatment processes, if applicable
- Product information or Material Safety Data Sheets associated with the waste as applicable
- Information requested in other sections of this form

RADIOACTIVE WASTE PROFILE RECORD

Waste Stream ID: 0691A-07 Revision: 0 Date of Revision: *04/20/2011*

C. RADIOLOGICAL INFORMATION

Obtain sufficient samples to adequately determine a range and weighted average of activity in the waste. Attach the gamma spectroscopy or radiochemistry data supporting the radionuclide information listed below.

1. Does the waste material contain accessible surfaces with contact dose rates greater than 500 mR/hr? Y ☐ N ☒

2. Does the waste material contain any of the following isotopes: Aluminum-26, Berkelium-247, Calcium-41, Californium-250, Chlorine-36, Rhenium-187, Terbium-157, or Terbium-158? Y ☐ N ☒

3. Please list the following information for each isotope associated with the waste. Provide an explanation in the narrative description of Section B.5 if the waste contains localized "hot spots" or elevated concentrations that significantly exceed the upper concentration range. If additional space is needed, provide an Attachment C.3 to this profile record formatted as below.

Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)	Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)
Tc-99	501	105.802			
Pu-239/240	0.04056	0.04056			
Th-232	300	10			
Th-234	0.3113	0.18368			
~~Total U~~	~~0.9405~~	~~0.55365~~			
U-233/234	38000	5000			
U-238	16500	2000			
U-235	1900	100			
Ac-227	100	10			
Cs-137	100	10			
Np-237	300	10			
Pa-231	100	10			
Ra-226	300	10			
Th-228	300	10			
Th-229	100	10			

RADIOACTIVE WASTE PROFILE RECORD

HAZARDOUS WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked YES. Otherwise, complete the Low-Level Radioactive Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

pH (Liquid only): N/A **Method 9045** Please provide the range of the pH analyses performed.

PFLT: Pass Pass / Fail **Method 9095** Not applicable for liquid radioactive waste streams.

Analyze the waste for volatile or semi-volatile constituents (Methods 8260 & 8270), and attach the data.

Any distinguishing color or odor? Y ☒ N ☐ If Yes, color: ____; odor: Varnish odor

2. HAZARDOUS WASTE CODES AND TREATMENT STANDARDS (40 CFR 268)

List all hazardous waste codes and treatment standards. Include hazardous waste codes that have been removed through treatment and indicate "Former" in the second column. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.2 to this profile record formatted as below. Include a description of hazardous waste determinations and any variances, exclusions, etc. in the narrative requested in Section B.5.

EPA HW Codes	Description, Constituent of Concern, or Subcategory	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

3. **UNDERLYING HAZARDOUS CONSTITUENTS (40 CFR 268.48)**

List all underlying hazardous constituents (UHCs) and treatment standards. Include UHCs that have been removed through treatment. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below.

Underlying Hazardous Constituents	**Treatment Standard** (mg/kg unless noted as mg/L TCLP or Technology Code)	**Worst-Case Concentration** (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A

D. 4. **OTHER CHEMICAL CONSTITUENTS**

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	**Worst Case Concentration** (mg/kg unless noted as mg/L TCLP)	**Other Hazardous Constituents**	**Worst-Case Concentration** (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

5. **LABORATORY CERTIFICATION INFORMATION**

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

_____

6. **CERTIFICATION**

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License or RCRA Permit.

Generator's Signature: _____ Title: Environmental Engineer Date: 4/21/11

ATTACHMENT B.5
PHYSICAL PROPERTIES

Generator Name: USEC/Portsmouth Waste Stream ID: 0691A-07
Revision #: 0 Revision Date:

VARNISH CHUNKS WASTE STREAM

The Varnish Chunks waste stream originates in the Portsmouth Gaseous Diffusion Plant (PORTS) X-720 Motor Shop. Periodically electric motor coils would fail and need to be replaced. The old varnish insulation was burned off and new insulation was applied by dipping the coil in a tank of varnish. This process on plant site has been discontinued. The varnish that remained in the dip tank harden and was broken up and placed into 55 gallon drums.

The waste stream also contains small amounts of Dry Active Waste (DAW) that was used in cleanup, sampling, and operation of the process.

The varnish containers were sampled and analyzed for the purpose of characterization and this profile. The results were found to be non-hazardous.

The waste will not contain free liquids. Loose absorbent material may be added to the waste to mitigate the risk of free liquids >1% in waste containers that have the potential for free liquids/condensate.

Radiological and Chemical Characterization Requirements and Methods:

The primary objective of the characterization sampling design was to achieve high confidence that at least a high percentage of the items in population are acceptable. A hypergeometric model with a 95%/90% confidence interval was used to characterize this waste stream. The sample size was calculated using a similar method to Bowen and Bennett 1988 (*Statistical Methods for Nuclear Material Management*, NUREG/CR-4604, US Nuclear Regulatory Commission, Washington, DC). Sixteen random samples were taken to meet the 95/90 confidence interval.

Chemical Characterization

Ohio Administrative Code (OAC) Section 3745-51 *et seq* and Title 40 Code of Federal Regulations (CFR) § 261 *et seq* clearly define the process for identifying a waste based on characteristics. OAC 3745-51-20 (40 CFR § 261.24) states:

"A waste is a hazardous waste if it exhibits any of the characteristics identified in rules 3745-51-20 (40 CFR § 261.20) to 3745-51-24 (40 CFR § 261.24) of the Administrative Code."

To determine the regulatory status of this waste stream the following requirements were met:

1. Collect a representative sample.
2. Analyze the sample using TCLP Method 1311 in *"Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods,"* EPA Publication SW-846.
3. Compare the results of the analysis to OAC 3745-51-24, Table 1 (40 CFR § 261.24, Table 1).
4. If the contaminate is statistically (as defined by Chapter Nine of SW-846) at or above the regulatory limit outlined in Table 1 of OAC 3745-51-24 (40 CFR § 261.24), then the waste is characteristically hazardous for that contaminant and must be managed as such.

ATTACHMENT B.5
PHYSICAL PROPERTIES

Also, waste may be characteristically hazardous if it meets the criteria outlined in OAC 3745-51-21 (40 CFR § 261.21) to OAC 3745-51-23 (40 CFR § 261.23). OAC 3745-51-30 (40 CFR § 261.30) clearly define the process for identifying a waste based on a listing. OAC 3745-51-30 (A) [40 CFR § 261.30 (a)] states:

> "A waste is a hazardous waste if it is listed as such in rules 3745-51-30 (§ 261.30) to 3745-51-35 (§ 261.35) of the Administrative Code."

To determine the regulatory status of this waste stream for listed hazardous waste, the following requirements were met:

1. Identify the generating process or identify the waste as derived from an already listed hazardous waste.

2. Identify the constituents, which may cause the waste to be classified as hazardous.

3. Compare the waste descriptions provided in OAC 3745-51-31 (40 CFR § 261.31) to OAC 3745-51-33 (40 CFR § 261.33).

4. If the process and constituents are listed in OAC 3745-51-31 (40 CFR § 261.31 to OAC 3745-51-33 (40 CFR § 261.33), then the waste is listed as hazardous and is managed as such.

This waste stream is not regulated for disposal as a RCRA hazardous waste as defined in 40 CFR 261. This waste is not regulated as TSCA (PCB) waste as defined in 40 CFR 761.

Radiological Characterization
Radiological characterization is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. Sixteen random samples of the total population were analyzed to provide the radiological characterization data to adequately determine a range and concentration of activity in the waste.

Basis for Determining Manifested Radionuclide Concentrations

Radiological characterization of outgoing shipments is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. The radiological laboratory results were used to establish scaling factors which are then synchronized with the NDA results and divided by net weight in the container to develop manifested nuclide concentrations. The SNM is typically in the form of dry non-visible uranium dust made up of oxide compounds, primarily UO_2F_2. The SNM is essentially distributed homogenously throughout the waste.

Typically the waste will be packaged for transportation and disposal in drums or metal boxes. Optional packages include soft-sided bags, intermodal containers and sea-land containers. Notification will be provided prior to shipping if any optional containers are to be utilized.

ENERGYSOLUTIONS

EC-0230-SNM
Revision 3

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

The Special Nuclear Material Exemption Certification form must be completed and signed by each generator certifying to the following conditions. Please attach this form and all required information to the Radioactive Waste Profile Record (EC-0230). **A completed and signed copy of this form must also accompany each waste manifest.**

Waste Stream ID: 0691A-07 Manifest No. 0691A-07

1. Check applicable category below for the waste stream:

√	Uranium Enrichment Percent	Weight Percent of Chemicals in Condition 2c	Weight Percent of Materials in Condition 2d	U-235 Concentration (pCi/g)	Measurement Uncertainty* (pCi/g)
☒	< 10 %	≤ 20 %	≤ 1 %	≤ 1,900	≤ 285
☐	Unlimited	≤ 20 %	≤ 1 %	≤ 1,190	≤ 179
☐	Unlimited	Sum of both ≤ 45 % of waste by weight		≤ 680	≤ 102
☐	Unlimited	Unlimited	Unlimited	≤ 26	≤ 10
☐	Not Applicable - Enriched U-235 is not present in the waste.				

* A concentration value is used for the maximum measurement uncertainty limit rather than a percentage value to allow greater flexibility for generators with waste having very low SNM concentrations.

2. Certify to the following requirements by checking each box:

☒ a. Concentrations of SNM in individual waste containers do not exceed the applicable values listed in the above table and SNM isotope concentrations listed in Table 1.

☒ b. The SNM is homogeneously distributed throughout the waste or the SNM concentrations in any contiguous mass of 600 kilograms (1,323 lbs) do not exceed on average the specified limits. (Based on process knowledge or testing).

☒ c. Except as allowed by Condition 1, the waste does not contain "pure forms" of chemicals containing carbon, fluorine, magnesium, or bismuth in bulk quantities (e.g., a pallet of drums, a B-25 box). By "pure forms," it is meant that mixtures of the above elements such as magnesium oxide, magnesium carbonate, magnesium fluoride, bismuth oxide, etc. do not contain other elements. (Based on process knowledge or testing).

☒ d. Except as allowed by Condition 1, the waste does not contain total quantities of beryllium, hydrogenous material enriched in deuterium, or graphite above one percent of the total weight of the waste. (Based on process knowledge, physical observations, or testing).

☒ e. Waste packages do not contain highly soluble forms of uranium greater than 350 grams of uranium-235 or 200 grams of uranium-233. If the waste contains mixtures of U-233 and U-235, the waste meets the sum of the fractions rule. Highly soluble forms of uranium include, but are not limited to: uranium sulfate, uranyl acetate, uranyl chloride, uranyl formate, uranyl fluoride, uranyl nitrate, uranyl potassium carbonate, and uranyl sulfate. (Based on process knowledge or testing).

☐ f. For containers of liquid waste with more than 600 kilograms of waste, the total activity (pCi) of SNM in the manifested container does not exceed the SNM concentration in the above table or Table 1 times 600 kilograms of waste (based on process knowledge or testing). For example, the maximum activity of Pu-239 in any manifested container of liquid waste is 6.0 mCi (6.0E+09 pCi) as shown below:

$$10{,}000\,\frac{pCi}{g} \times 600{,}000\,g = 6.0X10^{9}\ pCi = 6.0\,mCi\ Pu\text{-}239$$

ENERGYSOLUTIONS

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

Table 1. Maximum concentrations of SNM in individual waste containers (refer to above table for U-235 limits).

Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)	Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)
U-233	75,000	11,250	Pu-241	350,000	50,000
Pu-236	500	75	Pu-242	10,000	1,500
Pu-238	10,000	1,500	Pu-243	500	75
Pu-239	10,000	1,500	Pu-244	500	75
Pu-240	10,000	1,500			

3. **Indicate that the following information is attached to the Radioactive Waste Profile Record by checking each box. (Note: Only the two-page Special Nuclear Material Exemption Certification form needs to be included with each manifest).**

   ☒ a. Provide a description of how the waste was generated, list the physical forms in the waste, and identify the uranium chemical composition.

   ☒ b. Provide a general description of how the waste was characterized (including the volumetric extent of the waste, and the number, location, type, and results of any analytical testing), the range of SNM concentrations, and the analytical results with error values used to develop the concentration ranges.

   ☒ c. Describe the process by which the waste was generated showing that the spatial distribution of SNM must be uniform, or other information supporting spatial distribution.

   ☒ d. Describe the methods to be used to determine the concentrations on the manifests. These methods could include direct measurement and the use of scaling factors. Describe the uncertainty associated with sampling and testing used to obtain the manifest concentrations.

4. **Generator's certification of compliance with the SNM exemption:** I certify that the information provided on this form is complete, true, and correct and is based on process knowledge, physical observations, or approved laboratory testing. I also certify that sampling and radiological testing of waste containing SNM was performed in accordance with EnergySolutions' Radioactive Material License and that any supporting documentation and analytical results have been submitted to EnergySolutions.

Authorized Signature	Printed Name	Title	Date
	Elizabeth Lamerson	Environmental Engineer	4/21/11

ENERGYSOLUTIONS

CL-WM-PR-001 F2 (EC-0230)
Revision 7

RADIOACTIVE WASTE PROFILE RECORD

A. GENERATOR AND WASTE STREAM INFORMATION

GENERAL: Complete this form for one waste stream. Contact EnergySolutions at (801) 532-1330 if you have any questions while completing this form. Please indicate "N/A" if a category does not apply.

1. GENERATOR INFORMATION

Generator Name: USEC/ Portsmouth EPA ID #: OHD987054723

Generator Contact: Elizabeth D. Lamerson Title: Environmental Engineer

Mailing Address: P.O. Box 628 M/S 9030

Piketon, OH 45661 Utah Site Access Permit #: 0111000043

Phone: 740-897-2812 Fax: 740-897-2143 Email: lamersoned@ports.usec.com

Contractor Name: N/A Location of Waste (City, State): Portsmouth

Name & Title of Person Completing Form: Elizabeth Lamerson/Env. Eng. Phone: 740-897-2812 Email: lamersoned@ports.usec.com

2. WASTE STREAM INFORMATION

Waste Stream ID: 0691A-08 Waste Stream Name: Alumina State of Origin: OH

Revision: 0 Date: 05/13/2011 Volume (ft^3): TBD Delivery Date: Ongoing

CHECK APPROPRIATE BOXES BELOW. Please verify the required forms requested below are completed and submitted with the Radioactive Waste Profile Record.

HAZARDOUS WASTE: Is the waste classified as hazardous waste as defined by 40 CFR 261?

N ☒ If **NO**, complete and attach the **"Low-Level Radioactive Waste Certification Attachment"**.
Y ☐ If **YES**, complete and attach the **"Hazardous Waste Certification Attachment"** and check applicable box below.
Has the waste been treated to meet applicable treatment standards per 40 CFR 268? Y ☐ N ☐
Is the waste to be treated by EnergySolutions? Y ☐ N ☐

LOW-LEVEL RADIOACTIVE WASTE: Is the radioactive waste defined as Low-Level Radioactive Waste in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 435.1?

Y ☒ If **YES**, a current copy of a LLRW Compact Export letter authorizing export must be submitted if applicable. This authorization is applicable for non-DOE LLRW (i.e., Mixed Waste, NORM/NARM, 11e.(2) material, and waste from DOE do not require a Compact Export Letter).
N ☐ If **NO**, check appropriate box: NORM/NARM ☐ 11e.(2) Byproduct Material ☐ Other: _____

SPECIAL NUCLEAR MATERIAL: Does the waste stream contain material with uranium enriched in U-235 or any of the following radionuclides: U-233, Pu-236, Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Pu-243, or Pu-244?

Y ☒ N ☐ If Yes, complete and attach the "SNM Exemption Certification" form (EC-0230-SNM). Supporting statements, analytical results, and documentation must be included with the submittal.

PCB WASTE: Does the waste contain Polychlorinated Biphenyls (PCB) that are regulated for disposal per 40 CFR 761?

Y ☐ N ☒ If Yes, complete and attach the "PCB Waste Certification" form (EC-98279).

ASBESTOS: Does the waste contain Asbestos Containing Material?

Y ☐ N ☒ If Yes, Asbestos Containing Material must be managed in accordance with applicable federal regulations. Provide a detailed description of the waste containing asbestos in Section B.5 of the waste profile.

RADIOACTIVE WASTE PROFILE RECORD

B. WASTE PHYSICAL PROPERTIES & PACKAGE INFORMATION

1. GENERAL CHARACTERISTICS

Does the waste contain free liquids? Y ☐ N ☒ If Yes, what is the percent of free liquid by waste volume? _____ %

If Yes, is the liquid aqueous (water-based)? Y ☐ N ☐

Does the waste contain absorbent? Y ☒ N ☐ Density range of the waste: 1.61 – 0.7 g/cc ☒ lb/ft³ ☐

List percentage of waste type by volume: Soil _____% Concrete & Metal _____% DAW 5% Resins _____% Sludge 3%

Other constituents and percentage by volume? 92% Alumina/MgFl/NaFl pellets

2. MATERIAL SIZE

Gradation of Material: Indicate the percentage of waste material that would **pass through** the following grid sizes. For example, 95% of the material would pass through a 12" square, 90% passes through a 4" square, 80% passes through a 1" square, etc.

12" 99 % 4" 95 % 1" 85 % 1/4" 50 % 1/40" ≤1 % 1/200" ≤1 %

Does the waste stream contain oversize debris (i.e., no dimension < 10 inches and any dimension > 12 feet)? Y ☐ N ☒
If Yes, include a detailed description (i.e., weight, size, drawings, etc.) of the oversize debris in the narrative of Section B.5.

3. MOISTURE CONTENT

For soil or soil-like materials, please use **Std. Proctor Method ASTM D-698** to determine the optimum moisture content. The waste material must not exceed 3 percentage points above optimum moisture upon arrival at EnergySolutions' disposal facility unless approved by EnergySolutions.

Optimum Moisture Content: N/A % at Maximum Dry Density (lb/ft³): N/A

Average Moisture Content: N/A % Moisture Content Range: N/A% - N/A%

4. WASTE SHIPPING & PACKAGING

Transportation Mode: ☒ Highway ☒ Rail

Shipping & Container Packages: (Check all that apply) ☒ Drums* (≤ 85 gallons) ☒ Boxes (≤ 100 ft³) ☒ Soft-Sided Bags (≤ 10 yd³)

☒ Intermodal ☒ Sealand ☐ Gondola** ☐ Box Car

Other:

*Palletized drums are preferred by the disposal site. Please specify in the "Other" field if drums will not be palletized.
**Dimensions of gondola railcars must be between 48 to 65 feet in length and 8.5 to 12.5 feet in height as measured from the top of the rail to the top of the railcar unless approved by EnergySolutions.

5. NARRATIVE DESCRIPTION AND HISTORY OF WASTE

Please submit a narrative description and history of the waste as an attachment to the Radioactive Waste Profile Record. This attachment should include the following:

- Process that generated the waste
- Waste material physical composition and characteristics
- Radiological and chemical characterization method
- Basis for determining manifested radionuclide concentrations
- Description and amounts of absorbents, if applicable
- Basis of non-hazardous or hazardous waste determinations
- Treatment processes, if applicable
- Product information or Material Safety Data Sheets associated with the waste as applicable
- Information requested in other sections of this form

RADIOACTIVE WASTE PROFILE RECORD

Waste Stream ID: 0691A-08 Revision: 0 Date of Revision: *05/13/2011*

C. RADIOLOGICAL INFORMATION

Obtain sufficient samples to adequately determine a range and weighted average of activity in the waste. Attach the gamma spectroscopy or radiochemistry data supporting the radionuclide information listed below.

1. Does the waste material contain accessible surfaces with contact dose rates greater than 500 mR/hr? Y ☐ N ☒

2. Does the waste material contain any of the following isotopes: Aluminum-26, Berkelium-247, Calcium-41, Californium-250, Chlorine-36, Rhenium-187, Terbium-157, or Terbium-158? Y ☐ N ☒

3. Please list the following information for each isotope associated with the waste. Provide an explanation in the narrative description of Section B.5 if the waste contains localized "hot spots" or elevated concentrations that significantly exceed the upper concentration range. If additional space is needed, provide an Attachment C.3 to this profile record formatted as below.

Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)	Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)
Ac-228	50	14.87			
Bi-214	50	6.812			
K-40	53.91	53.91			
Pa-234m	26210	5800.8			
Ra-226	300	30			
Ra-228	50	14.87			
Tc-99	250000	21646.34			
Tl-208	50	3.511			
Th-227	50	26.875			
Th-231	5331	1270.23			
Th-234	17540	2824.28			
U-234	38000	10000			
U-235	1900	500			
U-238	16500	5000			
Am-241	100	10			
Cm-248	50	0.089			
Np-237	1000	10			
Pu-238	50	0.05862			
Pu-239/240	50	0.36865			
Th-228	300	10			
Th-230	50	3.3562			
Th-231	6574	1699.89			
Th-232	300	30			
Th-234	65410	13584.39			
U-233/234	38000	5000			
U-236	834	134.7922			
Ac-227	300	30			
Cs-137	300	10			
Pa-231	1000	10			
Th-229	300	10			

RADIOACTIVE WASTE PROFILE RECORD

HAZARDOUS WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked YES. Otherwise, complete the Low-Level Radioactive Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

pH (Liquid only): N/A **Method 9045** Please provide the range of the pH analyses performed.

PFLT: Pass Pass / Fail **Method 9095** Not applicable for liquid radioactive waste streams.

Analyze the waste for volatile or semi-volatile constituents (Methods 8260 & 8270), and attach the data.

Any distinguishing color or odor? Y ☐ N ☒ If Yes, color: _____; odor: _____

2. HAZARDOUS WASTE CODES AND TREATMENT STANDARDS (40 CFR 268)

List all hazardous waste codes and treatment standards. Include hazardous waste codes that have been removed through treatment and indicate "Former" in the second column. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.2 to this profile record formatted as below. Include a description of hazardous waste determinations and any variances, exclusions, etc. in the narrative requested in Section B.5.

EPA HW Codes	Description, Constituent of Concern, or Subcategory	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

3. **UNDERLYING HAZARDOUS CONSTITUENTS (40 CFR 268.48)**

List all underlying hazardous constituents (UHCs) and treatment standards. Include UHCs that have been removed through treatment. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below.

Underlying Hazardous Constituents	**Treatment Standard** (mg/kg unless noted as mg/L TCLP or Technology Code)	**Worst-Case Concentration** (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A

D. 4. **OTHER CHEMICAL CONSTITUENTS**

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	**Worst Case Concentration** (mg/kg unless noted as mg/L TCLP)	**Other Hazardous Constituents**	**Worst-Case Concentration** (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

5. **LABORATORY CERTIFICATION INFORMATION**

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

6. **CERTIFICATION**

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License or RCRA Permit.

Generator's Signature: _____ Title:Environmental Engineer Date: 6/15/11

RADIOACTIVE WASTE PROFILE RECORD

LOW-LEVEL RADIOACTIVE WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked No. Otherwise, complete the Hazardous Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

PFLT: Pass Pass / Fail **Method 9095** Not applicable for liquid radioactive waste streams.

2. 40 CFR 261.24 Table 1 – Contaminants of Toxicity Characteristic

Metals: Methods 6010 & *7470 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Arsenic	0.08	Chromium	0.72	Selenium	0.13
Barium	0.07	Lead	0.04	Silver	0.05
Cadmium	0.05	*Mercury	ND		

Organics, Pesticides/Herbicides: Methods 8081/*8151 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Endrin	ND	Toxaphene	ND	Chlordane	ND
Lindane	ND	*2,4-D	0.02	Heptachlor	ND
Methoxychlor	ND	*2,4,5-TP Silvex	0.02		

Organics, Semi-Volatile: Method 8270 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

o-Cresol	ND	Hexachlorobenzene	ND	Pentachlorophenol	ND
m-Cresol	0.1	Hexachlorobutadiene	ND	Pyridine	ND
p-Cresol	0.1	Hexachloroethane	ND	2,4,5-Trichlorophenol	ND
Total Cresol	0.1	Nitrobenzene	ND	2,4,6-Trichlorophenol	ND
2,4-Dinitrotoluene	ND				

Organics, Volatile: Method 8260 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Benzene	ND	1,4-Dichlorobenzene	ND	Methyl ethyl keytone	ND
Carbon Tetrachloride	ND	1,2-Dichloroethane	ND	Tetrachloroethylene	ND
Chlorobenzene	ND	1,1-Dichloroethylene	ND	Trichloroethylene	ND
Chloroform	0.2	Vinyl Chloride	ND		

3. Was the waste at the point of generation a RCRA hazardous waste per 40 CFR 261? Y ☐ N ☒

If Yes, list former hazardous waste codes and former underlying hazardous constituents. List worst-case concentrations for each hazardous constituent. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below. Attach the most recent chemical analytical results demonstrating compliance with applicable treatment standards.

If No, indicate "N/A" in Section D.3 below.

RADIOACTIVE WASTE PROFILE RECORD

D. 3. Former EPA HW Codes or Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)

4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
Beryllium	2.68 mg/kg	N/A	N/A

5. LABORATORY CERTIFICATION

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License.

Generator's Signature: _____ Title: Environmental Engineer Date: 6/15/11

ATTACHMENT B.5
PHYSICAL PROPERTIES

Generator Name: USEC/Portsmouth Waste Stream ID: 0691A-08
Revision #: 0 Revision Date:

ALUMINA WASTE STREAM

The alumina, magnesium fluoride (MgFl) and sodium fluoride (Na Fl) were generated at vent points throughout the cascade at the Portsmouth Gaseous Diffusion Plant (PORTS) facility. During operations and maintenance of the gaseous diffusion process, unwanted gases, such as nitrogen, dry air and wet air inadvertently inner the system. These gases are expelled from the diffusion cascade through venting systems comprised of chemical traps filled with activated alumina. As needed, the activated alumina from these chemical traps is replaced. The activated alumina is a porous, granular, sometimes powder, substance that is used as a filter media to trap uranium hexafluoride. The alumina is a synthetic material made from aluminum hydroxide. NaF traps were used in Cold Recovery units (located in the X333 & X330) process to recover UF6 for use in the cascade. MgF traps were used to remove Tc from process gas streams and were predominately used in the X340 Complex. The spent activated alumina, MgFl, and NaFl is containerized and handled as Radioactive Waste.

The waste stream also contains small amounts of Dry Active Waste (DAW) that was used in cleanup, sampling, and operation of the process

The containers of alumina, MgFl, NaFl are sampled at the point of generation for TCLP metals and Utah rads. Once data is received, the containers are determined to be non-hazardous or hazardous after review of the analytical data. Only non-hazardous alumina, MgFl, and NaFl will be disposed of under this profile.

The waste will not contain free liquids. Loose absorbent material may be added to the waste to mitigate the risk of free liquids >1% in waste containers that have the potential for free liquids/condensate.

Radiological and Chemical Characterization Requirements and Methods:

The primary objective of the characterization sampling design was to achieve high confidence that at least a high percentage of the items in population are acceptable. A hypergeometric model with a 95%/90% confidence interval was used to characterize this waste stream. The sample size was calculated using a similar method to Bowen and Bennett 1988 (*Statistical Methods for Nuclear Material Management*, NUREG/CR-4604, US Nuclear Regulatory Commission, Washington, DC). Twenty-eight random samples were taken to meet the 95/90 confidence interval.

Chemical Characterization

Ohio Administrative Code (OAC) Section 3745-51 *et seq* and Title 40 Code of Federal Regulations (CFR) § 261 *et seq* clearly define the process for identifying a waste based on characteristics. OAC 3745-51-20 (40 CFR § 261.24) states:

"A waste is a hazardous waste if it exhibits any of the characteristics identified in rules 3745-51-20 (40 CFR § 261.20) to 3745-51-24 (40 CFR § 261.24) of the Administrative Code."

To determine the regulatory status of this waste stream the following requirements were met:

1. Collect a representative sample.

2. Analyze the sample using TCLP Method 1311 in *"Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods,"* EPA Publication SW-846.

3. Compare the results of the analysis to OAC 3745-51-24, Table 1 (40 CFR § 261.24, Table 1).

4. If the contaminate is statistically (as defined by Chapter Nine of SW-846) at or above the regulatory limit outlined in Table 1 of OAC 3745-51-24 (40 CFR § 261.24), then the waste is characteristically hazardous for that contaminant and must be managed as such.

Also, waste may be characteristically hazardous if it meets the criteria outlined in OAC 3745-51-21 (40 CFR § 261.21) to OAC 3745-51-23 (40 CFR § 261.23). OAC 3745-51-30 (40 CFR § 261.30) clearly define the process for identifying a waste based on a listing. OAC 3745-51-30 (A) [40 CFR § 261.30 (a)] states:

> "A waste is a hazardous waste if it is listed as such in rules 3745-51-30 (§ 261.30) to 3745-51-35 (§ 261.35) of the Administrative Code."

To determine the regulatory status of this waste stream for listed hazardous waste, the following requirements were met:

1. Identify the generating process or identify the waste as derived from an already listed hazardous waste.

2. Identify the constituents, which may cause the waste to be classified as hazardous.

3. Compare the waste descriptions provided in OAC 3745-51-31 (40 CFR § 261.31) to OAC 3745-51-33 (40 CFR § 261.33).

4. If the process and constituents are listed in OAC 3745-51-31 (40 CFR § 261.31 to OAC 3745-51-33 (40 CFR § 261.33), then the waste is listed as hazardous and is managed as such.

This waste stream is not regulated for disposal as a RCRA hazardous waste as defined in 40 CFR 261. This waste is not regulated as TSCA (PCB) waste as defined in 40 CFR 761.

Radiological Characterization
Radiological characterization is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. Twenty-eight random samples of the total population were analyzed to provide the radiological characterization data to adequately determine a range and concentration of activity in the waste.

Basis for Determining Manifested Radionuclide Concentrations

Radiological characterization of outgoing shipments is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. The radiological laboratory results were used to establish scaling factors which are then synchronized with the NDA results and divided by net weight in the container to develop manifested nuclide concentrations. The SNM is typically in the form of dry non-visible uranium dust made up of oxide compounds, primarily UO_2F_2. The SNM is essentially distributed homogenously throughout the waste.

ATTACHMENT B.5
PHYSICAL PROPERTIES

Typically the waste will be packaged for transportation and disposal in drums or metal boxes. Optional packages include soft-sided bags, intermodal containers and sea-land containers. Notification will be provided prior to shipping if any optional containers are to be utilized.

ENERGYSOLUTIONS

EC-0230-SNM
Revision 3

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

The Special Nuclear Material Exemption Certification form must be completed and signed by each generator certifying to the following conditions. Please attach this form and all required information to the Radioactive Waste Profile Record (EC-0230). **A completed and signed copy of this form must also accompany each waste manifest.**

Waste Stream ID: 0691A-08 Manifest No. 0691A-08

1. Check applicable category below for the waste stream:

√	Uranium Enrichment Percent	Weight Percent of Chemicals in Condition 2c	Weight Percent of Materials in Condition 2d	U-235 Concentration (pCi/g)	Measurement Uncertainty* (pCi/g)
☒	< 10 %	≤ 20 %	≤ 1 %	≤ 1,900	≤ 285
☐	Unlimited	≤ 20 %	≤ 1 %	≤ 1,190	≤ 179
☐	Unlimited	Sum of both ≤ 45 % of waste by weight		≤ 680	≤ 102
☐	Unlimited	Unlimited	Unlimited	≤ 26	≤ 10
☐	Not Applicable - Enriched U-235 is not present in the waste.				

* A concentration value is used for the maximum measurement uncertainty limit rather than a percentage value to allow greater flexibility for generators with waste having very low SNM concentrations.

2. Certify to the following requirements by checking each box:

☒ a. Concentrations of SNM in individual waste containers do not exceed the applicable values listed in the above table and SNM isotope concentrations listed in Table 1.

☒ b. The SNM is homogeneously distributed throughout the waste or the SNM concentrations in any contiguous mass of 600 kilograms (1,323 lbs) do not exceed on average the specified limits. (Based on process knowledge or testing).

☒ c. Except as allowed by Condition 1, the waste does not contain "pure forms" of chemicals containing carbon, fluorine, magnesium, or bismuth in bulk quantities (e.g., a pallet of drums, a B-25 box). By "pure forms," it is meant that mixtures of the above elements such as magnesium oxide, magnesium carbonate, magnesium fluoride, bismuth oxide, etc. do not contain other elements. (Based on process knowledge or testing).

☒ d. Except as allowed by Condition 1, the waste does not contain total quantities of beryllium, hydrogenous material enriched in deuterium, or graphite above one percent of the total weight of the waste. (Based on process knowledge, physical observations, or testing).

☒ e. Waste packages do not contain highly soluble forms of uranium greater than 350 grams of uranium-235 or 200 grams of uranium-233. If the waste contains mixtures of U-233 and U-235, the waste meets the sum of the fractions rule. Highly soluble forms of uranium include, but are not limited to: uranium sulfate, uranyl acetate, uranyl chloride, uranyl formate, uranyl fluoride, uranyl nitrate, uranyl potassium carbonate, and uranyl sulfate. (Based on process knowledge or testing).

☐ f. For containers of liquid waste with more than 600 kilograms of waste, the total activity (pCi) of SNM in the manifested container does not exceed the SNM concentration in the above table or Table 1 times 600 kilograms of waste (based on process knowledge or testing). For example, the maximum activity of Pu-239 in any manifested container of liquid waste is 6.0 mCi (6.0E+09 pCi) as shown below:

$$10{,}000\,\frac{pCi}{g} \times 600{,}000\,g = 6.0X10^{9}\ pCi = 6.0\,mCi\ Pu\text{-}239$$

ENERGYSOLUTIONS

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

Table 1. Maximum concentrations of SNM in individual waste containers (refer to above table for U-235 limits).

Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)	Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)
U-233	75,000	11,250	Pu-241	350,000	50,000
Pu-236	500	75	Pu-242	10,000	1,500
Pu-238	10,000	1,500	Pu-243	500	75
Pu-239	10,000	1,500	Pu-244	500	75
Pu-240	10,000	1,500			

3. **Indicate that the following information is attached to the Radioactive Waste Profile Record by checking each box. (Note: Only the two-page Special Nuclear Material Exemption Certification form needs to be included with each manifest).**

   ☒ a. Provide a description of how the waste was generated, list the physical forms in the waste, and identify the uranium chemical composition.

   ☒ b. Provide a general description of how the waste was characterized (including the volumetric extent of the waste, and the number, location, type, and results of any analytical testing), the range of SNM concentrations, and the analytical results with error values used to develop the concentration ranges.

   ☒ c. Describe the process by which the waste was generated showing that the spatial distribution of SNM must be uniform, or other information supporting spatial distribution.

   ☒ d. Describe the methods to be used to determine the concentrations on the manifests. These methods could include direct measurement and the use of scaling factors. Describe the uncertainty associated with sampling and testing used to obtain the manifest concentrations.

4. **Generator's certification of compliance with the SNM exemption:** I certify that the information provided on this form is complete, true, and correct and is based on process knowledge, physical observations, or approved laboratory testing. I also certify that sampling and radiological testing of waste containing SNM was performed in accordance with EnergySolutions' Radioactive Material License and that any supporting documentation and analytical results have been submitted to EnergySolutions.

Authorized Signature	Printed Name	Title	Date
	Elizabeth Lamerson	Environmental Engineer	6/15/11

3X SITE -
CWS ✓
NEIGHBOR SITE ✓
BR
7/18/00

RADIOLOGICAL EVALUATION
STATEMENT OF ACCEPTANCE/REJECTION AND BASIS FOR DETERMINATION

7/1/99 (EC-0675) Revision 1

Generator Name: USEC-PORTS ; Generator #/Waste Stream #: 0691A-02 ; Volume of Waste Material TBD

Contractor Name: — Waste Stream Name: METAL ; Delivery Date: ONGOING

Check appropriate boxes: Licensed [X] Non-Licensed [ ] ; NORM [ ] ; LARW [X] ; MW Treated [ ] ; MW Needing Trmt [ ] ; DOE [ ] ; FUSRAP [ ] ; 11e.(2) [ ]

Original Submission: [ ] Y; [X] N: Revision # 2 ; Date of Revision 7/18/00

Name & Title of Person Completing Form: WAYNE JONES, DEP RSO

SOURCES OF INFORMATION

____ Where applicable, a copy of a current Interstate Compact Commission Letter authorizing export is attached.

STATEMENT OF SUFFICIENT INFORMATION AND ACCEPTANCE OR REJECTION FOR NORM CELL MANAGEMENT

(Y) N — There exists sufficient information to make a responsible determination.

(ACCEPTED)/REJECTED — The waste is hereby accepted or rejected for management in the NORM/LARW/MW/11e.(2) cell for the reasons indicated below or on the reverse side. (Circle selection; cross out item not applicable.)

This determination is based on (Y) the Radiological Evaluation Record, (Y) statements, analyses and information attached with the evaluation, (Y) the evaluation's certification signed by the generator or its associate(s).

AREAS OF RADIOLOGICAL CONCERN

The following items were of concern for this particular waste:

The concerns above were resolved by the following methods:

Remarks: INCREASE RANGES.

*** Regulator's or Contact Person's Name, Phone Number, and Time and Date of Call:

Information from Contact Person:

over

CERTIFICATION AND STATEMENT OF SUFFICIENT BASIS FOR DETERMINATION THAT WASTE IS RADIOLOGICALLY ACCEPTABLE: If accepted, the waste described on this document has been determined to be low-activity radioactive waste based on the information available to Envirocare at the time of acceptance as described in this document.

L Wayne Jones — Signature of Envirocare — 7/18/00 Date

meets license condition 13(SWM)
DCRSO 4-20-06

LETTER TO FILE: 0691A-02, "METAL" USEC – PORTSMOUTH
DATE: 4/13/00

THE PURPOSE OF CREATING 0691A-02 WAS TO ESTABLISH A UNIQUE GENERATOR ID #/ WASTE STREAM # FOR USEC – PORTSMOUTH AND TO SEPARATE IT FROM USEC – PADUCAH IN TERMS OF A POINT OF GENERATION AND SHIPMENT.

THE ATTACHED EC-0230, REVISION 1, DATED 7/22/99 AND OTHER ATTACHED DOCUMENTATION ARE REPRESENTATIVE OF THE WASTE TO BE SENT. THE EC-0230 HAS BEEN EDITED TO REMOVE USEC PADUCAH AS A POINT OF GENERATION AND SHIPMENT.

HISTORICAL INFORMATION, INCLUDING EC-0325, EC-0025 REVIEW FORMS REMAIN EFFECTIVE FOR 0691B-02. IF CHANGES OCCUR TO 0691A-02 SUBSEQUENT TO 4/13/00, REVISED WASTE PROFILE INFORMATION AND REQUIRED REVIEW DOCUMENTATION WILL BE GENERATED FOR ENVIROCARE OPERATING RECORDS.

EXISTING ACCEPTANCE RANGES, AS DOCUMENTED ON EC-1775/1875 FOR 0691-02, REMAIN APPLICABLE AND EFFECTIVE FOR 0691A-02 AND 0691B-02.

4/13/00

ANDREW E. DROM, DIRECTOR, TECHNICAL SERVICES

RADIOACTIVE WASTE PROFILE RECORD

(EC-0230) (11/21/95)

0691A-02 4/13/00

Generator Name: United States Enrichment Corporation ; Generator #/Waste Stream #: 0691-02 ; Volume of Waste Material: approx. 200,000

Contractor Name: N/A ; Waste Stream Name: Metal ; Delivery Date: 7/99- 4/00

Check appropriate boxes: Licensed Y X N ; NORM/NAUM ; LLRW X ; MW ; MW Treated ; MW Needing Treat ; DOE ; 11e.(2)

Original Submission: Y N X ; Revision # #1 B2 8/6/99 Date of Revision 7/22/99 740

Name & Title of Person Completing Form: J. Michael Hawk, Pamela A. Kulik Rev. A Phone: 614-897-3612/302-441-5610

A. CUSTOMER INFORMATION:

GENERAL: Please read carefully and complete this form for one waste stream. This information will be used to determine how to properly manage the waste. Should there be any questions while completing this form, contact Envirocare at (801) 532-1330. WASTES CANNOT BE ACCEPTED AT ENVIROCARE UNLESS THIS FORM IS COMPLETED. If a category does not apply, please indicate. This form must be updated annually.

* 0691A-02 APPLIES TO USEC-PORTSMOUTH ONLY. 4/13/00.

1. GENERATOR INFORMATION

EPA ID # ~~Pad-KYK-000-004-424~~ Paducah - KY8890008424 Ports - OHD987054723 EPA Hazardous Waste Number(s) (if applicable) N/A

Mailing Address: ~~Paducah - P.O. Box 1410, Paducah, KY 42001~~; Portsmouth - P.O. Box 628, M/S 9030, Piketon, OH 45661

Phone: ~~Paducah - 502-441-5610~~; Portsmouth 614-897-3614 740 Fax: ~~Paducah 502-441-6966~~; Ports 614-897-2151 740

Location of Material (City, ST): ~~Paducah, KY~~; Portsmouth, OH

Generator Contact: ~~Paducah - Pamela A. Kulik~~, Ports- Michael Hawk Title: Chemical Engineer, Environmental Engineer

Mailing Address (if different from above): same

Phone: same Fax: same

B. WASTE PHYSICAL PROPERTIES (Should you have any questions while completing this section, contact Envirocare Customer Support Representative at (801) 532-1330.)

1. PHYSICAL DATA (Indicate percentage of material that will pass through the following grid sizes, e.g., 12" 100%, 4" 95%, 1" 74%, 1/4" 50%, 1/40" 30%, 1/200", 5%.)

GRADATION OF MATERIAL:

12"	10	%
4"	5	%
1"	≤ 1	%
1/4"	0	%
1/40"	0	%
1/200"	0	%

2. DESCRIPTION: Color various Odor none

Liquid ____ Solid X Sludge ____ Powder/Dust ____

3. DENSITY RANGE: (Indicate dimensions) 10 - 120 S.G. lb./ft³ lb./yd³

4. GENERAL CHARACTERISTICS (% OF EACH)

Soil 0 Building Debris 10 Rubble 0 Pipe Scale 0 Tailings 0 Process Waste 0 Concrete 0 Plastic/Resin 0

Other constituents and approximate % contribution of each: 90 Scrap Metal

5. MOISTURE CONTENT: (For soil or soil-like materials.)
Use Std Proctor Method ASTM D-698)

Optimum Moisture Content: N/A %

Average Moisture Content: N/A %

Moisture Content Range: N/A - %

6. DESCRIPTION OF WASTE (Please attach a description of the waste with respect to its physical composition and characteristics. This description must be attached separately or included with the attachment for Item D.1.).

Post-it® Fax Note 7671	Date	# of pages ▶ 24
To BRENT ROGERS	From MICHAEL HAWK	
Co./Dept.	Co. USEC	
Phone #	Phone #	
Fax #	Fax #	

C. RADIOLOGICAL EVALUATION.

1. WASTE STREAM INFORMATION. For each radioactive isotope associated with the waste, please list the following information. Envirocare's license assumes daughter products to be present in equilibrium, these are not required to be listed below and do not require manifesting. (Use additional copies of this form if necessary.)

	Isotope	Concentration Range (pCi/g)		Weighted Average (pCi/g)		Isotope	Concentration Range (pCi/g)		Weighted Average (pCi/g)
a.	Th 230	≤ 1	to 100	5	g.	Np 237	≤ 1	to 50	5
b.	U238	≤ 1	to 500	50	h.	Am 241	≤ 1	to 10	2
c.	U 235	≤ 1	to 100	20	i.			to	
d.	U 234	≤ 1	to 1000	500	j.			to	
e.	Tc 99	≤ 1	to 200	50	k.			to	
f.	Pu 239	≤1	to 30	2	l.			to	

2. YX N Is the radioactivity contained in the waste material Low-Level Radioactive Waste as defined in the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 5820.2A, Chapter III? (Please Circle) If yes, check "LLRW" block on line 3 of page 1.

3. YX N LICENSED MATERIAL: Is the waste material listed or included on an active Nuclear Regulatory Commission or Agreement State license? (Please Circle)

(If Yes) TYPE OF LICENSE: Source X ; Special Nuclear Material X ; By-Product X ; NORM ____ ; NARM ____ ;

LICENSING AGENCY: NRC

D. CHEMICAL AND HAZARDOUS CHARACTERISTICS

1. DESCRIPTION AND HISTORY OF WASTE

Please attach a description of the waste to this profile. Include the following as applicable: The process by which the waste was generated. Available process knowledge of the waste. The basis of hazardous waste determinations. A list of the chemicals and materials used in or commingled with the waste; a list of any and all applicable EPA Hazardous Waste Numbers, current or former; and, a list of any and all applicable land-disposal prohibition or hazardous-waste exclusions, extensions, exemptions, effective dates, variances, or delistings. Attach the most recent or applicable analytical results involving the composition of the waste. Attach any product information or treatment standards. Attach any applicable analytical results involving the composition of the waste. Attach any product information or Material Safety Data Sheets associated with the waste. If a category on this Waste Profile Record does not apply, describe why it does not.

Please describe the history, and include the following:

Y N Was this waste mixed, treated, neutralized, solidified, commingled, dried, or otherwise processed upon generation or at any time thereafter?

Y N Has this waste been transported or otherwise removed from the location or site where it was originally generated?

Y N Was this waste derived from (or is the waste a residue of) the treatment, storage, and/or disposal of hazardous waste defined by 40 CFR 261?

Y N Has this material been treated at any time to meet any applicable treatment standard?

2. LIST ALL KNOWN AND POSSIBLE CHEMICAL COMPONENTS OR HAZARDOUS WASTE CHARACTERISTICS

		(Y)	(N)			(Y)	(N)			(Y)	(N)
a.	Listed HW		X	b.	"Derived-From" HW		X	c.	Toxic		X
d.	Cyanides		X	e.	Sulfides		X	f.	Dioxins		X
g.	Pesticides		X	h.	Herbicides		X	i.	PCBs	X	
j.	Explosives		X	k.	Pyrophorics		X	l.	Solvents		X
m.	Organics		X	n.	Phenolics		X	o.	Infectious		X
p.	Ignitable		X	q.	Corrosive		X	r.	Reactive		X
s.	Antimony		X	t.	Beryllium		X	u.	Copper	X	
v.	Nickel	X		w.	Thallium		X	x.	Vanadium		X
y.	Alcohols		X	z.	Arsenic		X	aa.	Barium		X
bb.	Cadmium		X	cc.	Chromium		X	dd.	Lead		X
ee.	Mercury		X	ff.	Selenium		X	gg.	Silver		X
hh.	Benzene		X	ii.	Nitrate		X	jj.	Nitrite		X
kk.	Fluoride		X	ll.	Oil		X	mm.	Fuel		X
nn.	Chelating Agents		X								

oo. Other Known or Possible Materials or Chemicals Zn

3. ANALYTICAL RESULTS FOR TOXICITY CHARACTERISTIC. (Please transcribe results on the blank spaces provided. Attach additional sheets if needed, indicate range or worst-case results).

Metals (circle one):	Total (mg/kg)	or	TCLP (mg/l)	Organics (circle one)	Total (mg/kg)	or	TCLP (mg/l)
Arsenic	N/A	Lead	N/A	N/A			
Barium	N/A	Mercury	N/A				
Cadmium	N/A	Selenium	N/A				
Chromium	N/A	Silver	N/A				
Copper	N/A	Zinc	N/A				

4. ANALYTICAL RESULTS FOR REQUIRED PARAMETERS: (Please transcribe results on the blank spaces provided. Attach additional sheets if needed).

Soil pH N/A Paint Filter Liquids Test WAIVED (Pass/Fail) Cyanide Released N/A mg/kg Sulfide Released N/A mg/kg

5. REACTIVITY (40 CFR 261.21[a][2],[3].)

Flash Point ≥ n/a °F °C Is the waste a RCRA oxidizer? Y N☒

6. CHEMICAL COMPOSITION (List all known chemical components and circle the applicable concentration dimensions. Use attachments to template, if necessary.)

Chemical Component	Concentration		Chemical Component	Concentration	
Ferrous	70	%mg/kg			% mg/kg
Aluminum	20	%mg/kg			% mg/kg
Copper	5	%mg/kg	Halogenic Organic (HOC) Compounds (Sum of the list of HOCs.)	NA	mg/kg
Chrome, Nickel, etc.	5	%mg/kg			

7. TREATMENT STANDARDS. (FOR MIXED WASTE ONLY). Describe the waste's applicable treatment standards. Include the EPA Hazardous Waste Numbers and information with respect to the waste's subcategory (e.g., low mercury subcategory), treatability group (e.g. non-wastewaters), treatment standards and concentrations or technology (e.g. 5.7 mg/l selenium extract or INCIN [incineration]), and any applicable exemptions, exclusions, variances, extension, allowances, etc. The following format is suggested. If additional space is needed, provide an attachment to this profile record.

EPA HW Number	Subcategory	Treatability Group	Treatability Standard(s) and Concentrations or Technology	Any Exemptions, Variances, Extensions or Exclusions (List 40 CFR reference)
NA				[Y N]
NA				[Y N]

E. REQUIRED CHEMICAL LABORATORY ANALYSIS. Generator must submit results of analyses of the waste. Results are required from a qualified laboratory for the following analytical parameters unless nonapplicability of the analysis for the waste can be stated and justified in attached statements. Attach all analytical results and QA/QC documentation. (CAUTION: PRIOR TO ARRANGING FOR LABORATORY ANALYSES, CHECK WITH ENVIROCARE AND LABORATORY REGARDING UTAH LABORATORY CERTIFICATIONS.

FOR ALL WASTE TYPES: CHEMICAL ANALYSIS: Soil pH (9045), Paint Filter Liquids Test (9095); Reactivity (cyanide and sulfide).

1. MINIMUM ADDITIONAL ANALYTICAL REQUIRED FOR:

a. Non-RCRA Waste (Non Mixed Waste, i.e. LLRW, NORM): TCLP including the 32 organics, 8 metals, and copper (Cu) and zinc (Zn).

i. Mixed Waste: Results to show why the waste is hazardous, and the following analytical results:

(1) TOX (Total Organic Halides SW-846 9020/9022) or volatile & semi-volatile organics (8240+8270, required if TOX >200 mg/kg)

(2) Applicable concentration-based treatment standards

(3) Total and Amenable Cyanide, SW-846 9010 or 9012, required if reactive cyanide >20 mg/kg

2. REQUIRED RADIOLOGICAL ANALYSES: Please obtain sufficient samples to adequately determine a range and weighted average of activity in the waste. Have a sufficient number of samples analyzed by gamma spectral analysis for all natural and man-made isotopes such that they support the range and weighted average information for the waste stream that will be recorded in Item D.1. If Uranium, Plutonium, Thorium, or other non-gamma emitting nuclides are present in the material, have at least (1) sample evaluated by radiochemistry to determine the concentration of these additional contaminants in the material.

3. PRE-SHIPMENT SAMPLES OF WASTE TO ENVIROCARE

Once permission has been obtained from Envirocare, please send 5 representative samples of the waste to Envirocare. A completed EC-2000 form must be included with the sample containers. These samples will be used to establish the waste's incoming shipment acceptance parameter thresholds and may be analyzed for additional parameters. Send about two pounds (one liter) for each sample in an air-tight clean glass container via United Parcel Post (UPS) or Federal Express to:

Envirocare of Utah, Inc., Attn: Sample Control, Tooele County, Interstate-80, Exit 49, Clive, Utah 84029
(for Federal Express Use Zip Code 84083). Phone: (801) 521-9519

4. LABORATORY CERTIFICATION INFORMATION. Please indicate below which of the following categories applies to your laboratory data.

a. Note analytical data that is to represent mixed waste must be Utah certified or from the USEPA. All radiological data used to support the data in Item C.1. must be from a Utah-certified laboratory.

b. UTAH CERTIFIED. The laboratory holds a current certification for the applicable chemical or radiologic parameters from the Utah Department of Health insofar as such official certifications are given.

GENERATOR'S STATE CERTIFICATION. The laboratory holds a current certification for the applicable chemical parameters from the generator's State insofar as such official certifications are given, or

GENERATOR'S STATE LABORATORY REQUIREMENTS. The laboratory meets the requirements of the generator's State or cognizant agency for chemical laboratories, or:

If using a non-Utah certified laboratory, briefly describe the generator state's requirements for chemical analytical laboratories to defend the determination that the laboratory used meets those requirements, especially in terms of whether the requirements are parameter specific, method specific, or involve CLP or other QA data packages. Note: When process or project knowledge of this waste is applied, additional analytical results may not be necessary to complete Section B, D.2, D.5, or D.6 of this form.

c. For analytical work done by Utah-certified laboratories, please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for analyses required by this form.

d. For analytical work done by laboratories which are not Utah-Certified, please provide the following information:

State or Other Agency Contact Person	Generator's State	Telephone Number
Lab Contact Person	Laboratory's State	Telephone Number

F. CERTIFICATION

GENERATOR'S CERTIFICATION OF REPRESENTATIVE SAMPLES, ANALYTICAL RESULTS FROM QUALIFIED LABORATORIES, USE OF APPROVED ANALYTICAL AND SAMPLING METHODS, AND ARRANGEMENTS FOR TREATMENT OR NON-PROHIBITED DISPOSAL. I certify that samples representative of the waste described in this profile were or shall be obtained using state- and EPA-approved sampling methods. I also certify that where necessary these representative samples were or shall be provided to Envirocare and to qualified laboratories for the analytical results reported herein. I further certify that this waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at Envirocare) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true and correct and is accurately supported and documented by any laboratory testing as required by Envirocare of Utah, Inc. I certify that the results of any said testing have been submitted to Envirocare of Utah, Inc.

Generator's Signature P E A V C (Signature the above certification) Title Waste Characterization Date 7/26/99

Envirocare of Utah, Inc.
EC-0230-SNM
Revision 0, 6/11/99

SNM Exemption Certification

The SNM Exemption Certification form must be completed and signed by each generator certifying to the following conditions. Please attach this form and all required information to the Radioactive Waste Profile Record (EC-0230). **A completed and signed copy of this form must also accompany each waste manifest.**

Generator No. / Waste Stream No. ~~0691-02~~ 0691A-02 Manifest No. _____

Per 4/13/00

1. **Please check one of the following that applies to the waste stream:**

√	Uranium Enrichment Percent	Percent MgO by Weight	Percent Beryllium by Weight	U-235 Concentration (pCi/g)	Measurement Uncertainty* (pCi/g)
☒	< 10 %	≤ 20 %	≤ 1 %	≤ 1900	≤ 285
☒	≥ 10 %	≤ 20 %	≤ 1 %	≤ 1190	≤ 179
☐	Unlimited	Unlimited	Unlimited	≤ 160	≤ 24
☐	Unlimited	Sum of both ≤ 49 % of waste by weight		≤ 680	≤ 102

* A concentration value is used for the maximum measurement uncertainty limit rather than a percentage value to allow greater flexibility for generators with waste having very low SNM concentrations.

8/6/99 Per phone conv w/ Michael Hawke. See attached email.

2. **Please certify to the following requirements by checking each box:**

☒ a. Concentrations of SNM in individual waste containers do not exceed the applicable values listed in the above table and SNM isotope concentrations listed in Table 1.

☒ b. The SNM is homogeneously distributed throughout the waste or the SNM concentrations in any contiguous mass of 145 kilograms (320 lbs) do not exceed on average the specified limits. (Based on process knowledge or testing).

☒ c. Except as allowed by Condition 1, the waste does not contain "pure forms" of chemicals containing carbon, fluorine, magnesium, or bismuth in bulk quantities (e.g., a pallet of drums, a B-25 box). By "pure forms," it is meant that mixtures of the above elements such as magnesium oxide, magnesium carbonate, magnesium fluoride, bismuth oxide, etc. do not contain other elements. (Based on process knowledge or testing).

☒ d. Except as allowed by Condition 1, the waste does not contain total quantities of beryllium, hydrogenous material enriched in deuterium, or graphite above one percent of the total weight of the waste. (Based on process knowledge, physical observations, or testing).

☒ e. Waste packages do not contain highly soluble forms of uranium greater than 350 grams of uranium-235 or 200 grams of uranium-233. If the waste contains mixtures of U-233 and U-235, the waste meets the sum of the fractions rule. Highly soluble forms of uranium include, but are not limited to: uranium sulfate, uranyl acetate, uranyl chloride, uranyl formate, uranyl fluoride, uranyl nitrate, uranyl potassium carbonate, and uranyl sulfate. (Based on process knowledge or testing).

Table 1. Maximum concentrations of SNM in individual waste containers (refer to above table for U-235 limits).

Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)	Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)
U-233	75,000	11,250	Pu-241	350,000	50,000
Pu-236	500	75	Pu-242	10,000	1,500
Pu-238	10,000	1,500	Pu-243	500	75
Pu-239	10,000	1,500	Pu-244	500	75
Pu-240	10,000	1,500			

3. **Please indicate that the following information is attached to the Radioactive Waste Profile Record by checking each box. (Note: Only the two-page SNM Exemption Certification form needs to be included with each manifest).**

   ☒ a. Provide a description of how the waste was generated, list the physical forms in the waste, and identify the uranium chemical composition.

   ☒ b. Provide a general description of how the waste was characterized (including the volumetric extent of the waste, and the number, location, type, and results of any analytical testing), the range of SNM concentrations, and the analytical results with error values used to develop the concentration ranges.

   ☒ c. Describe the process by which the waste was generated showing that the spatial distribution of SNM must be uniform, or other information supporting spatial distribution.

   ☒ d. Describe the methods to be used to determine the concentrations on the manifests. These methods could include direct measurement and the use of scaling factors. Describe the uncertainty associated with sampling and testing used to obtain the manifest concentrations.

4. **Generator's certification of compliance with the SNM exemption:** I certify that the information provided on this form is complete, true, and correct and is based on process knowledge, physical observations, or approved laboratory testing. I also certify that sampling and radiological testing of waste containing SNM was performed in accordance with Envirocare's Radioactive Material License and that any supporting documentation and analytical results have been submitted to Envirocare of Utah, Inc.

Authorized Signature	Printed Name	Title	Date
[signature]	Pamela A. Kulik	Waste Characterization	7/26/99
[signature]	J. MICHAEL HAWK	ENV. ENGINEER	7-28-99

SPC Risk Factors (Scale 0-3, 3 represents greatest risk)			
Radiological Risk:	Chemical Risk:	Physical Risk:	Handling Risk:

ATTACHMENT C.1
RADIOLOGICAL EVALUATION, CONTINUATION

Generator Name: USEC-PORTS Generator # / Waste Stream #: 0691A-02
Revision #: 2 Revision Date: 7/18/00

	Isotopes	Concentration Range (pCi/g)			Weighted Avg. per Container (pCi/g)		Isotopes	Concentration Range (pCi/g)			Weighted Avg. per Container (pCi/g)
a.	TH-230	1	to	300	5	am.			to		
b.	U-238	1	to	1000	50	an.			to		
c.	U-235	1	to	300	20	ao.			to		
d.	U-234	1	to	5000	500	ap.			to		
e.	TC-99	1	to	1000	50	aq.			to		
f.	PU-239	1	to	100	2	ar.			to		
g.	NP-237	1	to	200	5	as.			to		
h.	AM-241	1	to	50	2	at.			to		
i.	RA-226	1	to	100	30	au.			to		
j.			to			av.			to		
k.			to			aw.			to		
l.			to			ax.			to		
m.			to			ay.			to		
n.			to			az.			to		
o.			to			ba.			to		
p.			to			bb.			to		
q.			to			aw.			to		
r.			to			ax.			to		
s.			to			ay.			to		
t.			to			az.			to		
u.			to			ba.			to		
v.			to			bb.			to		
w.			to			bc.			to		
x.			to			bd.			to		
z.			to			be.			to		
aa.			to			bf.			to		
ab.			to			bg.			to		
ac.			to			bh.			to		
ad.			to			bi.			to		
ae.			to			bj.			to		
af.			to			bk.			to		
ag.			to			bl.			to		
ah.			to			bm			to		
ai.			to			bn.			to		
aj.			to			bo.			to		
ak.			to			bp.			to		
al.			to			bq.			to		

EL 3/23/11

Information for SNM Exemption Certification sections 3 a-d.

a. Contaminated scrap metal is generated at the Portsmouth Gaseous Diffusion Plant by typical maintenance activities. The waste is solid consisting of such materials as structural steel, pipe, sheet metal, equipment, filters and metal stock with small amounts of glass and debris. These materials come into contact with uranium compounds enriched in U-235 and become contaminated. Contamination is typically in the form of dry non-visible uranium dust made up of oxide compounds, primarily UO_2F_2 which is essentially homogeneously distributed throughout the waste.

b. Scrap metal collected in B-25 boxes is measured for uranium U-235 using a non-destructive analysis method known as box monitoring. This "box monitor" consists of four high purity germanium detectors and neutron slabs coupled with a computerized system which give U-235 values in grams with an error of +/- 50%. On average a B-25 box consisting of 90 ft3 of scrap metal contains approximately 2 grams of U-235. The actual U-235 concentration in scrap metal currently being shipped to Envirocare ranges from less than 1 pCi/gram up to ~~570~~ 70 pCi/gram. BR 8/6/99 Per phone conv w/ Michael Hawk See attached letter 8/4/99

c. Referring to sections a and b above, the box monitor system is designed to detect "hot spots" of higher concentrations of U-235. On those rare occasions when hot spots are detected in a B-25, it is segregated and is not released for shipment. In this manner it is assured that in scrap metal sent to Envirocare the U-235 is uniformly distributed.

d. U-235 concentrations used on manifests are simply calculated by taking the gram amount of U235 as determined by NDA methods (see b above) divided into the weight of the actual waste (net). The scales used to weigh the B-25 boxes are highly accurate electronic scales.

3X site ✓
NTT ✓ site ✓
EWIS ✓

BR
8/10/99

RADIOLOGICAL EVALUATION
STATEMENT OF ACCEPTANCE/REJECTION AND BASIS FOR DETERMINATION

(EC-0675) 0691A-02 (Revised 04/97)

Generator Name: USEC ; Generator #/Waste Stream #: 0691-02 Am 4/13/00 ; Volume of Waste Material: 200,000 cf

Contractor Name: N/A ; Waste Stream Name: METAL ; Delivery Date: TBD

Check appropriate boxes: Licensed X ; Non-Licensed ___ ; NORM ___ ; LARW X ; MW Treated ___ ; MW Needing Treatment ___ ; DOE ___ ; FUSRAP ___ ; 11e.(2) ___

Original Submission: ___ Y; X N; Revision #: 1 ; Date of Revision: 7/22/99

Name & Title of Person Completing Form: MARK LEDOUX, CRSO

SOURCES OF INFORMATION

This determination by Envirocare is based on the information provided by ✓ the generator or the generator's associates and contractors, AND/OR N/A information gathered by Envirocare. (Place N/A if not applicable.)

STATEMENT OF SUFFICIENT INFORMATION AND ACCEPTANCE OR REJECTION FOR MANAGEMENT

(Y) N — There exists sufficient information to make a responsible determination.

(ACCEPTED)/REJECTED — The waste is hereby accepted or rejected for management in the NORM/LARW/MW/11e.(2) cell for the reasons indicated below or on the reverse side. (Circle selection; cross out item not applicable.)

This determination is based on ✓ the Radiological Evaluation Record, ___ statements, analyses and information attached with the evaluation, ___ the evaluation's certification signed by the generator or its associate(s).

AREAS OF RADIOLOGICAL CONCERN

The following items were of concern for this particular waste:

(Codes: A-Analysis; G-General nature of the waste; I-Inconsistencies in the information provided and available; U-Unanswered questions raised as a result of the information provided; and, Z-Other reasons explained below or on the reverse side.)

The concerns above were resolved by the following methods: ___

(Codes: A-Further Analysis; R-An appeal to a regulator or member of the staff of the USEPA or Utah Bureau of Radiation Control ***; V-Verbal statements ***; W-Written statements of processes or knowledge from the generator or generator's associate[s], Z-Other means explained below or on the reverse side.)

Remarks: SNM Rev -

*** Regulator's or Contact Person's Name, Phone Number, and Time and Date of Call: ___

Information from Contact Person: ___

over

CERTIFICATION AND STATEMENT OF SUFFICIENT BASIS FOR DETERMINATION THAT WASTE IS RADIOLOGICALLY ACCEPTABLE: If accepted, the waste described on this document has been determined to be low-activity radioactive waste based on the information available to Envirocare at the time of acceptance as described in this document.

Signature of Envirocare — Date: 8-10-99

Bret Rogers

From: Hawk, James M [hawkjm1@ports.usec.com]
Sent: Tuesday, July 18, 2000 12:09 PM
To: 'brogers@envirocareutah.com'
Subject: FW: Revision 2 to 0691A-02 (Att C.1)

0691A-02 Rev 2 Attachment C.11...

> -----Original Message-----
> From: Hawk, James M
> Sent: Tuesday, July 18, 2000 1:37 PM
> To: 'brogers@envirocareutah.com'
> Subject: RE: Revision 2 to 0691A-02 (Att C.1)
>
> <<0691A-02 Rev 2 Attachment C.11.doc>> Bret, per our phone conversation
> earlier I am submitting a revised profile for waste stream 0691A-02 (att.
> C1). The upper range of all radionuclides listed previously were
> increased, however in all cases the numbers are well below Envirocare's
> license limits. No new radionuclides were included nor were any other
> changes made. Please be advised USEC Portsmouth Waste Management is in the
> process of revising how shipment manifests are generated in order to
> prevent the shipping of any waste which would exceed profile limits. Thank
> you for your assistance in these matters. Michael Hawk USEC Portsmouth
>
> -----Original Message-----
> From: Bret Rogers [SMTP:brogers@envirocareutah.com]
> Sent: Tuesday, July 18, 2000 12:31 PM
> To: Michael Hawk (E-mail)
> Subject: Revision 2 to 0691A-02 (Att C.1)
>
> Michael,
> Please review the attachment and return email authorizing Envirocare to
> amend profile (concentration ranges for Tc-99 and U-234).
> Bret
>
>
>
> _____
> Bret C. Rogers
> Technical Services Director
> Envirocare of Utah, Inc.
> 46 W. Broadway, Suite 116
> Salt Lake City, UT 84101
> Voice: (801) 532-1330
> Fax: (801) 537-7345
> http://www.envirocareutah.com << File: 0691A-02 Rev 2 Attachment C.1.doc
> >>

Bret Rogers

From: Hawk, James M [hawkjm1@ports.usec.com]
Sent: Friday, August 06, 1999 11:14 AM
To: 'brogers@envirocareutah.com'
Subject: snm exemption form change

Bret, on our scrap metal (0691-02) SNM Exemption Certification form page one, please change the item one check mark to indicate the second selection i.e. greater than or equal to 10% enrichment. If you have any questions email me at hawkjm1@ports.usec.com tnx Michael Hawk United States Enrichment Corporation Portsmouth Ohio

To: Andy Drom
From: Mike Hawk
Date: 9/22/95

Portsmouth Gaseous Diffusion Plant Scrap Metal Radiological Analyses

Enclosed are the radiological results of ten smear samples taken on contaminated scrap metal at Portsmouth. The results are in picocurie per gram of smear material. To convert the results to meaningful numbers i.e. picocuries per gram of scrap metal the enclosed model (developed at Paducah) was employed. For example: The highest U-234 activity was measured at 90680 pCi/gram (of smear material). Using the model the U-234 activity per gram of scrap metal is calculated to be 759 pCi/gram or 800 pCi/gram, as reported on form EC-650 block 3.

Please call me if you have any questions.

Derived Factor ⇒ See next page.

$$\text{Smear activity}\left(\frac{pCi}{g}\right) * 8.37\times10^{-3} = \text{Waste Activity}\left(\frac{pC}{g}\right)$$

DERIVATION OF ACTIVITIES FOR METAL SHIPMENTS

A metal waste model was developed that would maximize surface area and correlate to the density calculated from actual shipments to SEG. It was calculated that four inch diameter schedule ten seamless mild steel pipe met this requirement. A cross section of this pipe divided into 144 square inches equaled 9.057 cross sections per square foot.

CALCULATION OF DENSITY PER CUBIC FOOT:

9.057 pieces/ft^2 X 5.61 pounds / 12 linear inches = 50.81 lbs/ft^3

INNER AND OUTER SURFACE AREAS WERE CALCULATED:

Inner surface area per piece equaled	160.60 square inches
outer surface area per piece equaled	169.65 square inches
total	330.25 square inches

NUMBER OF SMEARS REQUIRED TO SMEAR TOTAL SURFACE AREA OF PIPE WAS CALCULATED:

330.25 in^2 X 9.057 pieces/ft^3 = 2991.07in^2/ft^3
2991.07 in^2/ft^3 X 6.452cm^2/in^2 = 19298.4cm^2/ft^3
19298.4cm^2/ft^3 / 100cm^2/wipe = 193wipes/ft^3

GRAMS PER CUBIC FOOT CALCULATIONS:

50.81lbs/ft^3 X 453.6g/lbs = 23047g/ft^3

FORMULA FOR CALCULATING METAL ACTIVITIES:

Activity/wipe X 193wipes/ft^3 = _____Activity/ft^3
Activity/ft^3 / 23047g/ft^3 = _____Activity/g Material
Activity/g Material X ____g/Container = _____Activity/Container per Isotope

} 8.37×10^{-3} FACTOR

Highest U234 = 90680 pCi/g sm
X 8.37×10^{-3}
= 759.4 pCi/g meta

PORTSMOUTH

Lockheed Martin Utility Services
ES&H Laboratory
Analysis Results

Customer: ENV./WASTE MGT. Matl. Description: X705 SCRAP METAL SMEARS
Project Number: WMGT Subproject Number: WMS

Analysis	Units	950601-076 WMS13671	950601-077 WMS13672	950601-078 WMS13673
Americium 241	pCi/g	1.2	1.5	<0.56
Gamma Scan		SEE COMM	SEE COMM	SEE COMM
Neptunium 237	pCi/g	<.12	13.3	0.84
Plutonium 238	pCi/g	1.2	1.5	<0.56
Plutonium 239+240	pCi/g	1.2	22.6	<0.56
Tc99	pCi/g	599	773	306
Th230	pCi/g	1.2	109	2.61
U234	pCi/g	1050	81310	2344
U235	pCi/g	52	2401	49
U238	pCi/g	69	5982	22

Analysis	Units	950601-079 WMS13674	950601-080 WMS13675	950601-081 WMS13676
Americium 241	pCi/g	0.47	<0.82	<1.08
Gamma Scan		SEE COMM	SEE COMM	SEE COMM
Neptunium 237	pCi/g	1.36	<0.50	<0.78
Plutonium 238	pCi/g	0.47	<0.82	<1.08
Plutonium 239+240	pCi/g	3.05	<0.18	<0.2
Tc99	pCi/g	777	129	165
Th230	pCi/g	13.8	24.4	1.23
U234	pCi/g	7351	90680	2502
U235	pCi/g	320	3443	104
U238	pCi/g	930	11500	73

Analysis	Units	950601-082 WMS13677	950601-083 WMS13678	950601-084 WMS13679
Americium 241	pCi/g	<0.47	<0.53	1.6
Gamma Scan		SEE COMM	SEE COMM	SEE COMM
Neptunium 237	pCi/g	2.64	<0.78	3.6
Plutonium 238	pCi/g	<0.47	<0.53	1.6
Plutonium 239+240	pCi/g	2.03	0.43	4.2
Tc99	pCi/g	767	229	11668
Th230	pCi/g	28.6	1.8	33
U234	pCi/g	39780	1960	36640
U235	pCi/g	1451	65	1341
U238	pCi/g	1269	387	1495

Analysis	Units	950601-085 WMS13710
Americium 241	pCi/g	<0.46
Gamma Scan		SEE COMM
Neptunium 237	pCi/g	1.3

PORTSMOUTH

Plutonium 238	pCi/g		<.046
Plutonium 239+240	pCi/g		1.7
Tc99	pCi/g		2169
Th230	pCi/g		8.0
U234	pCi/g		11620
U235	pCi/g	5.1%	426
U238	pCi/g		1230

ENERGYSOLUTIONS

CL-WM-PR-001 F2 (EC-0230)
Revision 7

RADIOACTIVE WASTE PROFILE RECORD

A. GENERATOR AND WASTE STREAM INFORMATION

GENERAL: Complete this form for one waste stream. Contact EnergySolutions at (801) 532-1330 if you have any questions while completing this form. Please indicate "N/A" if a category does not apply.

1. GENERATOR INFORMATION

Generator Name: USEC/ Portsmouth EPA ID #: OHD987054723

Generator Contact: Elizabeth D. Lamerson Title: Environmental Engineer

Mailing Address: P.O. Box 628 M/S 9030

Piketon, OH 45661 Utah Site Access Permit #: 0111000043

Phone: 740-897-2812 Fax: 740-897-2143 Email: lamersoned@ports.usec.com

Contractor Name: N/A Location of Waste (City, State): Portsmouth

Name & Title of Person Completing Form: Elizabeth Lamerson/Env. Eng. Phone: 740-897-2812 Email: lamersoned@ports.usec.com

2. WASTE STREAM INFORMATION

Waste Stream ID: 0691A-05 Waste Stream Name: Dirt/Filters/Coal/Carbon State of Origin: OH

Revision: 0 Date: 04/08/2011 Volume (ft^3): TBD Delivery Date: Ongoing

CHECK APPROPRIATE BOXES BELOW. Please verify the required forms requested below are completed and submitted with the Radioactive Waste Profile Record.

HAZARDOUS WASTE: Is the waste classified as hazardous waste as defined by 40 CFR 261?

N ☒ If **NO**, complete and attach the **"Low-Level Radioactive Waste Certification Attachment"**.

Y ☐ If **YES**, complete and attach the **"Hazardous Waste Certification Attachment"** and check applicable box below.
Has the waste been treated to meet applicable treatment standards per 40 CFR 268? Y ☐ N ☐
Is the waste to be treated by EnergySolutions? Y ☐ N ☐

LOW-LEVEL RADIOACTIVE WASTE: Is the radioactive waste defined as Low-Level Radioactive Waste in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 435.1?

Y ☒ If **YES**, a current copy of a LLRW Compact Export letter authorizing export must be submitted if applicable. This authorization is applicable for non-DOE LLRW (i.e., Mixed Waste, NORM/NARM, 11e.(2) material, and waste from DOE do not require a Compact Export Letter).

N ☐ If **NO**, check appropriate box: NORM/NARM ☐ 11e.(2) Byproduct Material ☐ Other: _____

SPECIAL NUCLEAR MATERIAL: Does the waste stream contain material with uranium enriched in U-235 or any of the following radionuclides: U-233, Pu-236, Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Pu-243, or Pu-244?

Y ☒ N ☐ If Yes, complete and attach the "SNM Exemption Certification" form (EC-0230-SNM). Supporting statements, analytical results, and documentation must be included with the submittal.

PCB WASTE: Does the waste contain Polychlorinated Biphenyls (PCB) that are regulated for disposal per 40 CFR 761?

Y ☐ N ☒ If Yes, complete and attach the "PCB Waste Certification" form (EC-98279).

ASBESTOS: Does the waste contain Asbestos Containing Material?

Y ☐ N ☒ If Yes, Asbestos Containing Material must be managed in accordance with applicable federal regulations. Provide a detailed description of the waste containing asbestos in Section B.5 of the waste profile.

RADIOACTIVE WASTE PROFILE RECORD

B. WASTE PHYSICAL PROPERTIES & PACKAGE INFORMATION

1. GENERAL CHARACTERISTICS

Does the waste contain free liquids? Y ☐ N ☒ If Yes, what is the percent of free liquid by waste volume? _____ %

If Yes, is the liquid aqueous (water-based)? Y ☐ N ☐

Does the waste contain absorbent? Y ☒ N ☐ Density range of the waste: 0.44 – 1.84 g/cc ☒ lb/ft^3 ☐

List percentage of waste type by volume: Soil 90% Concrete & Metal _____% DAW 5% Resins _____% Sludge 5%

Other constituents and percentage by volume? N/A

2. MATERIAL SIZE

Gradation of Material: Indicate the percentage of waste material that would **pass through** the following grid sizes. For example, 95% of the material would pass through a 12" square, 90% passes through a 4" square, 80% passes through a 1" square, etc.

12" 98 % 4" 75 % 1" 60 % 1/4" 50 % 1/40" ≤1 % 1/200" ≤1 %

Does the waste stream contain oversize debris (i.e., no dimension < 10 inches and any dimension > 12 feet)? Y ☐ N ☒
If Yes, include a detailed description (i.e., weight, size, drawings, etc.) of the oversize debris in the narrative of Section B.5.

3. MOISTURE CONTENT

For soil or soil-like materials, please use **Std. Proctor Method ASTM D-698** to determine the optimum moisture content. The waste material must not exceed 3 percentage points above optimum moisture upon arrival at EnergySolutions' disposal facility unless approved by EnergySolutions.

Optimum Moisture Content: N/A % at Maximum Dry Density (lb/ft^3): N/A

Average Moisture Content: 46.63 % Moisture Content Range: 0.24% - 77.7%

4. WASTE SHIPPING & PACKAGING

Transportation Mode: ☒ Highway ☒ Rail

Shipping & Container Packages: (Check all that apply) ☒ Drums* (≤ 85 gallons) ☒ Boxes (≤ 100 ft^3) ☒ Soft-Sided Bags (≤ 10 yd^3)

☒ Intermodal ☒ Sealand ☐ Gondola** ☐ Box Car

Other:

*Palletized drums are preferred by the disposal site. Please specify in the "Other" field if drums will not be palletized.
**Dimensions of gondola railcars must be between 48 to 65 feet in length and 8.5 to 12.5 feet in height as measured from the top of the rail to the top of the railcar unless approved by EnergySolutions.

5. NARRATIVE DESCRIPTION AND HISTORY OF WASTE

Please submit a narrative description and history of the waste as an attachment to the Radioactive Waste Profile Record. This attachment should include the following:

- Process that generated the waste
- Waste material physical composition and characteristics
- Radiological and chemical characterization method
- Basis for determining manifested radionuclide concentrations
- Description and amounts of absorbents, if applicable
- Basis of non-hazardous or hazardous waste determinations
- Treatment processes, if applicable
- Product information or Material Safety Data Sheets associated with the waste as applicable
- Information requested in other sections of this form

RADIOACTIVE WASTE PROFILE RECORD

Waste Stream ID: 0691A-05 Revision: 0 Date of Revision: *04/08/2011*

C. RADIOLOGICAL INFORMATION

Obtain sufficient samples to adequately determine a range and weighted average of activity in the waste. Attach the gamma spectroscopy or radiochemistry data supporting the radionuclide information listed below.

1. Does the waste material contain accessible surfaces with contact dose rates greater than 500 mR/hr? Y ☐ N ☒

2. Does the waste material contain any of the following isotopes: Aluminum-26, Berkelium-247, Calcium-41, Californium-250, Chlorine-36, Rhenium-187, Terbium-157, or Terbium-158? Y ☐ N ☒

3. Please list the following information for each isotope associated with the waste. Provide an explanation in the narrative description of Section B.5 if the waste contains localized "hot spots" or elevated concentrations that significantly exceed the upper concentration range. If additional space is needed, provide an Attachment C.3 to this profile record formatted as below.

Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)	Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)
Am-241	100	10			
Np-237	300	30			
Pu-238	0.04	0.04			
Pu-239/240	0.05	0.05			
Th-228	300	10			
Th-230	2.475	0.43			
Th-231	1.196	0.526			
Th-232	300	10			
Th-234	19.14	1.652			
~~Total U~~	~~57.49~~	~~5.054~~ EL 5/12/11			
U-232	0.0718	0.0633			
U-233/234	38000	100			
U-235	~~1190~~ 1900 EL 5/12/11	10			
U-236	0.3094	0.0854			
U-238	16500	100			
Ac-228	6.618	6.2665			
Bi-214	4.654	4.319			
Pb-210	6.512	5.5665			
Pb-212	3.626	3.626			
Nb-95	1.152	1.152			
K-40	70.38	50.37			
Ra-226	300	10			
Ra-228	6.618	6.2665			
Tc-99	401	148.3476			
Ac-227	300	10			
U-Dep	18000	500			
Th-229	100	10			
Cs-137	100	10			
Pa-231	100	10			
Tc-99	200	15			

EL 5/12/11

RADIOACTIVE WASTE PROFILE RECORD

HAZARDOUS WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked YES. Otherwise, complete the Low-Level Radioactive Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

pH (Liquid only): N/A — **Method 9045** Please provide the range of the pH analyses performed.

PFLT: Pass Pass / Fail — **Method 9095** Not applicable for liquid radioactive waste streams.

Analyze the waste for volatile or semi-volatile constituents (Methods 8260 & 8270), and attach the data.

Any distinguishing color or odor? Y ☐ N ☒ If Yes, color: ____; odor: ____

2. HAZARDOUS WASTE CODES AND TREATMENT STANDARDS (40 CFR 268)

List all hazardous waste codes and treatment standards. Include hazardous waste codes that have been removed through treatment and indicate "Former" in the second column. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.2 to this profile record formatted as below. Include a description of hazardous waste determinations and any variances, exclusions, etc. in the narrative requested in Section B.5.

EPA HW Codes	Description, Constituent of Concern, or Subcategory	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

3. **UNDERLYING HAZARDOUS CONSTITUENTS (40 CFR 268.48)**

List all underlying hazardous constituents (UHCs) and treatment standards. Include UHCs that have been removed through treatment. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below.

Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A

D. 4. **OTHER CHEMICAL CONSTITUENTS**

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

5. **LABORATORY CERTIFICATION INFORMATION**

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

6. **CERTIFICATION**

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License or RCRA Permit.

Generator's Signature: _____ Title: Environmental Engineer Date: 4/19/11

RADIOACTIVE WASTE PROFILE RECORD

LOW-LEVEL RADIOACTIVE WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked No. Otherwise, complete the Hazardous Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

PFLT: Pass Pass / Fail **Method 9095** Not applicable for liquid radioactive waste streams.

2. 40 CFR 261.24 Table 1 – Contaminants of Toxicity Characteristic

Metals: Methods 6010 & *7470 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Arsenic	0.205	Chromium	0.056	Selenium	0.198
Barium	0.252	Lead	0.235	Silver	ND
Cadmium	0.014	*Mercury	0.00088		

Organics, Pesticides/Herbicides: Methods 8081/*8151 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Endrin	ND	Toxaphene	ND	Chlordane	ND
Lindane	ND	*2,4-D	ND	Heptachlor	ND
Methoxychlor	ND	*2,4,5-TP Silvex	ND		

Organics, Semi-Volatile: Method 8270 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

o-Cresol	ND	Hexachlorobenzene	ND	Pentachlorophenol	ND
m-Cresol	ND	Hexachlorobutadiene	ND	Pyridine	ND
p-Cresol	ND	Hexachloroethane	ND	2,4,5-Trichlorophenol	ND
Total Cresol	ND	Nitrobenzene	ND	2,4,6-Trichlorophenol	ND
2,4-Dinitrotoluene	ND				

Organics, Volatile: Method 8260 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Benzene	ND	1,4-Dichlorobenzene	0.05	Methyl ethyl keytone	0.05
Carbon Tetrachloride	ND	1,2-Dichloroethane	ND	Tetrachloroethylene	0.05
Chlorobenzene	0.05	1,1-Dichloroethylene	ND	Trichloroethylene	ND
Chloroform	ND	Vinyl Chloride	ND		

3. Was the waste at the point of generation a RCRA hazardous waste per 40 CFR 261? Y ☐ N ☒

If Yes, list former hazardous waste codes and former underlying hazardous constituents. List worst-case concentrations for each hazardous constituent. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below. Attach the most recent chemical analytical results demonstrating compliance with applicable treatment standards.

If No, indicate "N/A" in Section D.3 below.

RADIOACTIVE WASTE PROFILE RECORD

D. 3.	Former EPA HW Codes or Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)

4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
Aroclor 1262	2600 ug/kg	N/A	N/A
Beryllium	0.734 mg/kg		

5. LABORATORY CERTIFICATION

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

_____

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License.

Generator's Signature: _____ Title: Environmental Engineer Date: 4/19/11

ATTACHMENT B.5
PHYSICAL PROPERTIES

Generator Name: USEC/Portsmouth Waste Stream ID: 0691A-05
Revision #: 0 Revision Date:

DIRT/COAL/CARBON WASTE STREAM

The Dirt/Coal/Carbon waste stream originates in the Portsmouth Gaseous Diffusion Plant (PORTS) X-700 and X-342 Buildings. The dirt and coal were generated in the X-700 Building. The dirt was removed from a large dip tank that was used to clean filters from the process buildings. The liquid was removed from the tank and the solids on the bottom of the tank were allowed to dry and were placed in drums. The coal is generated from filtering media from the Biodenitrification system as associated with our NPDES permit. The carbon was generated in the X-342 Building. It was generated from carbon blades in a fluorine generator that were cleaned and replaced. The carbon was contained in drums. The waste stream also contains small amounts of Dry Active Waste (DAW) that was used in cleanup, sampling, and operation of the process.

The containers of Dirt/Coal/Carbon were sampled at the point of generation. These containers were re-sampled and analyzed for the purpose of characterization and this profile. The results were found to be non-hazardous.

The waste will not contain free liquids. Loose absorbent material may be added to the waste to mitigate the risk of free liquids >1% in waste containers that have the potential for free liquids/condensate.

Radiological and Chemical Characterization Requirements and Methods:

The primary objective of the characterization sampling design was to achieve high confidence that at least a high percentage of the items in population are acceptable. A hypergeometric model with a 95%/90% confidence interval was used to characterize this waste stream. The sample size was calculated using a similar method to Bowen and Bennett 1988 (*Statistical Methods for Nuclear Material Management*, NUREG/CR-4604, US Nuclear Regulatory Commission, Washington, DC). Twenty-two random samples were taken to meet the 95/90 confidence interval.

Chemical Characterization

Ohio Administrative Code (OAC) Section 3745-51 *et seq* and Title 40 Code of Federal Regulations (CFR) § 261 *et seq* clearly define the process for identifying a waste based on characteristics. OAC 3745-51-20 (40 CFR § 261.24) states:

"A waste is a hazardous waste if it exhibits any of the characteristics identified in rules 3745-51-20 (40 CFR § 261.20) to 3745-51-24 (40 CFR § 261.24) of the Administrative Code."

To determine the regulatory status of this waste stream the following requirements were met:

1. Collect a representative sample.

2. Analyze the sample using TCLP Method 1311 in *"Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods,"* EPA Publication SW-846.

3. Compare the results of the analysis to OAC 3745-51-24, Table 1 (40 CFR § 261.24, Table 1).

4. If the contaminate is statistically (as defined by Chapter Nine of SW-846) at or above the regulatory limit outlined in Table 1 of OAC 3745-51-24 (40 CFR § 261.24), then the waste is characteristically hazardous for that contaminant and must be managed as such.

Also, waste may be characteristically hazardous if it meets the criteria outlined in OAC 3745-51-21 (40 CFR § 261.21) to OAC 3745-51-23 (40 CFR § 261.23). OAC 3745-51-30 (40 CFR § 261.30) clearly define the process for identifying a waste based on a listing. OAC 3745-51-30 (A) [40 CFR § 261.30 (a)] states:

> "A waste is a hazardous waste if it is listed as such in rules 3745-51-30 (§ 261.30) to 3745-51-35 (§ 261.35) of the Administrative Code."

To determine the regulatory status of this waste stream for listed hazardous waste, the following requirements were met:

1. Identify the generating process or identify the waste as derived from an already listed hazardous waste.

2. Identify the constituents, which may cause the waste to be classified as hazardous.

3. Compare the waste descriptions provided in OAC 3745-51-31 (40 CFR § 261.31) to OAC 3745-51-33 (40 CFR § 261.33).

4. If the process and constituents are listed in OAC 3745-51-31 (40 CFR § 261.31 to OAC 3745-51-33 (40 CFR § 261.33), then the waste is listed as hazardous and is managed as such.

This waste stream is not regulated for disposal as a RCRA hazardous waste as defined in 40 CFR 261. This waste is not regulated as TSCA (PCB) waste as defined in 40 CFR 761.

Radiological Characterization
Radiological characterization is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. Twenty-two random samples of the total population were analyzed to provide the radiological characterization data to adequately determine a range and concentration of activity in the waste.

Basis for Determining Manifested Radionuclide Concentrations

Radiological characterization of outgoing shipments is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. The radiological laboratory results were used to establish scaling factors which are then synchronized with the NDA results and divided by net weight in the container to develop manifested nuclide concentrations. The SNM is typically in the form of dry non-visible uranium dust made up of oxide compounds, primarily UO_2F_2. The SNM is essentially distributed homogenously throughout the waste.

Typically the waste will be packaged for transportation and disposal in drums or metal boxes. Optional packages include soft-sided bags, intermodal containers and sea-land containers. Notification will be provided prior to shipping if any optional containers are to be utilized.

ENERGYSOLUTIONS

EC-0230-SNM
Revision 3

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

The Special Nuclear Material Exemption Certification form must be completed and signed by each generator certifying to the following conditions. Please attach this form and all required information to the Radioactive Waste Profile Record (EC-0230). **A completed and signed copy of this form must also accompany each waste manifest.**

Waste Stream ID: 0691A-05 Manifest No. 0691A-05

1. Check applicable category below for the waste stream:

	√	Uranium Enrichment Percent	Weight Percent of Chemicals in Condition 2c	Weight Percent of Materials in Condition 2d	U-235 Concentration (pCi/g)	Measurement Uncertainty* (pCi/g)
*	☒	< 10 %	≤ 20 %	≤ 1 %	≤ 1,900	≤ 285
*	☒	Unlimited	≤ 20 %	≤ 1 %	≤ 1,190	≤ 179
	☐	Unlimited	Sum of both ≤ 45 % of waste by weight		≤ 680	≤ 102
	☐	Unlimited	Unlimited	Unlimited	≤ 26	≤ 10
	☐	Not Applicable - Enriched U-235 is not present in the waste.				

* A concentration value is used for the maximum measurement uncertainty limit rather than a percentage value to allow greater flexibility for generators with waste having very low SNM concentrations.

*Some of the containers will exceed 10% enrichment, but the concentration will not exceed 1,190 pCi/g U-235 for those containers.

2. Certify to the following requirements by checking each box:

☒ a. Concentrations of SNM in individual waste containers do not exceed the applicable values listed in the above table and SNM isotope concentrations listed in Table 1.

☒ b. The SNM is homogeneously distributed throughout the waste or the SNM concentrations in any contiguous mass of 600 kilograms (1,323 lbs) do not exceed on average the specified limits. (Based on process knowledge or testing).

☒ c. Except as allowed by Condition 1, the waste does not contain "pure forms" of chemicals containing carbon, fluorine, magnesium, or bismuth in bulk quantities (e.g., a pallet of drums, a B-25 box). By "pure forms," it is meant that mixtures of the above elements such as magnesium oxide, magnesium carbonate, magnesium fluoride, bismuth oxide, etc. do not contain other elements. (Based on process knowledge or testing).

☒ d. Except as allowed by Condition 1, the waste does not contain total quantities of beryllium, hydrogenous material enriched in deuterium, or graphite above one percent of the total weight of the waste. (Based on process knowledge, physical observations, or testing).

☒ e. Waste packages do not contain highly soluble forms of uranium greater than 350 grams of uranium-235 or 200 grams of uranium-233. If the waste contains mixtures of U-233 and U-235, the waste meets the sum of the fractions rule. Highly soluble forms of uranium include, but are not limited to: uranium sulfate, uranyl acetate, uranyl chloride, uranyl formate, uranyl fluoride, uranyl nitrate, uranyl potassium carbonate, and uranyl sulfate. (Based on process knowledge or testing).

☐ f. For containers of liquid waste with more than 600 kilograms of waste, the total activity (pCi) of SNM in the manifested container does not exceed the SNM concentration in the above table or Table 1 times 600 kilograms of waste (based on process knowledge or testing). For example, the maximum activity of Pu-239 in any manifested container of liquid waste is 6.0 mCi (6.0E+09 pCi) as shown below:

$$10{,}000\,\tfrac{pCi}{g} \times 600{,}000\,g = 6.0X10^{9}\ pCi = 6.0\,mCi\ Pu\text{-}239$$

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

Table 1. Maximum concentrations of SNM in individual waste containers (refer to above table for U-235 limits).

Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)	Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)
U-233	75,000	11,250	Pu-241	350,000	50,000
Pu-236	500	75	Pu-242	10,000	1,500
Pu-238	10,000	1,500	Pu-243	500	75
Pu-239	10,000	1,500	Pu-244	500	75
Pu-240	10,000	1,500			

3. **Indicate that the following information is attached to the Radioactive Waste Profile Record by checking each box. (Note: Only the two-page Special Nuclear Material Exemption Certification form needs to be included with each manifest).**

   ☒ a. Provide a description of how the waste was generated, list the physical forms in the waste, and identify the uranium chemical composition.

   ☒ b. Provide a general description of how the waste was characterized (including the volumetric extent of the waste, and the number, location, type, and results of any analytical testing), the range of SNM concentrations, and the analytical results with error values used to develop the concentration ranges.

   ☒ c. Describe the process by which the waste was generated showing that the spatial distribution of SNM must be uniform, or other information supporting spatial distribution.

   ☒ d. Describe the methods to be used to determine the concentrations on the manifests. These methods could include direct measurement and the use of scaling factors. Describe the uncertainty associated with sampling and testing used to obtain the manifest concentrations.

4. **Generator's certification of compliance with the SNM exemption:** I certify that the information provided on this form is complete, true, and correct and is based on process knowledge, physical observations, or approved laboratory testing. I also certify that sampling and radiological testing of waste containing SNM was performed in accordance with EnergySolutions' Radioactive Material License and that any supporting documentation and analytical results have been submitted to EnergySolutions.

Authorized Signature	Printed Name	Title	Date
	~~Elizabeth~~ Lamerson	Environmental Engineer	4/19/11

ENERGYSOLUTIONS

EC-0230
Revision 7

RADIOACTIVE WASTE PROFILE RECORD

A. GENERATOR AND WASTE STREAM INFORMATION

GENERAL: Complete this form for one waste stream. Contact EnergySolutions at (801) 532-1330 if you have any questions while completing this form. Please indicate "N/A" if a category does not apply.

1. GENERATOR INFORMATION

Generator Name: USEC/Portsmouth EPA ID #: OHD987054723

Generator Contact: Elizabeth D. Lamerson Title: Environmental Engineer

Mailing Address: PO Box 628,M/S9030

Piketon, OH 45661 Utah Site Access Permit #: 0111000043

Phone: 740-897-2812 Fax: 740-897-2145 Email: lamersoned@ports.used.com

Contractor Name: NA Location of Waste (City, State): Portsmouth, OH

Name & Title of Person Completing Form: Elizabeth D. Lamerson/ Phone: 740-897-2812 Email: lamersoned@ports.used.com

2. WASTE STREAM INFORMATION

Waste Stream ID: 0691A-01 Waste Stream Name: DAW State of Origin: OH

Revision: 6 Date: 10/5/2010 Volume (ft^3): 200000 Delivery Date: on-going

CHECK APPROPRIATE BOXES BELOW. Please verify the required forms requested below are completed and submitted with the Radioactive Waste Profile Record.

HAZARDOUS WASTE: Is the waste classified as hazardous waste as defined by 40 CFR 261?

N ☒ If **NO**, complete and attach the **"Low-Level Radioactive Waste Certification Attachment"**.

Y ☐ If **YES**, complete and attach the **"Hazardous Waste Certification Attachment"** and check applicable box below.
Has the waste been treated to meet applicable treatment standards per 40 CFR 268? Y ☐ N ☐
Is the waste to be treated by EnergySolutions? Y ☐ N ☐

LOW-LEVEL RADIOACTIVE WASTE: Is the radioactive waste defined as Low-Level Radioactive Waste in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 435.1?

Y ☒ If **YES**, a current copy of a LLRW Compact Export letter authorizing export must be submitted if applicable. This authorization is applicable for non-DOE LLRW (i.e., Mixed Waste, NORM/NARM, 11e.(2) material, and waste from DOE do not require a Compact Export Letter).

N ☐ If **NO**, check appropriate box: NORM/NARM ☐ 11e.(2) Byproduct Material ☐ Other: _____

SPECIAL NUCLEAR MATERIAL: Does the waste stream contain material with uranium enriched in U-235 or any of the following radionuclides: U-233, Pu-236, Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Pu-243, or Pu-244?

Y ☒ N ☐ If Yes, complete and attach the "SNM Exemption Certification" form (EC-0230-SNM). Supporting statements, analytical results, and documentation must be included with the submittal.

PCB WASTE: Does the waste contain Polychlorinated Biphenyls (PCB) that are regulated for disposal per 40 CFR 761?

Y ☐ N ☒ If Yes, complete and attach the "PCB Waste Certification" form (EC-98279).

ASBESTOS: Does the waste contain Asbestos Containing Material?

Y ☒ N ☐ If Yes, Asbestos Containing Material must be managed in accordance with applicable federal regulations. Provide a detailed description of the waste containing asbestos in Section B.5 of the waste profile.

RADIOACTIVE WASTE PROFILE RECORD

B. WASTE PHYSICAL PROPERTIES & PACKAGE INFORMATION

1. GENERAL CHARACTERISTICS

Does the waste contain free liquids? Y ☐ N ☒ If Yes, what is the percent of free liquid by waste volume? N/A %

If Yes, is the liquid aqueous (water-based)? Y ☐ N ☐

Does the waste contain absorbent? Y ☒ N ☐ Density range of the waste: 2-25 - _____ g/cc ☐ lb/ft³ ☒

List percentage of waste type by volume: Soil 5% Concrete & Metal 5% DAW 89% Resins _____% Sludge _____%

Other constituents and percentage by volume? 1% glass

2. MATERIAL SIZE

Gradation of Material: Indicate the percentage of waste material that would **pass through** the following grid sizes. For example, 95% of the material would pass through a 12" square, 90% passes through a 4" square, 80% passes through a 1" square, etc.

12" 50 % 4" 40 % 1" 10 % 1/4" ≤1 % 1/40" ≤1 % 1/200" ≤1 %

Does the waste stream contain oversize debris (i.e., no dimension < 10 inches and any dimension > 12 feet)? Y ☐ N ☒
If Yes, include a detailed description (i.e., weight, size, drawings, etc.) of the oversize debris in the narrative of Section B.5.

3. MOISTURE CONTENT

For soil or soil-like materials, please use **Std. Proctor Method ASTM D-698** to determine the optimum moisture content. The waste material must not exceed 3 percentage points above optimum moisture upon arrival at EnergySolutions' disposal facility unless approved by EnergySolutions.

Optimum Moisture Content: N/A % at Maximum Dry Density (lb/ft³): N/A

Average Moisture Content: N/A % Moisture Content Range: N/A% - N/A%

4. WASTE SHIPPING & PACKAGING

Transportation Mode: ☒ Highway ☒ Rail

Shipping & Container Packages: ☒ Drums* (≤ 85 gallons) ☒ Boxes (≤ 100 ft³) ☐ Soft-Sided Bags (≤ 10 yd³)
(Check all that apply)

☒ Intermodal ☒ Sealand ☒ Gondola** ☐ Box Car

Other:

*Palletized drums are preferred by the disposal site. Please specify in the "Other" field if drums will not be palletized.
**Dimensions of gondola railcars must be between 48 to 65 feet in length and 8.5 to 12.5 feet in height as measured from the top of the rail to the top of the railcar unless approved by EnergySolutions.

5. NARRATIVE DESCRIPTION AND HISTORY OF WASTE

Please submit a narrative description and history of the waste as an attachment to the Radioactive Waste Profile Record. This attachment should include the following:

- Process that generated the waste
- Waste material physical composition and characteristics
- Radiological and chemical characterization method
- Basis for determining manifested radionuclide concentrations
- Description and amounts of absorbents, if applicable
- Basis of non-hazardous or hazardous waste determinations
- Treatment processes, if applicable
- Product information or Material Safety Data Sheets associated with the waste as applicable
- Information requested in other sections of this form

RADIOACTIVE WASTE PROFILE RECORD

Waste Stream ID: 0691A-01 Revision: 6 Date of Revision: 10/5/10

C. RADIOLOGICAL INFORMATION

Obtain sufficient samples to adequately determine a range and weighted average of activity in the waste. Attach the gamma spectroscopy or radiochemistry data supporting the radionuclide information listed below.

1. Does the waste material contain accessible surfaces with contact dose rates greater than 500 mR/hr? Y ☐ N ☒

2. Does the waste material contain any of the following isotopes: Aluminum-26, Berkelium-247, Calcium-41, Californium-250, Chlorine-36, Rhenium-187, Terbium-157, or Terbium-158? Y ☐ N ☒

3. Please list the following information for each isotope associated with the waste. Provide an explanation in the narrative description of Section B.5 if the waste contains localized "hot spots" or elevated concentrations that significantly exceed the upper concentration range. If additional space is needed, provide an Attachment C.3 to this profile record formatted as below.

Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)	Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)
U-234	37970	2844	Tc-99	8000	750
U-235	858	79	U-238	16500	480
U-236	35	35	Pu-240	12	3.7
Pu-239	12	3.7	Th-230	25	<1
Pu-238	12	3.7	Np-237	100	10
Am-241	20	9.1	Udep	18000	500
CS-137	100	10	Np-237	100	10
Ra-226	100	10	Th-228	100	10
Th-229	100	10	Th-232	100	10
Ac-227	100	10	Pa-231	100	10

RADIOACTIVE WASTE PROFILE RECORD

HAZARDOUS WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked YES. Otherwise, complete the Low-Level Radioactive Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

pH (Liquid only):_____ **Method 9045** Please provide the range of the pH analyses performed.

PFLT:_____Pass / Fail **Method 9095** Not applicable for liquid radioactive waste streams.

Analyze the waste for volatile or semi-volatile constituents (Methods 8260 & 8270), and attach the data.

Any distinguishing color or odor? Y ☐ N ☒ If Yes, color: _____; odor: _____

2. HAZARDOUS WASTE CODES AND TREATMENT STANDARDS (40 CFR 268)

List all hazardous waste codes and treatment standards. Include hazardous waste codes that have been removed through treatment and indicate "Former" in the second column. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.2 to this profile record formatted as below. Include a description of hazardous waste determinations and any variances, exclusions, etc. in the narrative requested in Section B.5.

EPA HW Codes	Description, Constituent of Concern, or Subcategory	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)

3. **UNDERYLYING HAZARDOUS CONSTITUENTS (40 CFR 268.48)**

List all underlying hazardous constituents (UHCs) and treatment standards. Include UHCs that have been removed through treatment. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below.

Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)

D. 4. **OTHER CHEMICAL CONSTITUENTS**

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)

5. **LABORATORY CERTIFICATION INFORMATION**

☐ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

6. **CERTIFICATION**

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License or RCRA Permit.

Generator's Signature: _____ Title: Environmental Engineer Date: 10/5/10

RADIOACTIVE WASTE PROFILE RECORD

LOW-LEVEL RADIOACTIVE WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked No. Otherwise, complete the Hazardous Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

PFLT: Pass Pass / Fail **Method 9095** Not applicable for liquid radioactive waste streams.

2. 40 CFR 261.24 Table 1 – Contaminants of Toxicity Characteristic

Metals: Methods 6010 & *7470 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Arsenic	.56	Chromium	0.180	Selenium	0.76
Barium	0.776	Lead	1.23	Silver	0.084
Cadmium	0.35	*Mercury	0.01		

Organics, Pesticides/Herbicides: Methods 8081/*8151 ☐ TCLP (mg/L) or ☐ Total (mg/kg)

Endrin	N/A	Toxaphene	N/A	Chlordane	N/A
Lindane	N/A	*2,4-D	0.006	Heptachlor	N/A
Methoxychlor	N/A	*2,4,5-TP Silvex	N/A		

Organics, Semi-Volatile: Method 8270 ☐ TCLP (mg/L) or ☐ Total (mg/kg)

o-Cresol	N/A	Hexachlorobenzene	N/A	Pentrachlorophenol	N/A
m-Cresol	N/A	Hexachlorobutadiene	N/A	Pyridine	N/A
p-Cresol	N/A	Hexachloroethane	N/A	2,4,5-Trichlorophenol	N/A
Total Cresol	N/A	Nitrobenzene	N/A	2,4,6-Trichlorophenol	N/A
2,4-Dinitrotoluene	N/A				

Organics, Volatile: Method 8260 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Benzene	N/A	1,4-Dichlorobenzene	N/A	Methyl ethyl keytone	N/A
Carbon Tetrachloride	N/A	1,2-Dichloroethane	N/A	Tetrachloroethylene	N/A
Chlorobenzene	N/A	1,1-Dichloroethylene	N/A	Trichloroethylene	N/A
Chloroform	N/A	Vinyl Chloride	.001		

3. Was the waste at the point of generation a RCRA hazardous waste per 40 CFR 261? Y ☐ N ☒

If Yes, list former hazardous waste codes and former underlying hazardous constituents. List worst-case concentrations for each hazardous constituent. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below. Attach the most recent chemical analytical results demonstrating compliance with applicable treatment standards.

If No, indicate "N/A" in Section D.3 below.

RADIOACTIVE WASTE PROFILE RECORD

D. 3.	Former EPA HW Codes or Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)
	N/A		

4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
1,1,2,2-Tetrachloroethane	0.002		
Carbon disulfide	0.046		
m,p-Xylene	0.002		
Toluene	0.003		

5. LABORATORY CERTIFICATION

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License.

Generator's Signature: _____ Title: Environmental Engineer Date: 10/5/10

Attachment B.5
Physical Properties

Generator Name: USEC – Portsmouth
Revision #: 6

Waste Stream ID: 0691A-01
Revision Date: October 5, 2010

Dry Active Waste (DAW) at the Portsmouth Gaseous Diffusion Plant is generated by typical maintenance and decommissioning activities. The solid waste consists of such materials as clothing (cloth, plastic, Tyvek), plastic, paper, wood, insulation, ventilation filters, cardboard, rubber, mop heads, absorbents (pigs, pads, pans), respirator canisters, scrap metal, glass, vegetation, soil, and industrial non-medical sharps. Loose absorbent material will be added to waste containers to mitigate the risk of free liquids >1% in waste containers that have the potential for free liquids either through weather intrusion, potentially wet waste by definition (i.e. mop heads) or condensation. The waste may contain both friable and non-friable asbestos, which will be indicated on the five day shipment notification when applicable, as well as non-regulated detectable PCBs from <50 ppm sources. These materials come into contact with radioactive material and become contaminated.

This material is not characterized as hazardous waste as defined in 40 CFR 261. Although laboratory analysis confirmed this characterization on the initial revision of the profile, continued assurance that waste shipped under the 0691A-01 profile is not hazardous waste is obtained through process controls. Materials that are RCRA regulated are kept segregated from work areas where the DAW is generated and waste is routinely inspected for non-conforming items.

Radiological characterization of outgoing shipments is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. The radiological laboratory results were used to establish scaling factors which are then synchronized with the NDA results and divided by net waste weight in the container to develop manifested nuclide concentrations. The SNM is typically in the form of dry non-visible uranium dust made up of oxide compounds, primarily UO_2F_2. The SNM is essentially distributed homogeneously throughout the waste because of the varying sizes of the malleable DAW. Any "hot spots" of concentrated SNM identified in the NDA analysis, the system consists of 4 HPGe detectors, are located and removed from the waste contents prior to shipment.

ENERGYSOLUTIONS

CL-WM-PR-001 F2 (EC-0230)
Revision 7

RADIOACTIVE WASTE PROFILE RECORD

A. GENERATOR AND WASTE STREAM INFORMATION

GENERAL: Complete this form for one waste stream. Contact EnergySolutions at (801) 532-1330 if you have any questions while completing this form. Please indicate "N/A" if a category does not apply.

1. GENERATOR INFORMATION

Generator Name: USEC/ Portsmouth EPA ID #: OHD987054723

Generator Contact: Elizabeth D. Lamerson Title: Environmental Engineer

Mailing Address: P.O. Box 628 M/S 9030

Piketon, OH 45661 Utah Site Access Permit #: 0111000043

Phone: 740-897-2812 Fax: 740-897-2143 Email: lamersoned@ports.usec.com

Contractor Name: N/A Location of Waste (City, State): Portsmouth

Name & Title of Person Completing Form: Nathan Banks/Env. Engineer Phone: 740-897-2641 Email: banksnj@usec.com

2. WASTE STREAM INFORMATION

Waste Stream ID: 0691A-03 Waste Stream Name: Fire Debris State of Origin: OH

Revision: 0 Date: 11/16/2010 Volume (ft^3): TBD Delivery Date: Ongoing

CHECK APPROPRIATE BOXES BELOW. Please verify the required forms requested below are completed and submitted with the Radioactive Waste Profile Record.

HAZARDOUS WASTE: Is the waste classified as hazardous waste as defined by 40 CFR 261?

N ☒ If **NO**, complete and attach the **"Low-Level Radioactive Waste Certification Attachment"**.
Y ☐ If **YES**, complete and attach the **"Hazardous Waste Certification Attachment"** and check applicable box below.
Has the waste been treated to meet applicable treatment standards per 40 CFR 268? Y ☐ N ☐
Is the waste to be treated by EnergySolutions? Y ☐ N ☐

LOW-LEVEL RADIOACTIVE WASTE: Is the radioactive waste defined as Low-Level Radioactive Waste in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 435.1?

Y ☒ If **YES**, a current copy of a LLRW Compact Export letter authorizing export must be submitted if applicable. This authorization is applicable for non-DOE LLRW (i.e., Mixed Waste, NORM/NARM, 11e.(2) material, and waste from DOE do not require a Compact Export Letter).
N ☐ If **NO**, check appropriate box: NORM/NARM ☐ 11e.(2) Byproduct Material ☐ Other: _____

SPECIAL NUCLEAR MATERIAL: Does the waste stream contain material with uranium enriched in U-235 or any of the following radionuclides: U-233, Pu-236, Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Pu-243, or Pu-244?

Y ☒ N ☐ If Yes, complete and attach the "SNM Exemption Certification" form (EC-0230-SNM). Supporting statements, analytical results, and documentation must be included with the submittal.

PCB WASTE: Does the waste contain Polychlorinated Biphenyls (PCB) that are regulated for disposal per 40 CFR 761?

Y ☐ N ☒ If Yes, complete and attach the "PCB Waste Certification" form (EC-98279).

ASBESTOS: Does the waste contain Asbestos Containing Material?

Y ☐ N ☒ If Yes, Asbestos Containing Material must be managed in accordance with applicable federal regulations. Provide a detailed description of the waste containing asbestos in Section B.5 of the waste profile.

RADIOACTIVE WASTE PROFILE RECORD

B. WASTE PHYSICAL PROPERTIES & PACKAGE INFORMATION

1. GENERAL CHARACTERISTICS

Does the waste contain free liquids? Y ☐ N ☒ If Yes, what is the percent of free liquid by waste volume? _____ %

If Yes, is the liquid aqueous (water-based)? Y ☐ N ☐

Does the waste contain absorbent? Y ☒ N ☐ Density range of the waste: 0.81 – 13.0 g/cc ☐ lb/ft^3 ☒

List percentage of waste type by volume: Soil 5% Concrete & Metal 10% DAW 85% Resins _____% Sludge _____%

Other constituents and percentage by volume? N/A

2. MATERIAL SIZE

Gradation of Material: Indicate the percentage of waste material that would **pass through** the following grid sizes. For example, 95% of the material would pass through a 12" square, 90% passes through a 4" square, 80% passes through a 1" square, etc.

12" 20 % 4" 5 % 1" ≤1 % 1/4" ≤1 % 1/40" ≤1 % 1/200" ≤1 %

Does the waste stream contain oversize debris (i.e., no dimension < 10 inches and any dimension > 12 feet)? Y ☐ N ☒
If Yes, include a detailed description (i.e., weight, size, drawings, etc.) of the oversize debris in the narrative of Section B.5.

3. MOISTURE CONTENT

For soil or soil-like materials, please use **Std. Proctor Method ASTM D-698** to determine the optimum moisture content. The waste material must not exceed 3 percentage points above optimum moisture upon arrival at EnergySolutions' disposal facility unless approved by EnergySolutions.

Optimum Moisture Content: N/A % at Maximum Dry Density (lb/ft^3): N/A

Average Moisture Content: 2.7629 % Moisture Content Range: 0.37% - 8.21%

4. WASTE SHIPPING & PACKAGING

Transportation Mode: ☒ Highway ☒ Rail

Shipping & Container Packages: (Check all that apply) ☒ Drums* (≤ 85 gallons) ☒ Boxes (≤ 100 ft^3) ☒ Soft-Sided Bags (≤ 10 yd^3)

☒ Intermodal ☒ Sealand ☐ Gondola** ☐ Box Car

Other:

*Palletized drums are preferred by the disposal site. Please specify in the "Other" field if drums will not be palletized.
**Dimensions of gondola railcars must be between 48 to 65 feet in length and 8.5 to 12.5 feet in height as measured from the top of the rail to the top of the railcar unless approved by EnergySolutions.

5. NARRATIVE DESCRIPTION AND HISTORY OF WASTE

Please submit a narrative description and history of the waste as an attachment to the Radioactive Waste Profile Record. This attachment should include the following:

- Process that generated the waste
- Waste material physical composition and characteristics
- Radiological and chemical characterization method
- Basis for determining manifested radionuclide concentrations
- Description and amounts of absorbents, if applicable
- Basis of non-hazardous or hazardous waste determinations
- Treatment processes, if applicable
- Product information or Material Safety Data Sheets associated with the waste as applicable
- Information requested in other sections of this form

RADIOACTIVE WASTE PROFILE RECORD

Waste Stream ID: 0691A-03 Revision: 0 Date of Revision: *11/16/2010*

C. RADIOLOGICAL INFORMATION

Obtain sufficient samples to adequately determine a range and weighted average of activity in the waste. Attach the gamma spectroscopy or radiochemistry data supporting the radionuclide information listed below.

1. Does the waste material contain accessible surfaces with contact dose rates greater than 500 mR/hr? Y ☐ N ☒

2. Does the waste material contain any of the following isotopes: Aluminum-26, Berkelium-247, Calcium-41, Californium-250, Chlorine-36, Rhenium-187, Terbium-157, or Terbium-158? Y ☐ N ☒

3. Please list the following information for each isotope associated with the waste. Provide an explanation in the narrative description of Section B.5 if the waste contains localized "hot spots" or elevated concentrations that significantly exceed the upper concentration range. If additional space is needed, provide an Attachment C.3 to this profile record formatted as below.

Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)	Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)
Am-241	100	20	Pa-231	300	75
Bi-214	5.993	5.993	Ra-223	20.5	20.5
Ce-141	2.015	2.015			
Fr-223	56.43	30.8			
Pb-212	3	3			
Np-237	300	30			
Pl-239/240	0.1066	0.8			
K-40	54.72	54.72			
Pa-234m	21440	5483.84			
Tc-99	209000	30397.87			
Th-227	13.05	9.85			
Th-231	6142	1123.9			
Th-234	15030	2507.81			
U-233/234	75000	10000			
U-234	66500	36890.54			
U-235	1900	500			
U-236	426.5	57.03			
U-238	16500	5000			
Pa-234	67.41	67.41			
Pu-239	100	10			
Th-230	300	30			
Pu-240	100	10			
U-dep	18000	500			
Pu-238	100	10			
Cs-137	100	10			
Ra-226	100	10			
Th-228	300	30			
Th-229	100	10			
Th-232	300	30			
Ac-227	100	10			

RADIOACTIVE WASTE PROFILE RECORD

HAZARDOUS WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked YES. Otherwise, complete the Low-Level Radioactive Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

pH (Liquid only): N/A **Method 9045** Please provide the range of the pH analyses performed.

PFLT: Pass Pass / Fail **Method 9095** Not applicable for liquid radioactive waste streams.

Analyze the waste for volatile or semi-volatile constituents (Methods 8260 & 8270), and attach the data.

Any distinguishing color or odor? Y ☐ N ☒ If Yes, color: ____; odor: ____

2. HAZARDOUS WASTE CODES AND TREATMENT STANDARDS (40 CFR 268)

List all hazardous waste codes and treatment standards. Include hazardous waste codes that have been removed through treatment and indicate "Former" in the second column. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.2 to this profile record formatted as below. Include a description of hazardous waste determinations and any variances, exclusions, etc. in the narrative requested in Section B.5.

EPA HW Codes	Description, Constituent of Concern, or Subcategory	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

3. **UNDERLYING HAZARDOUS CONSTITUENTS (40 CFR 268.48)**

List all underlying hazardous constituents (UHCs) and treatment standards. Include UHCs that have been removed through treatment. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below.

Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A

D. 4. **OTHER CHEMICAL CONSTITUENTS**

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

5. **LABORATORY CERTIFICATION INFORMATION**

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

_____

6. **CERTIFICATION**

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License or RCRA Permit.

Generator's Signature: _____ Title: Environmental Engineer Date: 2/24/11

RADIOACTIVE WASTE PROFILE RECORD

LOW-LEVEL RADIOACTIVE WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked No. Otherwise, complete the Hazardous Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

PFLT: Pass (Pass / Fail) **Method 9095** Not applicable for liquid radioactive waste streams.

2. 40 CFR 261.24 Table 1 – Contaminants of Toxicity Characteristic

Metals: Methods 6010 & *7470 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Arsenic	1.19	Chromium	0.145	Selenium	0.262
Barium	0.157	Lead	0.181	Silver	1.64
Cadmium	0.345	*Mercury	0.01		

Organics, Pesticides/Herbicides: Methods 8081/*8151 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Endrin	0.0004	Toxaphene	0.008	Chlordane	0.004
Lindane	0.0004	*2,4-D	0.01	Heptachlor	0.0004
Methoxychlor	0.0004	*2,4,5-TP Silvex	0.008		

Organics, Semi-Volatile: Method 8270 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

o-Cresol	ND	Hexachlorobenzene	ND	Pentachlorophenol	ND
m-Cresol	ND	Hexachlorobutadiene	ND	Pyridine	ND
p-Cresol	ND	Hexachloroethane	ND	2,4,5-Trichlorophenol	ND
Total Cresol	ND	Nitrobenzene	ND	2,4,6-Trichlorophenol	ND
2,4-Dinitrotoluene	ND				

Organics, Volatile: Method 8260 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Benzene	0.02	1,4-Dichlorobenzene	ND	Methyl ethyl keytone	0.5
Carbon Tetrachloride	0.02	1,2-Dichloroethane	0.02	Tetrachloroethylene	0.02
Chlorobenzene	0.02	1,1-Dichloroethylene	0.02	Trichloroethylene	0.02
Chloroform	0.04	Vinyl Chloride	0.01		

3. Was the waste at the point of generation a RCRA hazardous waste per 40 CFR 261? Y ☐ N ☒

If Yes, list former hazardous waste codes and former underlying hazardous constituents. List worst-case concentrations for each hazardous constituent. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below. Attach the most recent chemical analytical results demonstrating compliance with applicable treatment standards.

If No, indicate "N/A" in Section D.3 below.

RADIOACTIVE WASTE PROFILE RECORD

D. 3.

Former EPA HW Codes or Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A

4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
Zinc	58.4 mg/L TCLP	N/A	N/A
Beryllium	0.712		

5. LABORATORY CERTIFICATION

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License.

Generator's Signature: _____ Title: Environmental Engineer Date: 2/24/11

ENERGYSOLUTIONS

CL-WM-PR-001 F2 (EC-0230)
Revision 7

RADIOACTIVE WASTE PROFILE RECORD

A. GENERATOR AND WASTE STREAM INFORMATION

GENERAL: Complete this form for one waste stream. Contact EnergySolutions at (801) 532-1330 if you have any questions while completing this form. Please indicate "N/A" if a category does not apply.

1. GENERATOR INFORMATION

Generator Name: USEC/ Portsmouth EPA ID #: OHD987054723

Generator Contact: Elizabeth D. Lamerson Title: Environmental Engineer

Mailing Address: P.O. Box 628 M/S 9030

Piketon, OH 45661 Utah Site Access Permit #: 0111000043

Phone: 740-897-2812 Fax: 740-897-2143 Email: lamersoned@ports.usec.com

Contractor Name: N/A Location of Waste (City, State): Portsmouth

Name & Title of Person Completing Form: Nathan Banks/Env. Engineer Phone: 740-897-2641 Email: banksnj@usec.com

2. WASTE STREAM INFORMATION

Waste Stream ID: 0691A-04 Waste Stream Name: Heavy Metal Sludge State of Origin: OH

Revision: 1 Date: 05/13/2011 Volume (ft^3): TBD Delivery Date: Ongoing

CHECK APPROPRIATE BOXES BELOW. Please verify the required forms requested below are completed and submitted with the Radioactive Waste Profile Record.

HAZARDOUS WASTE: Is the waste classified as hazardous waste as defined by 40 CFR 261?

N ☒ If **NO**, complete and attach the **"Low-Level Radioactive Waste Certification Attachment"**.

Y ☐ If **YES**, complete and attach the **"Hazardous Waste Certification Attachment"** and check applicable box below.
Has the waste been treated to meet applicable treatment standards per 40 CFR 268? Y ☐ N ☐
Is the waste to be treated by EnergySolutions? Y ☐ N ☐

LOW-LEVEL RADIOACTIVE WASTE: Is the radioactive waste defined as Low-Level Radioactive Waste in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 435.1?

Y ☒ If **YES**, a current copy of a LLRW Compact Export letter authorizing export must be submitted if applicable. This authorization is applicable for non-DOE LLRW (i.e., Mixed Waste, NORM/NARM, 11e.(2) material, and waste from DOE do not require a Compact Export Letter).

N ☐ If **NO**, check appropriate box: NORM/NARM ☐ 11e.(2) Byproduct Material ☐ Other: _____

SPECIAL NUCLEAR MATERIAL: Does the waste stream contain material with uranium enriched in U-235 or any of the following radionuclides: U-233, Pu-236, Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Pu-243, or Pu-244?

Y ☒ N ☐ If Yes, complete and attach the "SNM Exemption Certification" form (EC-0230-SNM). Supporting statements, analytical results, and documentation must be included with the submittal.

PCB WASTE: Does the waste contain Polychlorinated Biphenyls (PCB) that are regulated for disposal per 40 CFR 761?

Y ☐ N ☒ If Yes, complete and attach the "PCB Waste Certification" form (EC-98279).

ASBESTOS: Does the waste contain Asbestos Containing Material?

Y ☐ N ☒ If Yes, Asbestos Containing Material must be managed in accordance with applicable federal regulations. Provide a detailed description of the waste containing asbestos in Section B.5 of the waste profile.

RADIOACTIVE WASTE PROFILE RECORD

B. WASTE PHYSICAL PROPERTIES & PACKAGE INFORMATION

1. GENERAL CHARACTERISTICS

Does the waste contain free liquids? Y ☐ N ☒ If Yes, what is the percent of free liquid by waste volume? _____ %

If Yes, is the liquid aqueous (water-based)? Y ☐ N ☐

Does the waste contain absorbent? Y ☒ N ☐ Density range of the waste: 1.04 – 1.35 g/cc ☒ lb/ft³ ☐

List percentage of waste type by volume: Soil 5% Concrete & Metal _____% DAW 5% Resins _____% Sludge 90%

Other constituents and percentage by volume? N/A

2. MATERIAL SIZE

Gradation of Material: Indicate the percentage of waste material that would **pass through** the following grid sizes. For example, 95% of the material would pass through a 12" square, 90% passes through a 4" square, 80% passes through a 1" square, etc.

12" 95 % 4" 90 % 1" 75 % 1/4" ≤1 % 1/40" ≤1 % 1/200" ≤1 %

Does the waste stream contain oversize debris (i.e., no dimension < 10 inches and any dimension > 12 feet)? Y ☐ N ☒
If Yes, include a detailed description (i.e., weight, size, drawings, etc.) of the oversize debris in the narrative of Section B.5.

3. MOISTURE CONTENT

For soil or soil-like materials, please use **Std. Proctor Method ASTM D-698** to determine the optimum moisture content. The waste material must not exceed 3 percentage points above optimum moisture upon arrival at EnergySolutions' disposal facility unless approved by EnergySolutions.

Optimum Moisture Content: N/A % at Maximum Dry Density (lb/ft³): N/A

Average Moisture Content: N/A % Moisture Content Range: N/A% - N/A%

4. WASTE SHIPPING & PACKAGING

Transportation Mode: ☒ Highway ☒ Rail

Shipping & Container Packages: (Check all that apply) ☒ Drums* (≤ 85 gallons) ☒ Boxes (≤ 100 ft³) ☒ Soft-Sided Bags (≤ 10 yd³)

☒ Intermodal ☒ Sealand ☐ Gondola** ☐ Box Car

Other:

*Palletized drums are preferred by the disposal site. Please specify in the "Other" field if drums will not be palletized.
**Dimensions of gondola railcars must be between 48 to 65 feet in length and 8.5 to 12.5 feet in height as measured from the top of the rail to the top of the railcar unless approved by EnergySolutions.

5. NARRATIVE DESCRIPTION AND HISTORY OF WASTE

Please submit a narrative description and history of the waste as an attachment to the Radioactive Waste Profile Record. This attachment should include the following:

- Process that generated the waste
- Waste material physical composition and characteristics
- Radiological and chemical characterization method
- Basis for determining manifested radionuclide concentrations
- Description and amounts of absorbents, if applicable
- Basis of non-hazardous or hazardous waste determinations
- Treatment processes, if applicable
- Product information or Material Safety Data Sheets associated with the waste as applicable
- Information requested in other sections of this form

RADIOACTIVE WASTE PROFILE RECORD

Waste Stream ID: 0691A-04 Revision: 1 Date of Revision: *05/13/2011*

C. RADIOLOGICAL INFORMATION

Obtain sufficient samples to adequately determine a range and weighted average of activity in the waste. Attach the gamma spectroscopy or radiochemistry data supporting the radionuclide information listed below.

1. Does the waste material contain accessible surfaces with contact dose rates greater than 500 mR/hr? Y ☐ N ☒
2. Does the waste material contain any of the following isotopes: Aluminum-26, Berkelium-247, Calcium-41, Californium-250, Chlorine-36, Rhenium-187, Terbium-157, or Terbium-158? Y ☐ N ☒
3. Please list the following information for each isotope associated with the waste. Provide an explanation in the narrative description of Section B.5 if the waste contains localized "hot spots" or elevated concentrations that significantly exceed the upper concentration range. If additional space is needed, provide an Attachment C.3 to this profile record formatted as below.

Isotope	Manifested Upper Concentration (pCi/g) EZ 5/18/11	Weighted Avg. per Container (pCi/g)	Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)
Am-241	~~100~~ 300	20	Pa-234m	16500	402.34
Am-242	0.606	0.606	Ra-223	258	101.65
Am-243	0.608	0.608	Ra-224	97.25	56.23
Cm-243/244	0.991	0.72	Ra-226	300	30
Cm-245/246	9.69	2.89	Ra-228	5.392	5.39
Cm-248	0.591	0.591	Rn-219	274.6	88.94
Np-237	1200	300	Tc-99	11900	2243.97
Pu-238	184.8	34.63	Tl-208	8.006	3.43
Pu-239/240	261.4	57.32	Th-227	180.9	58.21
Th-228	300	30	Ac-227	1000	500
Th-230	6354	1387.7	Pa-231	1200	500
Th-231	1027	360.02	U-Dep	18000	500
Th-232	300	30	Th-229	100	10
Th-234	16500	201.16			
U-233/234	38000	2053.94			
U-235	1900	500			
U-236	40.72	11.13			
U-238	16500	5000			
Ac-228	22.16	15.87			
Bi-211	271.6	91.63			
Bi-212	26.54	9.53			
Bi-214	25.69	7.07			
Cs-137	100	10			
Fr-223	74.93	26.97			
Pb-211	271.7	98.23			
Pb-212	19.76	7.64			
Pb-214	26.65	10.96			
Mn-54	2.022	2.022			
K-40	22.87	22.13			
Pa-233	275	98.62			

RADIOACTIVE WASTE PROFILE RECORD

HAZARDOUS WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked YES. Otherwise, complete the Low-Level Radioactive Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

pH (Liquid only): N/A — **Method 9045** Please provide the range of the pH analyses performed.

PFLT: Pass Pass / Fail — **Method 9095** Not applicable for liquid radioactive waste streams.

Analyze the waste for volatile or semi-volatile constituents (Methods 8260 & 8270), and attach the data.

Any distinguishing color or odor? Y ☐ N ☒ If Yes, color: ____; odor: ____

2. HAZARDOUS WASTE CODES AND TREATMENT STANDARDS (40 CFR 268)

List all hazardous waste codes and treatment standards. Include hazardous waste codes that have been removed through treatment and indicate "Former" in the second column. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.2 to this profile record formatted as below. Include a description of hazardous waste determinations and any variances, exclusions, etc. in the narrative requested in Section B.5.

EPA HW Codes	Description, Constituent of Concern, or Subcategory	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

3. UNDERLYING HAZARDOUS CONSTITUENTS (40 CFR 268.48)

List all underlying hazardous constituents (UHCs) and treatment standards. Include UHCs that have been removed through treatment. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below.

Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A

D. 4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

5. LABORATORY CERTIFICATION INFORMATION

☒ UTAH or NELAC CERTIFIED
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ OTHER LABORATORY CERTIFICATION (Describe below)

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License or RCRA Permit.

Generator's Signature: _____ Title: Environmental Engineer Date: 5/13/11

RADIOACTIVE WASTE PROFILE RECORD

LOW-LEVEL RADIOACTIVE WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked No. Otherwise, complete the Hazardous Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

PFLT: Pass Pass / Fail **Method 9095** Not applicable for liquid radioactive waste streams.

2. 40 CFR 261.24 Table 1 – Contaminants of Toxicity Characteristic

Metals: Methods 6010 & *7470 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Arsenic 0.024	Chromium 2.12	Selenium 0.049
Barium 0.074	Lead 0.393	Silver 0.009
Cadmium 0.027	*Mercury 0.010	

Organics, Pesticides/Herbicides: Methods 8081/*8151 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Endrin ND	Toxaphene ND	Chlordane ND
Lindane ND	*2,4-D ND	Heptachlor ND
Methoxychlor ND	*2,4,5-TP Silvex ND	

Organics, Semi-Volatile: Method 8270 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

o-Cresol ND	Hexachlorobenzene ND	Pentachlorophenol ND
m-Cresol ND	Hexachlorobutadiene ND	Pyridine ND
p-Cresol ND	Hexachloroethane ND	2,4,5-Trichlorophenol ND
Total Cresol ND	Nitrobenzene ND	2,4,6-Trichlorophenol ND
2,4-Dinitrotoluene ND		

Organics, Volatile: Method 8260 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Benzene ND	1,4-Dichlorobenzene ND	Methyl ethyl keytone ND
Carbon Tetrachloride ND	1,2-Dichloroethane ND	Tetrachloroethylene ND
Chlorobenzene ND	1,1-Dichloroethylene ND	Trichloroethylene ND
Chloroform ND	Vinyl Chloride ND	

3. Was the waste at the point of generation a RCRA hazardous waste per 40 CFR 261? Y ☐ N ☒

If Yes, list former hazardous waste codes and former underlying hazardous constituents. List worst-case concentrations for each hazardous constituent. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below. Attach the most recent chemical analytical results demonstrating compliance with applicable treatment standards.

If No, indicate "N/A" in Section D.3 below.

RADIOACTIVE WASTE PROFILE RECORD

D. 3.	Former EPA HW Codes or Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)

4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
Aroclor 1260	1 ug/g	N/A	N/A
Beryllium	0.72		

5. LABORATORY CERTIFICATION

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License.

Generator's Signature: _____ Title: Environmental Engineer Date: 5/13/11

ATTACHMENT B.5
PHYSICAL PROPERTIES

Generator Name: USEC/Portsmouth Waste Stream ID: 0691A-04
Revision #: 1 Revision Date: 05/13/2011

HEAVY METAL SLUDGE WASTE STREAM

The Heavy Metal Sludge waste stream originates in the Portsmouth Gaseous Diffusion Plant (PORTS) Decontamination Building (X-705) and is generated by the heavy metals precipitation process, which filters precipitated solids (including metals) from the solution prior to that solution entering the Technetium Ion Exchange System. The waste consists of sludge material that contains small amounts of heavy metals and radiological contamination. The waste stream also contains small amounts of Dry Active Waste (DAW) that was used in cleanup, sampling, and operation of the process.

The containers of heavy metal sludge are sampled at the point of generation. Once data is received, the containers are determined to be non-hazardous or hazardous after review of the analytical data. Only non-hazardous heavy metal sludge will be disposed of under this profile.

The waste will not contain free liquids. Loose absorbent material may be added to the waste to mitigate the risk of free liquids >1% in waste containers that have the potential for free liquids/condensate.

Radiological and Chemical Characterization Requirements and Methods:

The primary objective of the characterization sampling design was to achieve high confidence that at least a high percentage of the items in population are acceptable. A hypergeometric model with a 95%/90% confidence interval was used to characterize this waste stream. The sample size was calculated using a similar method to Bowen and Bennett 1988 (*Statistical Methods for Nuclear Material Management*, NUREG/CR-4604, US Nuclear Regulator Commission, Washington, DC). Twenty-four random samples were taken to meet the 95/90 confidence interval.

Chemical Characterization
Ohio Administrative Code (OAC) Section 3745-51 *et seq* and Title 40 Code of Federal Regulations (CFR) § 261 *et seq* clearly define the process for identifying a waste based on characteristics. OAC 3745-51-20 (40 CFR § 261.24) states:

"A waste is a hazardous waste if it exhibits any of the characteristics identified in rules 3745-51-20 (40 CFR § 261.20) to 3745-51-24 (40 CFR § 261.24) of the Administrative Code."

To determine the regulatory status of this waste stream the following requirements were met:

1. Collect a representative sample.
2. Analyze the sample using TCLP Method 1311 in *"Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods,"* EPA Publication SW-846.
3. Compare the results of the analysis to OAC 3745-51-24, Table 1 (40 CFR § 261.24, Table 1).
4. If the contaminate is statistically (as defined by Chapter Nine of SW-846) at or above the regulatory limit outlined in Table 1 of OAC 3745-51-24 (40 CFR § 261.24), then the waste is characteristically hazardous for that contaminant and must be managed as such.

ATTACHMENT B.5
PHYSICAL PROPERTIES

Also, waste may be characteristically hazardous if it meets the criteria outlined in OAC 3745-51-21 (40 CFR § 261.21) to OAC 3745-51-23 (40 CFR § 261.23). OAC 3745-51-30 (40 CFR § 261.30) clearly define the process for identifying a waste based on a listing. OAC 3745-51-30 (A) [40 CFR § 261.30 (a)] states:

> "A waste is a hazardous waste if it is listed as such in rules 3745-51-30 (§ 261.30) to 3745-51-35 (§ 261.35) of the Administrative Code."

To determine the regulatory status of this waste stream for listed hazardous waste, the following requirements were met:

1. Identify the generating process or identify the waste as derived from an already listed hazardous waste.

2. Identify the constituents, which may cause the waste to be classified as hazardous.

3. Compare the waste descriptions provided in OAC 3745-51-31 (40 CFR § 261.31) to OAC 3745-51-33 (40 CFR § 261.33).

4. If the process and constituents are listed in OAC 3745-51-31 (40 CFR § 261.31 to OAC 3745-51-33 (40 CFR § 261.33), then the waste is listed as hazardous and is managed as such.

This waste stream is not regulated for disposal as a RCRA hazardous waste as defined in 40 CFR 261. This waste is not regulated as TSCA (PCB) waste as defined in 40 CFR 761.

Radiological Characterization
Radiological characterization is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. Twenty-four random samples of the total population were analyzed to provide the radiological characterization data to adequately determine a range and concentration of activity in the waste.

Basis for Determining Manifested Radionuclide Concentrations

Radiological characterization of outgoing shipments is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. The radiological laboratory results were used to establish scaling factors which are then synchronized with the NDA results and divided by net weight in the container to develop manifested nuclide concentrations. The SNM is typically in the form of dry non-visible uranium dust made up of oxide compounds, primarily UO_2F_2. The SNM is essentially distributed homogenously throughout the waste.

Typically the waste will be packaged for transportation and disposal in drums or metal boxes. Optional packages include soft-sided bags, intermodal containers and sea-land containers. Notification will be provided prior to shipping if any optional containers are to be utilized.

ENERGYSOLUTIONS

EC-0230-SNM
Revision 3

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

The Special Nuclear Material Exemption Certification form must be completed and signed by each generator certifying to the following conditions. Please attach this form and all required information to the Radioactive Waste Profile Record (EC-0230). **A completed and signed copy of this form must also accompany each waste manifest.**

Waste Stream ID: 0691A-04 Manifest No. 0691A-04

1. Check applicable category below for the waste stream:

√	Uranium Enrichment Percent	Weight Percent of Chemicals in Condition 2c	Weight Percent of Materials in Condition 2d	U-235 Concentration (pCi/g)	Measurement Uncertainty* (pCi/g)
☒	< 10 %	≤ 20 %	≤ 1 %	≤ 1,900	≤ 285
☐	Unlimited	≤ 20 %	≤ 1 %	≤ 1,190	≤ 179
☐	Unlimited	Sum of both ≤ 45 % of waste by weight		≤ 680	≤ 102
☐	Unlimited	Unlimited	Unlimited	≤ 26	≤ 10
☐	Not Applicable - Enriched U-235 is not present in the waste.				

* A concentration value is used for the maximum measurement uncertainty limit rather than a percentage value to allow greater flexibility for generators with waste having very low SNM concentrations.

2. Certify to the following requirements by checking each box:

☒ a. Concentrations of SNM in individual waste containers do not exceed the applicable values listed in the above table and SNM isotope concentrations listed in Table 1.

☒ b. The SNM is homogeneously distributed throughout the waste or the SNM concentrations in any contiguous mass of 600 kilograms (1,323 lbs) do not exceed on average the specified limits. (Based on process knowledge or testing).

☒ c. Except as allowed by Condition 1, the waste does not contain "pure forms" of chemicals containing carbon, fluorine, magnesium, or bismuth in bulk quantities (e.g., a pallet of drums, a B-25 box). By "pure forms," it is meant that mixtures of the above elements such as magnesium oxide, magnesium carbonate, magnesium fluoride, bismuth oxide, etc. do not contain other elements. (Based on process knowledge or testing).

☒ d. Except as allowed by Condition 1, the waste does not contain total quantities of beryllium, hydrogenous material enriched in deuterium, or graphite above one percent of the total weight of the waste. (Based on process knowledge, physical observations, or testing).

☒ e. Waste packages do not contain highly soluble forms of uranium greater than 350 grams of uranium-235 or 200 grams of uranium-233. If the waste contains mixtures of U-233 and U-235, the waste meets the sum of the fractions rule. Highly soluble forms of uranium include, but are not limited to: uranium sulfate, uranyl acetate, uranyl chloride, uranyl formate, uranyl fluoride, uranyl nitrate, uranyl potassium carbonate, and uranyl sulfate. (Based on process knowledge or testing).

☐ f. For containers of liquid waste with more than 600 kilograms of waste, the total activity (pCi) of SNM in the manifested container does not exceed the SNM concentration in the above table or Table 1 times 600 kilograms of waste (based on process knowledge or testing). For example, the maximum activity of Pu-239 in any manifested container of liquid waste is 6.0 mCi (6.0E+09 pCi) as shown below:

$$10{,}000\,\frac{pCi}{g} \times 600{,}000\,g = 6.0X10^{9}\ pCi = 6.0\,mCi\ Pu\text{-}239$$

ENERGYSOLUTIONS

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

Table 1. Maximum concentrations of SNM in individual waste containers (refer to above table for U-235 limits).

Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)	Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)
U-233	75,000	11,250	Pu-241	350,000	50,000
Pu-236	500	75	Pu-242	10,000	1,500
Pu-238	10,000	1,500	Pu-243	500	75
Pu-239	10,000	1,500	Pu-244	500	75
Pu-240	10,000	1,500			

3. **Indicate that the following information is attached to the Radioactive Waste Profile Record by checking each box. (Note: Only the two-page Special Nuclear Material Exemption Certification form needs to be included with each manifest).**

   ☒ a. Provide a description of how the waste was generated, list the physical forms in the waste, and identify the uranium chemical composition.

   ☒ b. Provide a general description of how the waste was characterized (including the volumetric extent of the waste, and the number, location, type, and results of any analytical testing), the range of SNM concentrations, and the analytical results with error values used to develop the concentration ranges.

   ☒ c. Describe the process by which the waste was generated showing that the spatial distribution of SNM must be uniform, or other information supporting spatial distribution.

   ☒ d. Describe the methods to be used to determine the concentrations on the manifests. These methods could include direct measurement and the use of scaling factors. Describe the uncertainty associated with sampling and testing used to obtain the manifest concentrations.

4. **Generator's certification of compliance with the SNM exemption:** I certify that the information provided on this form is complete, true, and correct and is based on process knowledge, physical observations, or approved laboratory testing. I also certify that sampling and radiological testing of waste containing SNM was performed in accordance with EnergySolutions' Radioactive Material License and that any supporting documentation and analytical results have been submitted to EnergySolutions.

Authorized Signature	Printed Name	Title	Date
	Elizabeth Lamerson	Environmental Engineer	5/13/11

ENERGYSOLUTIONS

CL-WM-PR-001 F2 (EC-0230)
Revision 7

RADIOACTIVE WASTE PROFILE RECORD

A. GENERATOR AND WASTE STREAM INFORMATION

GENERAL: Complete this form for one waste stream. Contact EnergySolutions at (801) 532-1330 if you have any questions while completing this form. Please indicate "N/A" if a category does not apply.

1. GENERATOR INFORMATION

Generator Name: USEC/ Portsmouth EPA ID #: OHD987054723

Generator Contact: Elizabeth D. Lamerson Title: Environmental Engineer

Mailing Address: P.O. Box 628 M/S 9030

Piketon, OH 45661 Utah Site Access Permit #: 0111000043

Phone: 740-897-2812 Fax: 740-897-2143 Email: lamersoned@ports.usec.com

Contractor Name: N/A Location of Waste (City, State): Portsmouth

Name & Title of Person Completing Form: Elizabeth Lamerson/Env. Eng. Phone: 740-897-2812 Email: lamersoned@ports.usec.com

2. WASTE STREAM INFORMATION

Waste Stream ID: 0691A-06 Waste Stream Name: Ion Exchange Resin State of Origin: OH

Revision: 0 Date: 05/09/2011 Volume (ft^3): TBD Delivery Date: Ongoing

CHECK APPROPRIATE BOXES BELOW. Please verify the required forms requested below are completed and submitted with the Radioactive Waste Profile Record.

HAZARDOUS WASTE: Is the waste classified as hazardous waste as defined by 40 CFR 261?

N ☒ If **NO**, complete and attach the **"Low-Level Radioactive Waste Certification Attachment"**.
Y ☐ If **YES**, complete and attach the **"Hazardous Waste Certification Attachment"** and check applicable box below.
Has the waste been treated to meet applicable treatment standards per 40 CFR 268? Y ☐ N ☐
Is the waste to be treated by EnergySolutions? Y ☐ N ☐

LOW-LEVEL RADIOACTIVE WASTE: Is the radioactive waste defined as Low-Level Radioactive Waste in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 435.1?

Y ☒ If **YES**, a current copy of a LLRW Compact Export letter authorizing export must be submitted if applicable. This authorization is applicable for non-DOE LLRW (i.e., Mixed Waste, NORM/NARM, 11e.(2) material, and waste from DOE do not require a Compact Export Letter).
N ☐ If **NO**, check appropriate box: NORM/NARM ☐ 11e.(2) Byproduct Material ☐ Other: _____

SPECIAL NUCLEAR MATERIAL: Does the waste stream contain material with uranium enriched in U-235 or any of the following radionuclides: U-233, Pu-236, Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Pu-243, or Pu-244?

Y ☒ N ☐ If Yes, complete and attach the "SNM Exemption Certification" form (EC-0230-SNM). Supporting statements, analytical results, and documentation must be included with the submittal.

PCB WASTE: Does the waste contain Polychlorinated Biphenyls (PCB) that are regulated for disposal per 40 CFR 761?

Y ☐ N ☒ If Yes, complete and attach the "PCB Waste Certification" form (EC-98279).

ASBESTOS: Does the waste contain Asbestos Containing Material?

Y ☐ N ☒ If Yes, Asbestos Containing Material must be managed in accordance with applicable federal regulations. Provide a detailed description of the waste containing asbestos in Section B.5 of the waste profile.

RADIOACTIVE WASTE PROFILE RECORD

B. WASTE PHYSICAL PROPERTIES & PACKAGE INFORMATION

1. GENERAL CHARACTERISTICS

Does the waste contain free liquids? Y ☐ N ☒ If Yes, what is the percent of free liquid by waste volume? _____ %

If Yes, is the liquid aqueous (water-based)? Y ☐ N ☐

Does the waste contain absorbent? Y ☒ N ☐ Density range of the waste: 0.55 – 1.17 g/cc ☒ lb/ft^3 ☐

List percentage of waste type by volume: Soil 3% Concrete & Metal _____% DAW 5% Resins 90% Sludge 2%

Other constituents and percentage by volume? N/A

2. MATERIAL SIZE

Gradation of Material: Indicate the percentage of waste material that would **pass through** the following grid sizes. For example, 95% of the material would pass through a 12" square, 90% passes through a 4" square, 80% passes through a 1" square, etc.

12" 98 % 4" 95 % 1" 85 % 1/4" 50 % 1/40" ≤1 % 1/200" ≤1 %

Does the waste stream contain oversize debris (i.e., no dimension < 10 inches and any dimension > 12 feet)? Y ☐ N ☒
If Yes, include a detailed description (i.e., weight, size, drawings, etc.) of the oversize debris in the narrative of Section B.5.

3. MOISTURE CONTENT

For soil or soil-like materials, please use **Std. Proctor Method ASTM D-698** to determine the optimum moisture content. The waste material must not exceed 3 percentage points above optimum moisture upon arrival at EnergySolutions' disposal facility unless approved by EnergySolutions.

Optimum Moisture Content: N/A % at Maximum Dry Density (lb/ft^3): N/A

Average Moisture Content: N/A % Moisture Content Range: N/A% - N/A%

4. WASTE SHIPPING & PACKAGING

Transportation Mode: ☒ Highway ☒ Rail

Shipping & Container Packages: (Check all that apply) ☒ Drums* (≤ 85 gallons) ☒ Boxes (≤ 100 ft^3) ☐ Soft-Sided Bags (≤ 10 yd^3)

☐ Intermodal ☐ Sealand ☐ Gondola** ☐ Box Car

Other:

*Palletized drums are preferred by the disposal site. Please specify in the "Other" field if drums will not be palletized.
**Dimensions of gondola railcars must be between 48 to 65 feet in length and 8.5 to 12.5 feet in height as measured from the top of the rail to the top of the railcar unless approved by EnergySolutions.

5. NARRATIVE DESCRIPTION AND HISTORY OF WASTE

Please submit a narrative description and history of the waste as an attachment to the Radioactive Waste Profile Record. This attachment should include the following:

- Process that generated the waste
- Waste material physical composition and characteristics
- Radiological and chemical characterization method
- Basis for determining manifested radionuclide concentrations
- Description and amounts of absorbents, if applicable
- Basis of non-hazardous or hazardous waste determinations
- Treatment processes, if applicable
- Product information or Material Safety Data Sheets associated with the waste as applicable
- Information requested in other sections of this form

RADIOACTIVE WASTE PROFILE RECORD

Waste Stream ID: 0691A-06 Revision: 0 Date of Revision: *05/09/2011*

C. RADIOLOGICAL INFORMATION

Obtain sufficient samples to adequately determine a range and weighted average of activity in the waste. Attach the gamma spectroscopy or radiochemistry data supporting the radionuclide information listed below.

1. Does the waste material contain accessible surfaces with contact dose rates greater than 500 mR/hr? Y ☐ N ☒

2. Does the waste material contain any of the following isotopes: Aluminum-26, Berkelium-247, Calcium-41, Californium-250, Chlorine-36, Rhenium-187, Terbium-157, or Terbium-158? Y ☐ N ☒

3. Please list the following information for each isotope associated with the waste. Provide an explanation in the narrative description of Section B.5 if the waste contains localized "hot spots" or elevated concentrations that significantly exceed the upper concentration range. If additional space is needed, provide an Attachment C.3 to this profile record formatted as below.

Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)	Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)
Pa-233	50	12.79			
Pa-234m	388.5	334.633			
Tc-99	250000	131134			
Th-231	87.63	53.185			
Am-241	100	1.014			
Np-237	300	10			
Pu-238	50	0.4237			
Pu-239/240	50	0.5607			
Th-228	300	10			
Th-230	300	20.02			
Th-232	300	10			
Th-234	50	3.2951			
Total U	50	10.199			
U-233/234	38000	5000			
U-236	50	0.2471			
U-238	16500	2000			
Ac-227	300	10			
Cs-137	300	10			
Np-237	300	10			
Pa-231	300	10			
Ra-226	300	10			
Th-229	300	10			
U-235	1900*	500	*See B.5		
U-235	1190*	500	*See B.5		

RADIOACTIVE WASTE PROFILE RECORD

HAZARDOUS WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked YES. Otherwise, complete the Low-Level Radioactive Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

pH (Liquid only): N/A **Method 9045** Please provide the range of the pH analyses performed.

PFLT: Pass Pass / Fail **Method 9095** Not applicable for liquid radioactive waste streams.

Analyze the waste for volatile or semi-volatile constituents (Methods 8260 & 8270), and attach the data.

Any distinguishing color or odor? Y ☒ N ☐ If Yes, color: ____; odor: Benzene odor

2. HAZARDOUS WASTE CODES AND TREATMENT STANDARDS (40 CFR 268)

List all hazardous waste codes and treatment standards. Include hazardous waste codes that have been removed through treatment and indicate "Former" in the second column. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.2 to this profile record formatted as below. Include a description of hazardous waste determinations and any variances, exclusions, etc. in the narrative requested in Section B.5.

EPA HW Codes	Description, Constituent of Concern, or Subcategory	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

3. UNDERLYING HAZARDOUS CONSTITUENTS (40 CFR 268.48)

List all underlying hazardous constituents (UHCs) and treatment standards. Include UHCs that have been removed through treatment. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below.

Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A

D. 4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

5. LABORATORY CERTIFICATION INFORMATION

☒ UTAH or NELAC CERTIFIED
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ OTHER LABORATORY CERTIFICATION (Describe below)

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License or RCRA Permit.

Generator's Signature: _____ Title: Environmental Engineer Date: 6/15/11

RADIOACTIVE WASTE PROFILE RECORD

LOW-LEVEL RADIOACTIVE WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked No. Otherwise, complete the Hazardous Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

PFLT: Pass Pass / Fail **Method 9095** Not applicable for liquid radioactive waste streams.

2. 40 CFR 261.24 Table 1 – Contaminants of Toxicity Characteristic

Metals: Methods 6010 & *7470 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Arsenic 0.5	Chromium 0.121	Selenium 0.5
Barium 0.125	Lead 0.642	Silver 0.052
Cadmium 0.875	*Mercury 0.044	

Organics, Pesticides/Herbicides: Methods 8081/*8151 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Endrin 0.0004	Toxaphene ND	Chlordane ND
Lindane ND	*2,4-D ND	Heptachlor 0.008
Methoxychlor 0.005	*2,4,5-TP Silvex ND	

Organics, Semi-Volatile: Method 8270 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

o-Cresol ND	Hexachlorobenzene ND	Pentachlorophenol ND
m-Cresol ND	Hexachlorobutadiene ND	Pyridine ND
p-Cresol ND	Hexachloroethane ND	2,4,5-Trichlorophenol ND
Total Cresol ND	Nitrobenzene ND	2,4,6-Trichlorophenol ND
2,4-Dinitrotoluene ND		

Organics, Volatile: Method 8260 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Benzene ND	1,4-Dichlorobenzene 0.05	Methyl ethyl keytone ND
Carbon Tetrachloride ND	1,2-Dichloroethane ND	Tetrachloroethylene ND
Chlorobenzene 0.05	1,1-Dichloroethylene ND	Trichloroethylene ND
Chloroform 0.05	Vinyl Chloride ND	

3. Was the waste at the point of generation a RCRA hazardous waste per 40 CFR 261? Y ☐ N ☒

If Yes, list former hazardous waste codes and former underlying hazardous constituents. List worst-case concentrations for each hazardous constituent. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below. Attach the most recent chemical analytical results demonstrating compliance with applicable treatment standards.

If No, indicate "N/A" in Section D.3 below.

RADIOACTIVE WASTE PROFILE RECORD

D. 3.

Former EPA HW Codes or Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)

4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
Beryllium	0.523 mg/kg	N/A	N/A
Arcolor 1268	3.3 mg/kg	N/A	N/A

5. LABORATORY CERTIFICATION

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License.

Generator's Signature: _____ Title: Environmental Engineer Date: 6/15/11

ATTACHMENT B.5
PHYSICAL PROPERTIES

Generator Name: USEC/Portsmouth Waste Stream ID: 0691A-06
Revision #: 0 Revision Date:

ION EXCHANGE RESIN WASTE STREAM

The Ion Exchange Resin waste stream originates in the Portsmouth Gaseous Diffusion Plant (PORTS) Decontamination Building (X-705) and is generated by the heavy metals filtrate solutions (raffinate solutions which have been neutralized and processed through heavy metals precipitation) are transferred to the technetium ion exchange feed tank. The solutions are then pumped from the feed tank using a metering pump through ion exchange columns for technetium removal by ion exchange onto the resin.

The waste stream also contains small amounts of Dry Active Waste (DAW) that was used in cleanup, sampling, and operation of the process.

The containers of Ion Exchange Resin were sampled at the point of generation for Tc-99. These containers were re-sampled and analyzed for the purpose of characterization and this profile. The results were found to be non-hazardous.

The waste will not contain free liquids. Loose absorbent material may be added to the waste to mitigate the risk of free liquids >1% in waste containers that have the potential for free liquids/condensate.

*The containers have <10% and >10% enrichment. The containers that exceed 10% enrichment will not exceed 1,190 pCi/g U-235. The containers that are <10% will not exceed 1,900 pCi/g U-235.

Radiological and Chemical Characterization Requirements and Methods:

The primary objective of the characterization sampling design was to achieve high confidence that at least a high percentage of the items in population are acceptable. A hypergeometric model with a 95%/90% confidence interval was used to characterize this waste stream. The sample size was calculated using a similar method to Bowen and Bennett 1988 (*Statistical Methods for Nuclear Material Management*, NUREG/CR-4604, US Nuclear Regulatory Commission, Washington, DC). Thirty random samples were taken to meet the 95/90 confidence interval.

Chemical Characterization

Ohio Administrative Code (OAC) Section 3745-51 *et seq* and Title 40 Code of Federal Regulations (CFR) § 261 *et seq* clearly define the process for identifying a waste based on characteristics. OAC 3745-51-20 (40 CFR § 261.24) states:

"A waste is a hazardous waste if it exhibits any of the characteristics identified in rules 3745-51-20 (40 CFR § 261.20) to 3745-51-24 (40 CFR § 261.24) of the Administrative Code."

To determine the regulatory status of this waste stream the following requirements were met:

1. Collect a representative sample.
2. Analyze the sample using TCLP Method 1311 in *"Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods,"* EPA Publication SW-846.
3. Compare the results of the analysis to OAC 3745-51-24, Table 1 (40 CFR § 261.24, Table 1).

4. If the contaminate is statistically (as defined by Chapter Nine of SW-846) at or above the regulatory limit outlined in Table 1 of OAC 3745-51-24 (40 CFR § 261.24), then the waste is characteristically hazardous for that contaminant and must be managed as such.

Also, waste may be characteristically hazardous if it meets the criteria outlined in OAC 3745-51-21 (40 CFR § 261.21) to OAC 3745-51-23 (40 CFR § 261.23). OAC 3745-51-30 (40 CFR § 261.30) clearly define the process for identifying a waste based on a listing. OAC 3745-51-30 (A) [40 CFR § 261.30 (a)] states:

> "A waste is a hazardous waste if it is listed as such in rules 3745-51-30 (§ 261.30) to 3745-51-35 (§ 261.35) of the Administrative Code."

To determine the regulatory status of this waste stream for listed hazardous waste, the following requirements were met:

1. Identify the generating process or identify the waste as derived from an already listed hazardous waste.

2. Identify the constituents, which may cause the waste to be classified as hazardous.

3. Compare the waste descriptions provided in OAC 3745-51-31 (40 CFR § 261.31) to OAC 3745-51-33 (40 CFR § 261.33).

4. If the process and constituents are listed in OAC 3745-51-31 (40 CFR § 261.31 to OAC 3745-51-33 (40 CFR § 261.33), then the waste is listed as hazardous and is managed as such.

This waste stream is not regulated for disposal as a RCRA hazardous waste as defined in 40 CFR 261. This waste is not regulated as TSCA (PCB) waste as defined in 40 CFR 761.

Radiological Characterization
Radiological characterization is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. Thirty random samples of the total population were analyzed to provide the radiological characterization data to adequately determine a range and concentration of activity in the waste.

Basis for Determining Manifested Radionuclide Concentrations

Radiological characterization of outgoing shipments is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. The radiological laboratory results were used to establish scaling factors which are then synchronized with the NDA results and divided by net weight in the container to develop manifested nuclide concentrations. The SNM is typically in the form of dry non-visible uranium dust made up of oxide compounds, primarily UO_2F_2. The SNM is essentially distributed homogenously throughout the waste.

The waste will be packaged for transportation and disposal in drums or metal boxes.

ENERGYSOLUTIONS

EC-0230-SNM
Revision 3

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

The Special Nuclear Material Exemption Certification form must be completed and signed by each generator certifying to the following conditions. Please attach this form and all required information to the Radioactive Waste Profile Record (EC-0230). **A completed and signed copy of this form must also accompany each waste manifest.**

Waste Stream ID: 0691A-06 Manifest No. 0691A-06

1. Check applicable category below for the waste stream:

√	Uranium Enrichment Percent	Weight Percent of Chemicals in Condition 2c	Weight Percent of Materials in Condition 2d	U-235 Concentration (pCi/g)	Measurement Uncertainty* (pCi/g)
☒	< 10 %	≤ 20 %	≤ 1 %	≤ 1,900	≤ 285
☒	Unlimited	≤ 20 %	≤ 1 %	≤ 1,190	≤ 179
☐	Unlimited	Sum of both ≤ 45 % of waste by weight		≤ 680	≤ 102
☐	Unlimited	Unlimited	Unlimited	≤ 26	≤ 10
☐	Not Applicable - Enriched U-235 is not present in the waste.				

* A concentration value is used for the maximum measurement uncertainty limit rather than a percentage value to allow greater flexibility for generators with waste having very low SNM concentrations.

2. Certify to the following requirements by checking each box:

☒ a. Concentrations of SNM in individual waste containers do not exceed the applicable values listed in the above table and SNM isotope concentrations listed in Table 1.

☒ b. The SNM is homogeneously distributed throughout the waste or the SNM concentrations in any contiguous mass of 600 kilograms (1,323 lbs) do not exceed on average the specified limits. (Based on process knowledge or testing).

☒ c. Except as allowed by Condition 1, the waste does not contain "pure forms" of chemicals containing carbon, fluorine, magnesium, or bismuth in bulk quantities (e.g., a pallet of drums, a B-25 box). By "pure forms," it is meant that mixtures of the above elements such as magnesium oxide, magnesium carbonate, magnesium fluoride, bismuth oxide, etc. do not contain other elements. (Based on process knowledge or testing).

☒ d. Except as allowed by Condition 1, the waste does not contain total quantities of beryllium, hydrogenous material enriched in deuterium, or graphite above one percent of the total weight of the waste. (Based on process knowledge, physical observations, or testing).

☒ e. Waste packages do not contain highly soluble forms of uranium greater than 350 grams of uranium-235 or 200 grams of uranium-233. If the waste contains mixtures of U-233 and U-235, the waste meets the sum of the fractions rule. Highly soluble forms of uranium include, but are not limited to: uranium sulfate, uranyl acetate, uranyl chloride, uranyl formate, uranyl fluoride, uranyl nitrate, uranyl potassium carbonate, and uranyl sulfate. (Based on process knowledge or testing).

☐ f. For containers of liquid waste with more than 600 kilograms of waste, the total activity (pCi) of SNM in the manifested container does not exceed the SNM concentration in the above table or Table 1 times 600 kilograms of waste (based on process knowledge or testing). For example, the maximum activity of Pu-239 in any manifested container of liquid waste is 6.0 mCi (6.0E+09 pCi) as shown below:

$$10{,}000\,\frac{pCi}{g} \times 600{,}000\,g = 6.0X10^{9}\ pCi = 6.0\,mCi\ Pu\text{-}239$$

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

Table 1. Maximum concentrations of SNM in individual waste containers (refer to above table for U-235 limits).

Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)	Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)
U-233	75,000	11,250	Pu-241	350,000	50,000
Pu-236	500	75	Pu-242	10,000	1,500
Pu-238	10,000	1,500	Pu-243	500	75
Pu-239	10,000	1,500	Pu-244	500	75
Pu-240	10,000	1,500			

3. **Indicate that the following information is attached to the Radioactive Waste Profile Record by checking each box. (Note: Only the two-page Special Nuclear Material Exemption Certification form needs to be included with each manifest).**

   ☒ a. Provide a description of how the waste was generated, list the physical forms in the waste, and identify the uranium chemical composition.

   ☒ b. Provide a general description of how the waste was characterized (including the volumetric extent of the waste, and the number, location, type, and results of any analytical testing), the range of SNM concentrations, and the analytical results with error values used to develop the concentration ranges.

   ☒ c. Describe the process by which the waste was generated showing that the spatial distribution of SNM must be uniform, or other information supporting spatial distribution.

   ☒ d. Describe the methods to be used to determine the concentrations on the manifests. These methods could include direct measurement and the use of scaling factors. Describe the uncertainty associated with sampling and testing used to obtain the manifest concentrations.

4. **Generator's certification of compliance with the SNM exemption:** I certify that the information provided on this form is complete, true, and correct and is based on process knowledge, physical observations, or approved laboratory testing. I also certify that sampling and radiological testing of waste containing SNM was performed in accordance with EnergySolutions' Radioactive Material License and that any supporting documentation and analytical results have been submitted to EnergySolutions.

Authorized Signature	Printed Name	Title	Date
	Elizabeth Lamerson	Environmental Engineer	6/15/11

ENERGYSOLUTIONS

CL-WM-PR-001 F2 (EC-0230)
Revision 7

RADIOACTIVE WASTE PROFILE RECORD

A. GENERATOR AND WASTE STREAM INFORMATION

GENERAL: Complete this form for one waste stream. Contact EnergySolutions at (801) 532-1330 if you have any questions while completing this form. Please indicate "N/A" if a category does not apply.

1. GENERATOR INFORMATION

Generator Name: USEC/ Portsmouth EPA ID #: OHD987054723

Generator Contact: Elizabeth D. Lamerson Title: Environmental Engineer

Mailing Address: P.O. Box 628 M/S 9030

Piketon, OH 45661 Utah Site Access Permit #: 0111000043

Phone: 740-897-2812 Fax: 740-897-2143 Email: lamersoned@ports.usec.com

Contractor Name: N/A Location of Waste (City, State): Portsmouth

Name & Title of Person Completing Form: Elizabeth Lamerson/Env. Eng. Phone: 740-897-2812 Email: lamersoned@ports.usec.com

2. WASTE STREAM INFORMATION

Waste Stream ID: 0691A-09 Waste Stream Name: Oil and Grease Sludge State of Origin: OH

Revision: 0 Date: 05/17/2011 Volume (ft^3): TBD Delivery Date: Ongoing

CHECK APPROPRIATE BOXES BELOW. Please verify the required forms requested below are completed and submitted with the Radioactive Waste Profile Record.

HAZARDOUS WASTE: Is the waste classified as hazardous waste as defined by 40 CFR 261?

N ☒ If **NO**, complete and attach the **"Low-Level Radioactive Waste Certification Attachment"**.

Y ☐ If **YES**, complete and attach the **"Hazardous Waste Certification Attachment"** and check applicable box below.
Has the waste been treated to meet applicable treatment standards per 40 CFR 268? Y ☐ N ☐
Is the waste to be treated by EnergySolutions? Y ☐ N ☐

LOW-LEVEL RADIOACTIVE WASTE: Is the radioactive waste defined as Low-Level Radioactive Waste in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 435.1?

Y ☒ If **YES**, a current copy of a LLRW Compact Export letter authorizing export must be submitted if applicable. This authorization is applicable for non-DOE LLRW (i.e., Mixed Waste, NORM/NARM, 11e.(2) material, and waste from DOE do not require a Compact Export Letter).

N ☐ If **NO**, check appropriate box: NORM/NARM ☐ 11e.(2) Byproduct Material ☐ Other: _____

SPECIAL NUCLEAR MATERIAL: Does the waste stream contain material with uranium enriched in U-235 or any of the following radionuclides: U-233, Pu-236, Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Pu-243, or Pu-244?

Y ☒ N ☐ If Yes, complete and attach the "SNM Exemption Certification" form (EC-0230-SNM). Supporting statements, analytical results, and documentation must be included with the submittal.

PCB WASTE: Does the waste contain Polychlorinated Biphenyls (PCB) that are regulated for disposal per 40 CFR 761?

Y ☐ N ☒ If Yes, complete and attach the "PCB Waste Certification" form (EC-98279).

ASBESTOS: Does the waste contain Asbestos Containing Material?

Y ☐ N ☒ If Yes, Asbestos Containing Material must be managed in accordance with applicable federal regulations. Provide a detailed description of the waste containing asbestos in Section B.5 of the waste profile.

RADIOACTIVE WASTE PROFILE RECORD

B. WASTE PHYSICAL PROPERTIES & PACKAGE INFORMATION

1. GENERAL CHARACTERISTICS

Does the waste contain free liquids? Y ☐ N ☒ If Yes, what is the percent of free liquid by waste volume? _____ %

If Yes, is the liquid aqueous (water-based)? Y ☐ N ☐

Does the waste contain absorbent? Y ☒ N ☐ Density range of the waste: 0.62 – 1.29 g/cc ☒ lb/ft³ ☐

List percentage of waste type by volume: Soil _____% Concrete & Metal _____% DAW 5% Resins _____% Sludge 95%

Other constituents and percentage by volume? N/A

2. MATERIAL SIZE

Gradation of Material: Indicate the percentage of waste material that would **pass through** the following grid sizes. For example, 95% of the material would pass through a 12" square, 90% passes through a 4" square, 80% passes through a 1" square, etc.

12" 95 % 4" 85 % 1" 75 % 1/4" 50 % 1/40" ≤1 % 1/200" ≤1 %

Does the waste stream contain oversize debris (i.e., no dimension < 10 inches and any dimension > 12 feet)? Y ☐ N ☒
If Yes, include a detailed description (i.e., weight, size, drawings, etc.) of the oversize debris in the narrative of Section B.5.

3. MOISTURE CONTENT

For soil or soil-like materials, please use **Std. Proctor Method ASTM D-698** to determine the optimum moisture content. The waste material must not exceed 3 percentage points above optimum moisture upon arrival at EnergySolutions' disposal facility unless approved by EnergySolutions.

Optimum Moisture Content: N/A % at Maximum Dry Density (lb/ft³): N/A

Average Moisture Content: N/A % Moisture Content Range: N/A% - N/A%

4. WASTE SHIPPING & PACKAGING

Transportation Mode: ☒ Highway ☒ Rail

Shipping & Container Packages: (Check all that apply) ☒ Drums* (≤ 85 gallons) ☒ Boxes (≤ 100 ft³) ☒ Soft-Sided Bags (≤ 10 yd³)

☒ Intermodal ☒ Sealand ☐ Gondola** ☐ Box Car

Other:

*Palletized drums are preferred by the disposal site. Please specify in the "Other" field if drums will not be palletized.
**Dimensions of gondola railcars must be between 48 to 65 feet in length and 8.5 to 12.5 feet in height as measured from the top of the rail to the top of the railcar unless approved by EnergySolutions.

5. NARRATIVE DESCRIPTION AND HISTORY OF WASTE

Please submit a narrative description and history of the waste as an attachment to the Radioactive Waste Profile Record. This attachment should include the following:

- Process that generated the waste
- Waste material physical composition and characteristics
- Radiological and chemical characterization method
- Basis for determining manifested radionuclide concentrations
- Description and amounts of absorbents, if applicable
- Basis of non-hazardous or hazardous waste determinations
- Treatment processes, if applicable
- Product information or Material Safety Data Sheets associated with the waste as applicable
- Information requested in other sections of this form

RADIOACTIVE WASTE PROFILE RECORD

Waste Stream ID: 0691A-09 Revision: 0 Date of Revision: *05/17/2011*

C. RADIOLOGICAL INFORMATION

Obtain sufficient samples to adequately determine a range and weighted average of activity in the waste. Attach the gamma spectroscopy or radiochemistry data supporting the radionuclide information listed below.

1. Does the waste material contain accessible surfaces with contact dose rates greater than 500 mR/hr? Y ☐ N ☒

2. Does the waste material contain any of the following isotopes: Aluminum-26, Berkelium-247, Calcium-41, Californium-250, Chlorine-36, Rhenium-187, Terbium-157, or Terbium-158? Y ☐ N ☒

3. Please list the following information for each isotope associated with the waste. Provide an explanation in the narrative description of Section B.5 if the waste contains localized "hot spots" or elevated concentrations that significantly exceed the upper concentration range. If additional space is needed, provide an Attachment C.3 to this profile record formatted as below.

Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)	Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)
Pa-234	50	36.68			
Pa-234m	18800	7442.7			
Tc-99	13000	1288.09			
Tl-208	50	3.952			
Th-231	1336	619.57			
Th-234	13480	6484.46			
U-234	38000	5000			
U-235	1328	360.29			
Am-241	100	10			
Cm-248	50	0.1308			
Np-237	300	10			
Pu-238	50	0.29052			
Pu-239/240	50	0.51516			
Th-228	300	10			
Th-230	50	3.615			
Th-231	1358	262.944			
Th-232	300	10			
Th-234	16290	3489.785			
Total U	38000	5000			
U-233/234	38000	4755.454			
U-235	1900	262.94			
U-236	116.4	15.985			
U-238	16500	5000			
Th-229	300	10			
Ac-227	300	10			
Cs-137	300	10			
Pa-231	300	10			
Ra-226	300	10			

RADIOACTIVE WASTE PROFILE RECORD

HAZARDOUS WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked YES. Otherwise, complete the Low-Level Radioactive Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

pH (Liquid only): N/A — **Method 9045** Please provide the range of the pH analyses performed.

PFLT: Pass (Pass / Fail) — **Method 9095** Not applicable for liquid radioactive waste streams.

Analyze the waste for volatile or semi-volatile constituents (Methods 8260 & 8270), and attach the data.

Any distinguishing color or odor? Y ☐ N ☒ If Yes, color: ____; odor: ____

2. HAZARDOUS WASTE CODES AND TREATMENT STANDARDS (40 CFR 268)

List all hazardous waste codes and treatment standards. Include hazardous waste codes that have been removed through treatment and indicate "Former" in the second column. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.2 to this profile record formatted as below. Include a description of hazardous waste determinations and any variances, exclusions, etc. in the narrative requested in Section B.5.

EPA HW Codes	Description, Constituent of Concern, or Subcategory	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

3. UNDERLYING HAZARDOUS CONSTITUENTS (40 CFR 268.48)

List all underlying hazardous constituents (UHCs) and treatment standards. Include UHCs that have been removed through treatment. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below.

Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A

D. 4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

5. LABORATORY CERTIFICATION INFORMATION

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License or RCRA Permit.

Generator's Signature: _____ Title: Environmental Engineer Date: 6/15/11

RADIOACTIVE WASTE PROFILE RECORD

LOW-LEVEL RADIOACTIVE WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked No. Otherwise, complete the Hazardous Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

PFLT: Pass Pass / Fail **Method 9095** Not applicable for liquid radioactive waste streams.

2. 40 CFR 261.24 Table 1 – Contaminants of Toxicity Characteristic

Metals: Methods 6010 & *7470 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Arsenic 0.309	Chromium 0.061	Selenium 0.062
Barium 0.84	Lead 0.381	Silver 0.228
Cadmium 0.081	*Mercury 0.00043	

Organics, Pesticides/Herbicides: Methods 8081/*8151 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Endrin ND	Toxaphene ND	Chlordane ND
Lindane ND	*2,4-D ND	Heptachlor ND
Methoxychlor ND	*2,4,5-TP Silvex ND	

Organics, Semi-Volatile: Method 8270 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

o-Cresol ND	Hexachlorobenzene ND	Pentachlorophenol ND
m-Cresol ND	Hexachlorobutadiene ND	Pyridine ND
p-Cresol ND	Hexachloroethane ND	2,4,5-Trichlorophenol ND
Total Cresol ND	Nitrobenzene ND	2,4,6-Trichlorophenol ND
2,4-Dinitrotoluene ND		

Organics, Volatile: Method 8260 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Benzene ND	1,4-Dichlorobenzene ND	Methyl ethyl keytone ND
Carbon Tetrachloride ND	1,2-Dichloroethane ND	Tetrachloroethylene 0.05
Chlorobenzene ND	1,1-Dichloroethylene ND	Trichloroethylene ND
Chloroform ND	Vinyl Chloride ND	

3. Was the waste at the point of generation a RCRA hazardous waste per 40 CFR 261? Y ☐ N ☒

If Yes, list former hazardous waste codes and former underlying hazardous constituents. List worst-case concentrations for each hazardous constituent. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below. Attach the most recent chemical analytical results demonstrating compliance with applicable treatment standards.

If No, indicate "N/A" in Section D.3 below.

RADIOACTIVE WASTE PROFILE RECORD

D. 3. Former EPA HW Codes or Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)

4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
Beryllium	0.868 mg/kg	N/A	N/A

5. LABORATORY CERTIFICATION

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

_____

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License.

Generator's Signature: _____ Title: Environmental Engineer Date: 6/15/11

ATTACHMENT B.5
PHYSICAL PROPERTIES

Generator Name: USEC/Portsmouth Waste Stream ID: 0691A-09
Revision #: 0 Revision Date:

OIL AND GREASE SLUDGE WASTE STREAM

The Oil and Grease Sludge waste stream originates in the Portsmouth Gaseous Diffusion Plant (PORTS) Decontamination Building (X-705). The function of the X-705 Oil and Grease Removal Unit (OGRU) is to remove oil and grease from solutions in preparation for processing through the Microfiltration System. This system consists of geometrically favorable storage columns and the OGRU (reaction tank, permeate tray, and sludge drum). Chemicals are added to the solution in the OGRU reservoir to break the oil and grease loose from suspension and encapsulate them so the oil and grease can be filtered out. After the chemicals are added, a turbo mixer agitates the solution. The liquid is drained off through filter paper and collected in the filtrate collection tray. The solids collect on the filter paper and are eventually fed through the sludge chute to an approved container for disposal.

The waste stream also contains small amounts of Dry Active Waste (DAW) that was used in cleanup, sampling, and operation of the process.

The containers of oil and grease sludge were sampled and analyzed for the purpose of characterization and this profile. The results were found to be non-hazardous.

The waste will not contain free liquids. Loose absorbent material may be added to the waste to mitigate the risk of free liquids >1% in waste containers that have the potential for free liquids/condensate.

Radiological and Chemical Characterization Requirements and Methods:

The primary objective of the characterization sampling design was to achieve high confidence that at least a high percentage of the items in population are acceptable. A hypergeometric model with a 95%/90% confidence interval was used to characterize this waste stream. The sample size was calculated using a similar method to Bowen and Bennett 1988 (*Statistical Methods for Nuclear Material Management*, NUREG/CR-4604, US Nuclear Regulator Commission, Washington, DC). Eighteen random samples were taken to meet the 95/90 confidence interval.

Chemical Characterization

Ohio Administrative Code (OAC) Section 3745-51 *et seq* and Title 40 Code of Federal Regulations (CFR) § 261 *et seq* clearly define the process for identifying a waste based on characteristics. OAC 3745-51-20 (40 CFR § 261.24) states:

"A waste is a hazardous waste if it exhibits any of the characteristics identified in rules 3745-51-20 (40 CFR § 261.20) to 3745-51-24 (40 CFR § 261.24) of the Administrative Code."

To determine the regulatory status of this waste stream the following requirements were met:

1. Collect a representative sample.
2. Analyze the sample using TCLP Method 1311 in *"Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods,"* EPA Publication SW-846.
3. Compare the results of the analysis to OAC 3745-51-24, Table 1 (40 CFR § 261.24, Table 1).

4. If the contaminate is statistically (as defined by Chapter Nine of SW-846) at or above the regulatory limit outlined in Table 1 of OAC 3745-51-24 (40 CFR § 261.24), then the waste is characteristically hazardous for that contaminant and must be managed as such.

Also, waste may be characteristically hazardous if it meets the criteria outlined in OAC 3745-51-21 (40 CFR § 261.21) to OAC 3745-51-23 (40 CFR § 261.23). OAC 3745-51-30 (40 CFR § 261.30) clearly define the process for identifying a waste based on a listing. OAC 3745-51-30 (A) [40 CFR § 261.30 (a)] states:

> "A waste is a hazardous waste if it is listed as such in rules 3745-51-30 (§ 261.30) to 3745-51-35 (§ 261.35) of the Administrative Code."

To determine the regulatory status of this waste stream for listed hazardous waste, the following requirements were met:

1. Identify the generating process or identify the waste as derived from an already listed hazardous waste.

2. Identify the constituents, which may cause the waste to be classified as hazardous.

3. Compare the waste descriptions provided in OAC 3745-51-31 (40 CFR § 261.31) to OAC 3745-51-33 (40 CFR § 261.33).

4. If the process and constituents are listed in OAC 3745-51-31 (40 CFR § 261.31 to OAC 3745-51-33 (40 CFR § 261.33), then the waste is listed as hazardous and is managed as such.

This waste stream is not regulated for disposal as a RCRA hazardous waste as defined in 40 CFR 261. This waste is not regulated as TSCA (PCB) waste as defined in 40 CFR 761.

Radiological Characterization
Radiological characterization is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. Eighteen random samples of the total population were analyzed to provide the radiological characterization data to adequately determine a range and concentration of activity in the waste.

Basis for Determining Manifested Radionuclide Concentrations

Radiological characterization of outgoing shipments is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. The radiological laboratory results were used to establish scaling factors which are then synchronized with the NDA results and divided by net weight in the container to develop manifested nuclide concentrations. The SNM is typically in the form of dry non-visible uranium dust made up of oxide compounds, primarily UO_2F_2. The SNM is essentially distributed homogenously throughout the waste.

Typically the waste will be packaged for transportation and disposal in drums or metal boxes. Optional packages include soft-sided bags, intermodal containers and sea-land containers. Notification will be provided prior to shipping if any optional containers are to be utilized.

ENERGYSOLUTIONS

EC-0230-SNM
Revision 3

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

The Special Nuclear Material Exemption Certification form must be completed and signed by each generator certifying to the following conditions. Please attach this form and all required information to the Radioactive Waste Profile Record (EC-0230). **A completed and signed copy of this form must also accompany each waste manifest.**

Waste Stream ID: 0691A-09 Manifest No. 0691A-09

1. Check applicable category below for the waste stream:

√	Uranium Enrichment Percent	Weight Percent of Chemicals in Condition 2c	Weight Percent of Materials in Condition 2d	U-235 Concentration (pCi/g)	Measurement Uncertainty* (pCi/g)
☒	< 10 %	≤ 20 %	≤ 1 %	≤ 1,900	≤ 285
☐	Unlimited	≤ 20 %	≤ 1 %	≤ 1,190	≤ 179
☐	Unlimited	Sum of both ≤ 45 % of waste by weight		≤ 680	≤ 102
☐	Unlimited	Unlimited	Unlimited	≤ 26	≤ 10
☐	Not Applicable - Enriched U-235 is not present in the waste.				

* A concentration value is used for the maximum measurement uncertainty limit rather than a percentage value to allow greater flexibility for generators with waste having very low SNM concentrations.

2. Certify to the following requirements by checking each box:

☒ a. Concentrations of SNM in individual waste containers do not exceed the applicable values listed in the above table and SNM isotope concentrations listed in Table 1.

☒ b. The SNM is homogeneously distributed throughout the waste or the SNM concentrations in any contiguous mass of 600 kilograms (1,323 lbs) do not exceed on average the specified limits. (Based on process knowledge or testing).

☒ c. Except as allowed by Condition 1, the waste does not contain "pure forms" of chemicals containing carbon, fluorine, magnesium, or bismuth in bulk quantities (e.g., a pallet of drums, a B-25 box). By "pure forms," it is meant that mixtures of the above elements such as magnesium oxide, magnesium carbonate, magnesium fluoride, bismuth oxide, etc. do not contain other elements. (Based on process knowledge or testing).

☒ d. Except as allowed by Condition 1, the waste does not contain total quantities of beryllium, hydrogenous material enriched in deuterium, or graphite above one percent of the total weight of the waste. (Based on process knowledge, physical observations, or testing).

☒ e. Waste packages do not contain highly soluble forms of uranium greater than 350 grams of uranium-235 or 200 grams of uranium-233. If the waste contains mixtures of U-233 and U-235, the waste meets the sum of the fractions rule. Highly soluble forms of uranium include, but are not limited to: uranium sulfate, uranyl acetate, uranyl chloride, uranyl formate, uranyl fluoride, uranyl nitrate, uranyl potassium carbonate, and uranyl sulfate. (Based on process knowledge or testing).

☐ f. For containers of liquid waste with more than 600 kilograms of waste, the total activity (pCi) of SNM in the manifested container does not exceed the SNM concentration in the above table or Table 1 times 600 kilograms of waste (based on process knowledge or testing). For example, the maximum activity of Pu-239 in any manifested container of liquid waste is 6.0 mCi (6.0E+09 pCi) as shown below:

$$10{,}000\,\frac{pCi}{g} \times 600{,}000\,g = 6.0X10^{9}\,pCi = 6.0\,mCi\ Pu\text{-}239$$

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

Table 1. Maximum concentrations of SNM in individual waste containers (refer to above table for U-235 limits).

Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)	Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)
U-233	75,000	11,250	Pu-241	350,000	50,000
Pu-236	500	75	Pu-242	10,000	1,500
Pu-238	10,000	1,500	Pu-243	500	75
Pu-239	10,000	1,500	Pu-244	500	75
Pu-240	10,000	1,500			

3. **Indicate that the following information is attached to the Radioactive Waste Profile Record by checking each box. (Note: Only the two-page Special Nuclear Material Exemption Certification form needs to be included with each manifest).**

   ☒ a. Provide a description of how the waste was generated, list the physical forms in the waste, and identify the uranium chemical composition.

   ☒ b. Provide a general description of how the waste was characterized (including the volumetric extent of the waste, and the number, location, type, and results of any analytical testing), the range of SNM concentrations, and the analytical results with error values used to develop the concentration ranges.

   ☒ c. Describe the process by which the waste was generated showing that the spatial distribution of SNM must be uniform, or other information supporting spatial distribution.

   ☒ d. Describe the methods to be used to determine the concentrations on the manifests. These methods could include direct measurement and the use of scaling factors. Describe the uncertainty associated with sampling and testing used to obtain the manifest concentrations.

4. **Generator's certification of compliance with the SNM exemption:** I certify that the information provided on this form is complete, true, and correct and is based on process knowledge, physical observations, or approved laboratory testing. I also certify that sampling and radiological testing of waste containing SNM was performed in accordance with EnergySolutions' Radioactive Material License and that any supporting documentation and analytical results have been submitted to EnergySolutions.

Authorized Signature	Printed Name	Title	Date
	Elizabeth Lamerson	Environmental Engineer	6/15/11

Perma-Fix Northwest, Inc.

July 24, 2008

Elizabeth Lamerson
USEC
P.O. Box 628 – MS9030
Piketon, OH 45661

RE: Waste Profile Approval
Profile Number: 2008-USEC-0002 LLW Oily absorbent

We are providing written notification that Perma-Fix Northwest has reviewed and approved the Low Level Waste profile. Perma-Fix Northwest has the appropriate permits and licenses and can accept the waste identified in the profile.
Please note that this approval is for the profile only, and does not authorize shipment of this waste to Perma-Fix Northwest. To obtain authorization and schedule shipment, please contact Mr. Larry Morin at (509) 375-7046

All waste shipped to PermaFix Northwest under this profile number must match the waste descriptions and other information provided on the Waste Profile Record.

This profile is valid through the date listed below. The Waste Profile Record must be recertified by submitting an Annual Profile Review form. Perma-Fix Northwest will provide a copy of this form thirty (30) days before the profile expires.

The Waste Profile Record must be revised and resubmitted for approval any time there are significant changes to;

1. The waste generating process
2. Characterization
3. Regulatory status
4. Waste codes and associated Land Disposal Restrictions
5. Any other changes that could affect PermaFix Northwest ability to manage the waste safely and in compliance with permits and regulations.

07/24/2008	07/24/2009
Approval Date	Expiration Date

Sincerely,

Jock Thompson
Waste Acceptance Specialist

cc: Tibby Snipes
Jamie Granger
Larry Morin
Mike McCargar
Zane Turner
File

WASTE PROFILE

*Perma-Fix Nuclear Services: DSSI * M&EC * Perma-Fix of Florida * Perma-Fix Northwest*

2008-USEC-003
Profile Number

Generator Information:

EPA ID#	OHD987054723
Generator Name	USEC Portsmouth
Generator Address	3930 US RT 23S PO Box 628
City/State/Zip	Piketon, Ohio 45661
Telephone	740-897-2812
Fax	

Billing Information:

☐ Electronic users: check here to copy Generator info. if same.

Broker/Site	
Address	
City/St/Zip	
Telephone	
Fax	

Check all that apply

☐ Hazardous Waste - *Include LDR-UHC Constituent Form*
- ☐ *Mercury >260 PPM*
- ☐ *Oxidizers*
- ☐ *Elemental Mercury*
- ☐ *Reactives - specify:*

☐ TSCA Regulated PCB
- ☐ *PCB Bulk Products*
- ☐ *PCB Remediation Waste*
- ☐ *PCB Articles*

☑ Radioactive Waste

☑ Non-Hazardous Waste
- ☐ Universal Waste
- ☐ Used Oil Filter
- ☐ Used Oil

Please provide a detailed description of the process that generated this waste. Attach additional sheets if needed. Note: for a line break, press alt-return.

Solids with free liquids possible (oily absorbents). Wastes contained in plastic bags placed into B-25 boxes or 1A2 drums. Waste streams could consist of: rags, pads, plastic, masslin, PPE, paper, mopheads, oily activated alumina trap, solidified sludges, and other solids. Non-hazardous, low-level radioactive waste only.

Characterization Method: *(check ONE only)* ☑ Laboratory Analysis ☐ MSDS ☐ Generator Knowledge

Physical Description: *(check all that apply)* ☑ Solid ☑ Liquid ☑ Sludge ☐ Debris ☐ Labpack *(add inventory form)*

☑ Other: oily absorbents (describe what type of absorbents)

Volume: *(include units: 30 liters, 5 gal., etc)*	Varies - on going	Gross Weight: *(include units: 75 lbs, 10 kg, etc.)*	Varies - on going	Container Type:	B-25 boxes and drums	Total Number of Containers:	on going

Overpacked: ☐ Yes ☑ No **US DOT Hazardous Material:** ☑ Yes ☐ No **Proper Shipping Name:**

DOT Hazard Class: *primary* *subsidiary*

☐ This waste stream is subject to the Land Disposal Restriction of 40 CFR 268.
(If checked, complete a Land Disposal Restriction Notification form)

☐ This waste stream contains Benzene.
(If checked, complete the Benzene NESHAP Worksheet)

☐ This waste stream consists of off-spec used oil.

☐ This is a CERCLA waste.

For Broker Use Only

I certify the following:
The packages used to ship this material meet the requirements of 49 CFR 173 Subpart B. This material will be inspected for consistency with the preapproved profile at the time of transportation.

Name Date

CHEMICAL PROPERTIES AND COMPOSITION:

Percent Free Liquid: 25 % (None=0%, all=100%) Percent Settled Solids: 75 % (None=0%, all=100%) Viscosity: N/A Centistokes

pH Actual: N/A OR Range: >2 to <12.5 Specific Gravity Actual: N/A OR Range: to

CERTIFICATION

I certify that all hazards, known or suspected, have been disclosed on this profile. Further I understand that a surcharge may be imposed for any material which is rejected or requires additional handling due to the material being inconsistent with the profile, improper or damaged containers, or improper shipping documents.

1. Any sample submitted is representative as defined in 40 CFR 261-Appendix I or is obtained using an equivalent method.
2. I authorize Perma-Fix to obtain a sample from any waste shipment for purposes of verification.

Elizabeth Glass | Environmental Engineer | 7/17/08
Name | Title | Date

Perma-Fix Use Only

☐ Accepted ☐ Accepted with the following conditions:

☐ Rejected for the following reasons:

Designated Facility:
- ☐ DSSI
- ☐ M&EC
- ☐ PF Florida
- ☐ PFNW

Perma-Fix has all of the necessary permits and licenses for the waste that has been characterized and identified by this approved profile and accepted by Perma-Fix.

Richard Grondin | VP/GM | 7/24/08
Name | Title | Date

RADIOACTIVE WASTE ADDENDUM

DSSI• M&EC• Perma-Fix of Florida• Perma-Fix Northwest
(Per Waste Stream)

Help creating more of these worksheets

A. RADIOACTIVITY (per Waste Stream)

Radionuclides	Activity (mCi) *	Concentration pCi/g
U-234		1.37E+03
U-235		1.67E+02
U-238		4.25E+02
Tc-99		1.00E+02

Radionuclides	Activity (mCi) *	Concentration pCi/g

Radionuclides	Activity (mCi) *	Concentration

* Not required for LSVs

SNM in grams: 38.7 Total Pu: 0.00E+00 U-235: 38.7 U-233:

B. RADIATION LEVELS FROM OUTSIDE SURFACE OF PACKAGE(S): Max: <0.5 mR/hr

Avg: <0.5 mR/hr

☐ Check here if additional information concerning this **Waste Stream** is attached and indicate the number of attached pages:

How to Fill out this Form

What is a Waste Stream:

1. If there are different types of waste, there are different waste streams (i.e. liquids, soil, PPE are different waste streams)
2. Multiple containers of the same type of waste are considered part of one waste stream (i.e. 4 drums of LSV).
3. a. Annual profiling is required by generator only, not by shipment or package.
   b. Total types of radionuclides are to be listed. Total radioactivity is not required.
   c. Each drum will be priced upon receipt according to established fee schedules. If there are questions, please contact Perma-Fix prior to shipping.

For each radionuclide in this particular Waste Stream, list the radionuclide (i.e. Cs-137) and the activity in millicuries, and the concentration or specific Activity *(activity per unit mass)*.

Measure the outside of the package(s) and record the highest reading.

Help creating additional Rad Waste Addendum worksheets

1. With your mouse, move the cursor over the tab below which is marked **Rad Waste Addendum.**
2. Click using your right mouse button.
3. Select the option **Move or Copy...**
4. In the box **Before sheet:**, highlight **LDR**.
5. Also check the box labeled **Create a copy**.
6. Hit **OK**.
7. A duplicate worksheet will be created and it will be called **Rad Waste Addendum (2).**
8. Repeat the above procedure as often as required.

Rev. 5/02

PERMA-FIX ENVIRONMENTAL SERVICES

WASTE CODE INFORMATION

Please list all D,F,K,P, U and WA State codes that this waste carries. WA state codes for PFNW only.

EPA Hazardous Waste Codes				
None				

ADDITIONAL CHEMICAL CONSTITUENT DISCLOSURE

List any known chemical components that are not reported elsewhere in the profile.
Attach additional sheets if necessary.
(Constituents should add up to 100%)

Chemical Constituents	Concen-tration	(Units)
Petroleum Products	25%	
Solids (rags, pads, pigs, paper, dried sludges, activated alumina, etc.)	75%	

Chemical Constituents	Concen-tration	(Units)

BENZENE NESHAP QUESTIONNAIRE

DSSI • M&EC • Perma-Fix of Florida • Perma-Fix Northwest

Generator: U.S. Enrichment Corp Portsmouth. Profile Number:

1. Does the waste stream come from a facility with one of the following SIC codes listed under the NESHAP?

NESHAP SIC Codes

2812	2813	2816
2819	2821	2822
2823	2824	2833
2834	2835	2836
2841	2842	2843
2844	2851	2861
2865	2869	2873
2874	2875	2879
2891	2892	2893
2895	2899	2911
3087	3312	3861
3952	3999	4923
4924	4925	4931
4932	4939	4953
4959	7389	9511

☑ Yes Please go to the next question.
☐ No STOP. Please fill in your Name, Title and Date at the end of this form.

2. What is your facility's total annual benzene (TAB) quantity generated? 0 (lb/yr)

3. For what calendar year was the TAB calculated?

4. What is the total Benzene concentration in your waste?

_____ percent _____ ppm weight _____ Unknown

Please attach analytical.

What acceptable EPA SW-846 or Water methods were used to analyze this waste?

☐ EPA SW-846 Method _____ or,
☐ Water Method _____, or
☑ Generator Knowledge, if generator knowledge, please attach a breif description.

5. Does this waste stream contain greater than 10% water?

☐ Yes
☑ No This waste stream is exempt.

If yes, what is the average concentration? _____ %

Certification

I hereby certify, under penalty of law, that the above information is true, complete and factual and is an acurate representation of the known and suspected hazards, pertaining to the waste described herein. I will notify Perma-Fix if any of the information above changes.

Name	Title	Date
[signature]	Environmental Engineer	7/17/08

PCB ADDENDUM

DSSI • M&EC • Perma-Fix of Florida • Perma-Fix Northwest

Generator: USEC Portsmouth Profile Number: 2007-USEC-0001 Rev. 01

Waste Description

Please complete all sections of the table for each PCB waste stream

Physical Description of Waste (e.g., sludge, dielectric fluid)	Number/Type of Containers	Total PCB Waste Weight	Date Article Removed from Service for Disposal	Total PCB Concentration
N/A				

Certification

I hereby certify, under penalty of law, that the above information is true, accurate and complete to the best of my knowledge.

Name	Title	Date
[signature]	Environmental Engineer	7/17/08

ENERGYSOLUTIONS

CL-WM-PR-001 F2 (EC-0230)
Revision 7

RADIOACTIVE WASTE PROFILE RECORD

A. GENERATOR AND WASTE STREAM INFORMATION

GENERAL: Complete this form for one waste stream. Contact EnergySolutions at (801) 532-1330 if you have any questions while completing this form. Please indicate "N/A" if a category does not apply.

1. GENERATOR INFORMATION

Generator Name: USEC/ Portsmouth EPA ID #: OHD987054723

Generator Contact: Elizabeth D. Lamerson Title: Environmental Engineer

Mailing Address: P.O. Box 628 M/S 9030

Piketon, OH 45661 Utah Site Access Permit #: 0111000043

Phone: 740-897-2812 Fax: 740-897-2143 Email: lamersoned@ports.usec.com

Contractor Name: N/A Location of Waste (City, State): Portsmouth

Name & Title of Person Completing Form: Elizabeth Lamerson/Env. Eng. Phone: 740-897-2812 Email: lamersoned@ports.usec.com

2. WASTE STREAM INFORMATION

Waste Stream ID: 0691A-11 Waste Stream Name: Rubble, Sand, Concrete State of Origin: OH

Revision: 4 Date: 04/21/2011 Volume (ft^3): TBD Delivery Date: Ongoing

CHECK APPROPRIATE BOXES BELOW. Please verify the required forms requested below are completed and submitted with the Radioactive Waste Profile Record.

HAZARDOUS WASTE: Is the waste classified as hazardous waste as defined by 40 CFR 261?

N ☒ If **NO**, complete and attach the **"Low-Level Radioactive Waste Certification Attachment"**.
Y ☐ If **YES**, complete and attach the **"Hazardous Waste Certification Attachment"** and check applicable box below.
Has the waste been treated to meet applicable treatment standards per 40 CFR 268? Y ☐ N ☐
Is the waste to be treated by EnergySolutions? Y ☐ N ☐

LOW-LEVEL RADIOACTIVE WASTE: Is the radioactive waste defined as Low-Level Radioactive Waste in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 435.1?

Y ☒ If **YES**, a current copy of a LLRW Compact Export letter authorizing export must be submitted if applicable. This authorization is applicable for non-DOE LLRW (i.e., Mixed Waste, NORM/NARM, 11e.(2) material, and waste from DOE do not require a Compact Export Letter).
N ☐ If **NO**, check appropriate box: NORM/NARM ☐ 11e.(2) Byproduct Material ☐ Other: _____

SPECIAL NUCLEAR MATERIAL: Does the waste stream contain material with uranium enriched in U-235 or any of the following radionuclides: U-233, Pu-236, Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Pu-243, or Pu-244?

Y ☒ N ☐ If Yes, complete and attach the "SNM Exemption Certification" form (EC-0230-SNM). Supporting statements, analytical results, and documentation must be included with the submittal.

PCB WASTE: Does the waste contain Polychlorinated Biphenyls (PCB) that are regulated for disposal per 40 CFR 761?

Y ☐ N ☒ If Yes, complete and attach the "PCB Waste Certification" form (EC-98279).

ASBESTOS: Does the waste contain Asbestos Containing Material?

Y ☐ N ☒ If Yes, Asbestos Containing Material must be managed in accordance with applicable federal regulations. Provide a detailed description of the waste containing asbestos in Section B.5 of the waste profile.

RADIOACTIVE WASTE PROFILE RECORD

B. WASTE PHYSICAL PROPERTIES & PACKAGE INFORMATION

1. GENERAL CHARACTERISTICS

Does the waste contain free liquids? Y ☐ N ☒ If Yes, what is the percent of free liquid by waste volume? N/A %

If Yes, is the liquid aqueous (water-based)? Y ☐ N ☐

Does the waste contain absorbent? Y ☒ N ☐ Density range of the waste: 40-140 – 50 g/cc ☐ lb/ft³ ☒

List percentage of waste type by volume: Soil 2% Concrete & Metal 5% DAW <1% Resins 0% Sludge 0%

Other constituents and percentage by volume? Sand - 50%, Concrete - 30%, Glass - 2%, Gravel - 10%

2. MATERIAL SIZE

Gradation of Material: Indicate the percentage of waste material that would **pass through** the following grid sizes. For example, 95% of the material would pass through a 12" square, 90% passes through a 4" square, 80% passes through a 1" square, etc.

12" 99 % 4" 95 % 1" 80 % 1/4" 30 % 1/40" <1 % 1/200" <1 %

Does the waste stream contain oversize debris (i.e., no dimension < 10 inches and any dimension > 12 feet)? Y ☐ N ☒
If Yes, include a detailed description (i.e., weight, size, drawings, etc.) of the oversize debris in the narrative of Section B.5.

3. MOISTURE CONTENT

For soil or soil-like materials, please use **Std. Proctor Method ASTM D-698** to determine the optimum moisture content. The waste material must not exceed 3 percentage points above optimum moisture upon arrival at EnergySolutions' disposal facility unless approved by EnergySolutions.

Optimum Moisture Content: N/A % at Maximum Dry Density (lb/ft³): N/A

Average Moisture Content: N/A % Moisture Content Range: N/A% - N/A%

4. WASTE SHIPPING & PACKAGING

Transportation Mode: ☒ Highway ☒ Rail

Shipping & Container Packages: (Check all that apply) ☒ Drums* (≤ 85 gallons) ☒ Boxes (≤ 100 ft³) ☒ Soft-Sided Bags (≤ 10 yd³)

☒ Intermodal ☒ Sealand ☐ Gondola** ☐ Box Car

Other:

*Palletized drums are preferred by the disposal site. Please specify in the "Other" field if drums will not be palletized.
**Dimensions of gondola railcars must be between 48 to 65 feet in length and 8.5 to 12.5 feet in height as measured from the top of the rail to the top of the railcar unless approved by EnergySolutions.

5. NARRATIVE DESCRIPTION AND HISTORY OF WASTE

Please submit a narrative description and history of the waste as an attachment to the Radioactive Waste Profile Record. This attachment should include the following:

- Process that generated the waste
- Waste material physical composition and characteristics
- Radiological and chemical characterization method
- Basis for determining manifested radionuclide concentrations
- Description and amounts of absorbents, if applicable
- Basis of non-hazardous or hazardous waste determinations
- Treatment processes, if applicable
- Product information or Material Safety Data Sheets associated with the waste as applicable
- Information requested in other sections of this form

RADIOACTIVE WASTE PROFILE RECORD

Waste Stream ID: 0691A-11 Revision: 4 Date of Revision: *04/21/2011*

C. RADIOLOGICAL INFORMATION

Obtain sufficient samples to adequately determine a range and weighted average of activity in the waste. Attach the gamma spectroscopy or radiochemistry data supporting the radionuclide information listed below.

1. Does the waste material contain accessible surfaces with contact dose rates greater than 500 mR/hr? Y ☐ N ☒

2. Does the waste material contain any of the following isotopes: Aluminum-26, Berkelium-247, Calcium-41, Californium-250, Chlorine-36, Rhenium-187, Terbium-157, or Terbium-158? Y ☐ N ☒

3. Please list the following information for each isotope associated with the waste. Provide an explanation in the narrative description of Section B.5 if the waste contains localized "hot spots" or elevated concentrations that significantly exceed the upper concentration range. If additional space is needed, provide an Attachment C.3 to this profile record formatted as below.

Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)	Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)
U-234	13766	2756			
U-235	1900	104			
U-238	16500	119			
Tc-99	39080	7818			
U-Dep	16500	5000			
Ac-227	100	10			
Cs-137	100	10			
Np-237	300	10			
Pa-231	100	10			
Ra-226	300	10			
Th-228	300	10			
Th-229	100	10			
Th-232	300	30			

RADIOACTIVE WASTE PROFILE RECORD

HAZARDOUS WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked YES. Otherwise, complete the Low-Level Radioactive Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

pH (Liquid only): N/A — **Method 9045** Please provide the range of the pH analyses performed.

PFLT: Pass Pass / Fail — **Method 9095** Not applicable for liquid radioactive waste streams.

Analyze the waste for volatile or semi-volatile constituents (Methods 8260 & 8270), and attach the data.

Any distinguishing color or odor? Y ☒ N ☐ If Yes, color: _____; odor: Varnish odor

2. HAZARDOUS WASTE CODES AND TREATMENT STANDARDS (40 CFR 268)

List all hazardous waste codes and treatment standards. Include hazardous waste codes that have been removed through treatment and indicate "Former" in the second column. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.2 to this profile record formatted as below. Include a description of hazardous waste determinations and any variances, exclusions, etc. in the narrative requested in Section B.5.

EPA HW Codes	Description, Constituent of Concern, or Subcategory	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

3. UNDERLYING HAZARDOUS CONSTITUENTS (40 CFR 268.48)

List all underlying hazardous constituents (UHCs) and treatment standards. Include UHCs that have been removed through treatment. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below.

Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A

D. 4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

5. LABORATORY CERTIFICATION INFORMATION

☒ UTAH or NELAC CERTIFIED
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ OTHER LABORATORY CERTIFICATION (Describe below)

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License or RCRA Permit.

Generator's Signature: _____ Title: Environmental Engineer Date: 4/21/11

RADIOACTIVE WASTE PROFILE RECORD

LOW-LEVEL RADIOACTIVE WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked No. Otherwise, complete the Hazardous Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

PFLT: Pass Pass / Fail **Method 9095** Not applicable for liquid radioactive waste streams.

2. 40 CFR 261.24 Table 1 – Contaminants of Toxicity Characteristic

Metals: Methods 6010 & *7470 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Arsenic 0.519	Chromium 0.108	Selenium 0.076
Barium 0.196	Lead 0.676	Silver 0.007
Cadmium 0.089	*Mercury 0.01	

Organics, Pesticides/Herbicides: Methods 8081/*8151 ☐ TCLP (mg/L) or ☐ Total (mg/kg)

Endrin	Toxaphene	Chlordane
Lindane	*2,4-D	Heptachlor
Methoxychlor	*2,4,5-TP Silvex	

Organics, Semi-Volatile: Method 8270 ☐ TCLP (mg/L) or ☐ Total (mg/kg)

o-Cresol	Hexachlorobenzene	Pentachlorophenol
m-Cresol	Hexachlorobutadiene	Pyridine
p-Cresol	Hexachloroethane	2,4,5-Trichlorophenol
Total Cresol	Nitrobenzene	2,4,6-Trichlorophenol
2,4-Dinitrotoluene		

Organics, Volatile: Method 8260 ☐ TCLP (mg/L) or ☐ Total (mg/kg)

Benzene	1,4-Dichlorobenzene	Methyl ethyl keytone
Carbon Tetrachloride	1,2-Dichloroethane	Tetrachloroethylene
Chlorobenzene	1,1-Dichloroethylene	Trichloroethylene
Chloroform	Vinyl Chloride	

3. Was the waste at the point of generation a RCRA hazardous waste per 40 CFR 261? Y ☐ N ☒

If Yes, list former hazardous waste codes and former underlying hazardous constituents. List worst-case concentrations for each hazardous constituent. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below. Attach the most recent chemical analytical results demonstrating compliance with applicable treatment standards.

If No, indicate "N/A" in Section D.3 below.

RADIOACTIVE WASTE PROFILE RECORD

D. 3.	Former EPA HW Codes or Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)

4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

5. LABORATORY CERTIFICATION

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License.

Generator's Signature: _____ Title: Environmental Engineer Date: 4/21/11

ATTACHMENT B.5
PHYSICAL PROPERTIES

Generator Name: USEC/Portsmouth Waste Stream ID: 0691A-11
Revision #: 4 Revision Date: 4/21/11

RUBBLE, SAND, CONCRETE WASTE STREAM

This waste stream is generated from a variety of non-RCRA hazardous operations that took place at the Portsmouth site. A significant portion is generated by sand blast cleaning of equipment which is potentially uranium contaminated. A significant portion is comprised of concrete chunks generated from floor removal projects. The majority of the waste is analyzed for RCRA metals and radionuclide concentrations in the plant's certified laboratory. The waste is also NDA analyzed.

ENERGYSOLUTIONS

EC-0230-SNM
Revision 3

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

The Special Nuclear Material Exemption Certification form must be completed and signed by each generator certifying to the following conditions. Please attach this form and all required information to the Radioactive Waste Profile Record (EC-0230). **A completed and signed copy of this form must also accompany each waste manifest.**

Waste Stream ID: 0691A-11 Manifest No. 0691A-11

1. Check applicable category below for the waste stream:

√	Uranium Enrichment Percent	Weight Percent of Chemicals in Condition 2c	Weight Percent of Materials in Condition 2d	U-235 Concentration (pCi/g)	Measurement Uncertainty* (pCi/g)
☒	< 10 %	≤ 20 %	≤ 1 %	≤ 1,900	≤ 285
☐	Unlimited	≤ 20 %	≤ 1 %	≤ 1,190	≤ 179
☐	Unlimited	Sum of both ≤ 45 % of waste by weight		≤ 680	≤ 102
☐	Unlimited	Unlimited	Unlimited	≤ 26	≤ 10
☐	Not Applicable - Enriched U-235 is not present in the waste.				

* A concentration value is used for the maximum measurement uncertainty limit rather than a percentage value to allow greater flexibility for generators with waste having very low SNM concentrations.

2. Certify to the following requirements by checking each box:

☒ a. Concentrations of SNM in individual waste containers do not exceed the applicable values listed in the above table and SNM isotope concentrations listed in Table 1.

☒ b. The SNM is homogeneously distributed throughout the waste or the SNM concentrations in any contiguous mass of 600 kilograms (1,323 lbs) do not exceed on average the specified limits. (Based on process knowledge or testing).

☒ c. Except as allowed by Condition 1, the waste does not contain "pure forms" of chemicals containing carbon, fluorine, magnesium, or bismuth in bulk quantities (e.g., a pallet of drums, a B-25 box). By "pure forms," it is meant that mixtures of the above elements such as magnesium oxide, magnesium carbonate, magnesium fluoride, bismuth oxide, etc. do not contain other elements. (Based on process knowledge or testing).

☒ d. Except as allowed by Condition 1, the waste does not contain total quantities of beryllium, hydrogenous material enriched in deuterium, or graphite above one percent of the total weight of the waste. (Based on process knowledge, physical observations, or testing).

☒ e. Waste packages do not contain highly soluble forms of uranium greater than 350 grams of uranium-235 or 200 grams of uranium-233. If the waste contains mixtures of U-233 and U-235, the waste meets the sum of the fractions rule. Highly soluble forms of uranium include, but are not limited to: uranium sulfate, uranyl acetate, uranyl chloride, uranyl formate, uranyl fluoride, uranyl nitrate, uranyl potassium carbonate, and uranyl sulfate. (Based on process knowledge or testing).

☐ f. For containers of liquid waste with more than 600 kilograms of waste, the total activity (pCi) of SNM in the manifested container does not exceed the SNM concentration in the above table or Table 1 times 600 kilograms of waste (based on process knowledge or testing). For example, the maximum activity of Pu-239 in any manifested container of liquid waste is 6.0 mCi (6.0E+09 pCi) as shown below:

$$10{,}000\,\frac{pCi}{g} \times 600{,}000\,g = 6.0X10^{9}\ pCi = 6.0\,mCi\ Pu\text{-}239$$

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

Table 1. Maximum concentrations of SNM in individual waste containers (refer to above table for U-235 limits).

Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)	Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)
U-233	75,000	11,250	Pu-241	350,000	50,000
Pu-236	500	75	Pu-242	10,000	1,500
Pu-238	10,000	1,500	Pu-243	500	75
Pu-239	10,000	1,500	Pu-244	500	75
Pu-240	10,000	1,500			

3. **Indicate that the following information is attached to the Radioactive Waste Profile Record by checking each box. (Note: Only the two-page Special Nuclear Material Exemption Certification form needs to be included with each manifest).**

   ☒ a. Provide a description of how the waste was generated, list the physical forms in the waste, and identify the uranium chemical composition.

   ☒ b. Provide a general description of how the waste was characterized (including the volumetric extent of the waste, and the number, location, type, and results of any analytical testing), the range of SNM concentrations, and the analytical results with error values used to develop the concentration ranges.

   ☒ c. Describe the process by which the waste was generated showing that the spatial distribution of SNM must be uniform, or other information supporting spatial distribution.

   ☒ d. Describe the methods to be used to determine the concentrations on the manifests. These methods could include direct measurement and the use of scaling factors. Describe the uncertainty associated with sampling and testing used to obtain the manifest concentrations.

4. **Generator's certification of compliance with the SNM exemption:** I certify that the information provided on this form is complete, true, and correct and is based on process knowledge, physical observations, or approved laboratory testing. I also certify that sampling and radiological testing of waste containing SNM was performed in accordance with EnergySolutions' Radioactive Material License and that any supporting documentation and analytical results have been submitted to EnergySolutions.

Authorized Signature	Printed Name	Title	Date
	Elizabeth Lamerson	Environmental Engineer	4/21/11

ENERGYSOLUTIONS

EC-0230
Revision 7

RADIOACTIVE WASTE PROFILE RECORD

A. GENERATOR AND WASTE STREAM INFORMATION

GENERAL: Complete this form for one waste stream. Contact EnergySolutions at (801) 532-1330 if you have any questions while completing this form. Please indicate "N/A" if a category does not apply.

1. GENERATOR INFORMATION

Generator Name: United States Enrichment Corporation Portsmouth, Ohio EPA ID #: N/A

Generator Contact: Elizabeth Lamerson Title: Environmental Engineer

Mailing Address: P.O. Box 628 Piketon, Ohio 45661

Utah Site Access Permit #: 0111000043

Phone: 740-897-2812 Fax: 740-897-2143 Email: lamersoned@ports.usec.com

Contractor Name: Location of Waste (City, State): Piketon, Ohio

Name & Title of Person Completing Form: Elizabeth Lamerson, Env. Eng. Phone: 740-897-2812 Email: lamersoned@ports.usec.com

2. WASTE STREAM INFORMATION

Waste Stream ID: 0691A-10 Waste Stream Name: Sewage Sludge State of Origin: Ohio

Revision: 5 Date: 9/15/09 Volume (ft^3): 5000 Delivery Date: on Going

CHECK APPROPRIATE BOXES BELOW. Please verify the required forms requested below are completed and submitted with the Radioactive Waste Profile Record.

HAZARDOUS WASTE: Is the waste classified as hazardous waste as defined by 40 CFR 261?

N ☒ If **NO**, complete and attach the **"Low-Level Radioactive Waste Certification Attachment"**.

Y ☐ If **YES**, complete and attach the **"Hazardous Waste Certification Attachment"** and check applicable box below.
Has the waste been treated to meet applicable treatment standards per 40 CFR 268? Y ☐ N ☐
Is the waste to be treated by EnergySolutions? Y ☐ N ☐

LOW-LEVEL RADIOACTIVE WASTE: Is the radioactive waste defined as Low-Level Radioactive Waste in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 435.1?

Y ☒ If **YES**, a current copy of a LLRW Compact Export letter authorizing export must be submitted if applicable. This authorization is applicable for non-DOE LLRW (i.e., Mixed Waste, NORM/NARM, 11e.(2) material, and waste from DOE do not require a Compact Export Letter).

N ☐ If **NO**, check appropriate box: NORM/NARM ☐ 11e.(2) Byproduct Material ☐ Other: _____

SPECIAL NUCLEAR MATERIAL: Does the waste stream contain material with uranium enriched in U-235 or any of the following radionuclides: U-233, Pu-236, Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Pu-243, or Pu-244?

Y ☒ N ☐ If Yes, complete and attach the "SNM Exemption Certification" form (EC-0230-SNM). Supporting statements, analytical results, and documentation must be included with the submittal.

PCB WASTE: Does the waste contain Polychlorinated Biphenyls (PCB) that are regulated for disposal per 40 CFR 761?

Y ☐ N ☒ If Yes, complete and attach the "PCB Waste Certification" form (EC-98279).

ASBESTOS: Does the waste contain Asbestos Containing Material?

Y ☐ N ☒ If Yes, Asbestos Containing Material must be managed in accordance with applicable federal regulations. Provide a detailed description of the waste containing asbestos in Section B.5 of the waste profile.

RADIOACTIVE WASTE PROFILE RECORD

B. WASTE PHYSICAL PROPERTIES & PACKAGE INFORMATION

1. GENERAL CHARACTERISTICS

Does the waste contain free liquids? Y ☐ N ☒ If Yes, what is the percent of free liquid by waste volume? N/A %

If Yes, is the liquid aqueous (water-based)? Y ☐ N ☐

Does the waste contain absorbent? Y ☒ N ☐ Density range of the waste: 25 - 50 g/cc ☐ lb/ft³ ☒

List percentage of waste type by volume: Soil 10% Concrete & Metal ≤1% DAW ≤3% Resins 0% Sludge 80%

Other constituents and percentage by volume? Sand - 5%, Vegetation - 2%

2. MATERIAL SIZE

Gradation of Material: Indicate the percentage of waste material that would **pass through** the following grid sizes. For example, 95% of the material would pass through a 12" square, 90% passes through a 4" square, 80% passes through a 1" square, etc.

12" 100 % 4" 99 % 1" 98 % 1/4" 75 % 1/40" 20 % 1/200" 1 %

Does the waste stream contain oversize debris (i.e., no dimension < 10 inches and any dimension > 12 feet)? Y ☐ N ☒
If Yes, include a detailed description (i.e., weight, size, drawings, etc.) of the oversize debris in the narrative of Section B.5.

3. MOISTURE CONTENT

For soil or soil-like materials, please use **Std. Proctor Method ASTM D-698** to determine the optimum moisture content. The waste material must not exceed 3 percentage points above optimum moisture upon arrival at EnergySolutions' disposal facility unless approved by EnergySolutions.

Optimum Moisture Content: 24.2 % at Maximum Dry Density (lb/ft³): ____

Average Moisture Content: 36 % Moisture Content Range: 34% - 40%

4. WASTE SHIPPING & PACKAGING

Transportation Mode: ☒ Highway ☐ Rail

Shipping & Container Packages: (Check all that apply) ☐ Drums* (≤ 85 gallons) ☒ Boxes (≤ 100 ft³) ☐ Soft-Sided Bags (≤ 10 yd³)

☐ Intermodal ☐ Sealand ☐ Gondola** ☐ Box Car

Other:

*Palletized drums are preferred by the disposal site. Please specify in the "Other" field if drums will not be palletized.
**Dimensions of gondola railcars must be between 48 to 65 feet in length and 8.5 to 12.5 feet in height as measured from the top of the rail to the top of the railcar unless approved by EnergySolutions.

5. NARRATIVE DESCRIPTION AND HISTORY OF WASTE

Please submit a narrative description and history of the waste as an attachment to the Radioactive Waste Profile Record. This attachment should include the following:

- Process that generated the waste
- Waste material physical composition and characteristics
- Radiological and chemical characterization method
- Basis for determining manifested radionuclide concentrations
- Description and amounts of absorbents, if applicable
- Basis of non-hazardous or hazardous waste determinations
- Treatment processes, if applicable
- Product information or Material Safety Data Sheets associated with the waste as applicable
- Information requested in other sections of this form

RADIOACTIVE WASTE PROFILE RECORD

Waste Stream ID: 0691A-10 Revision: 5 Date of Revision: *9/15/09*

C. RADIOLOGICAL INFORMATION

Obtain sufficient samples to adequately determine a range and weighted average of activity in the waste. Attach the gamma spectroscopy or radiochemistry data supporting the radionuclide information listed below.

1. Does the waste material contain accessible surfaces with contact dose rates greater than 500 mR/hr? Y ☐ N ☒

2. Does the waste material contain any of the following isotopes: Aluminum-26, Berkelium-247, Calcium-41, Californium-250, Chlorine-36, Rhenium-187, Terbium-157, or Terbium-158? Y ☐ N ☒

3. Please list the following information for each isotope associated with the waste. Provide an explanation in the narrative description of Section B.5 if the waste contains localized "hot spots" or elevated concentrations that significantly exceed the upper concentration range. If additional space is needed, provide an Attachment C.3 to this profile record formatted as below.

Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)	Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)
U-234	4000	1400			
U-235	500	40			
U-238	1000	70			
Tc-99	3000	350			
Ac-227	100				
Cs-137	100				
Np-237	100				
Ra-231	100				
Ra-226	100				
Th-228	100				
Th-229	100				
Th-232	100				

RADIOACTIVE WASTE PROFILE RECORD

LOW-LEVEL RADIOACTIVE WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked No. Otherwise, complete the Hazardous Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

PFLT: Pass _____ Pass / Fail **Method 9095** Not applicable for liquid radioactive waste streams.

2. 40 CFR 261.24 Table 1 – Contaminants of Toxicity Characteristic

Metals: Methods 6010 & *7470 ☐ TCLP (mg/L) or ☐ Total (mg/kg)

Arsenic 0.056	Chromium 0.018	Selenium 0.76
Barium 0.895	Lead 0.028	Silver 0.040
Cadmium 0.045	*Mercury 0.010	

Organics, Pesticides/Herbicides: Methods 8081/*8151 ☐ TCLP (mg/L) or ☐ Total (mg/kg)

Endrin _____	Toxaphene _____	Chlordane _____
Lindane _____	*2,4-D _____	Heptachlor _____
Methoxychlor _____	*2,4,5-TP Silvex _____	

Organics, Semi-Volatile: Method 8270 ☐ TCLP (mg/L) or ☐ Total (mg/kg)

o-Cresol _____	Hexachlorobenzene _____	Pentrachlorophenol _____
m-Cresol _____	Hexachlorobutadiene _____	Pyridine _____
p-Cresol _____	Hexachloroethane _____	2,4,5-Trichlorophenol _____
Total Cresol _____	Nitrobenzene _____	2,4,6-Trichlorophenol _____
2,4-Dinitrotoluene _____		

Organics, Volatile: Method 8260 ☐ TCLP (mg/L) or ☐ Total (mg/kg)

Benzene _____	1,4-Dichlorobenzene _____	Methyl ethyl keytone _____
Carbon Tetrachloride _____	1,2-Dichloroethane _____	Tetrachloroethylene _____
Chlorobenzene _____	1,1-Dichloroethylene _____	Trichloroethylene _____
Chloroform _____	Vinyl Chloride _____	

3. Was the waste at the point of generation a RCRA hazardous waste per 40 CFR 261? Y ☐ N ☒

If Yes, list former hazardous waste codes and former underlying hazardous constituents. List worst-case concentrations for each hazardous constituent. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below. Attach the most recent chemical analytical results demonstrating compliance with applicable treatment standards.

If No, indicate "N/A" in Section D.3 below.

RADIOACTIVE WASTE PROFILE RECORD

D. 3. Former EPA HW Codes or Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)

4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)

5. LABORATORY CERTIFICATION

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

_____

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License.

Generator's Signature: _____ Title: Environmental Engineer Date: 9/15/09

ATTACHMENT B.5
PHYSICAL PROPERTIES

Generator Name: United States Enrichment Corporatio Waste Stream ID: 0691A-10
Revision #: 5 Revision Date: 9/15/09

This waste is generated as the result of cleaning open air sand filter beds at the plant's sewage treatment facility. Liquid is discharged to the drying beds from an aerobic digester with the filtrate returning to the plant. The plant processes typical sewage sludge plus it receives low volumes of plant process wastes. The sludge exhibits no characteristics of hazardous waste and no listed hazardous waste is processed at the treatment plant. Detectable PCBs (<50 ppm) are from a source less than 50 ppm PCBs or from an unknown source making this waste non regulated for disposal under the RCRA or TSCA regulations. This material was analyzed in the plant's certified laboratory.

The sludge is removed from the beds manually and may contain sand, gravel, and vegetation as well as incidental amounts of plastic. The sludge is removed only after it has sufficiently dried but Quid Solid® aqueous absorbent is added as a precaution to ensure no free liquids are present.

ENERGYSOLUTIONS

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

The Special Nuclear Material Exemption Certification form must be completed and signed by each generator certifying to the following conditions. Please attach this form and all required information to the Radioactive Waste Profile Record (EC-0230). **A completed and signed copy of this form must also accompany each waste manifest.**

Waste Stream ID: 0691A-10 Manifest No._____

1. Check applicable category below for the waste stream:

√	Uranium Enrichment Percent	Weight Percent of Chemicals in Condition 2c	Weight Percent of Materials in Condition 2d	U-235 Concentration (pCi/g)	Measurement Uncertainty* (pCi/g)
☒	< 10 %	≤ 20 %	≤ 1 %	≤ 1,900	≤ 285
☐	Unlimited	≤ 20 %	≤ 1 %	≤ 1,190	≤ 179
☐	Unlimited	Sum of both ≤ 45 % of waste by weight		≤ 680	≤ 102
☐	Unlimited	Unlimited	Unlimited	≤ 26	≤ 10
☐	Not Applicable - Enriched U-235 is not present in the waste.				

* A concentration value is used for the maximum measurement uncertainty limit rather than a percentage value to allow greater flexibility for generators with waste having very low SNM concentrations.

2. Certify to the following requirements by checking each box:

☒ a. Concentrations of SNM in individual waste containers do not exceed the applicable values listed in the above table and SNM isotope concentrations listed in Table 1.

☒ b. The SNM is homogeneously distributed throughout the waste or the SNM concentrations in any contiguous mass of 600 kilograms (1,323 lbs) do not exceed on average the specified limits. (Based on process knowledge or testing).

☒ c. Except as allowed by Condition 1, the waste does not contain "pure forms" of chemicals containing carbon, fluorine, magnesium, or bismuth in bulk quantities (e.g., a pallet of drums, a B-25 box). By "pure forms," it is meant that mixtures of the above elements such as magnesium oxide, magnesium carbonate, magnesium fluoride, bismuth oxide, etc. do not contain other elements. (Based on process knowledge or testing).

☒ d. Except as allowed by Condition 1, the waste does not contain total quantities of beryllium, hydrogenous material enriched in deuterium, or graphite above one percent of the total weight of the waste. (Based on process knowledge, physical observations, or testing).

☒ e. Waste packages do not contain highly soluble forms of uranium greater than 350 grams of uranium-235 or 200 grams of uranium-233. If the waste contains mixtures of U-233 and U-235, the waste meets the sum of the fractions rule. Highly soluble forms of uranium include, but are not limited to: uranium sulfate, uranyl acetate, uranyl chloride, uranyl formate, uranyl fluoride, uranyl nitrate, uranyl potassium carbonate, and uranyl sulfate. (Based on process knowledge or testing).

☒ f. For containers of liquid waste with more than 600 kilograms of waste, the total activity (pCi) of SNM in the manifested container does not exceed the SNM concentration in the above table or Table 1 times 600 kilograms of waste (based on process knowledge or testing). For example, the maximum activity of Pu-239 in any manifested container of liquid waste is 6.0 mCi (6.0E+09 pCi) as shown below:

$$10{,}000\,\frac{pCi}{g} \times 600{,}000\,g = 6.0X10^{9}\,pCi = 6.0\,mCi\ Pu\text{-}239$$

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

Table 1. Maximum concentrations of SNM in individual waste containers (refer to above table for U-235 limits).

Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)	Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)
U-233	75,000	11,250	Pu-241	350,000	50,000
Pu-236	500	75	Pu-242	10,000	1,500
Pu-238	10,000	1,500	Pu-243	500	75
Pu-239	10,000	1,500	Pu-244	500	75
Pu-240	10,000	1,500			

3. **Indicate that the following information is attached to the Radioactive Waste Profile Record by checking each box. (Note: Only the two-page Special Nuclear Material Exemption Certification form needs to be included with each manifest).**

   ☒ a. Provide a description of how the waste was generated, list the physical forms in the waste, and identify the uranium chemical composition.

   ☒ b. Provide a general description of how the waste was characterized (including the volumetric extent of the waste, and the number, location, type, and results of any analytical testing), the range of SNM concentrations, and the analytical results with error values used to develop the concentration ranges.

   ☒ c. Describe the process by which the waste was generated showing that the spatial distribution of SNM must be uniform, or other information supporting spatial distribution.

   ☒ d. Describe the methods to be used to determine the concentrations on the manifests. These methods could include direct measurement and the use of scaling factors. Describe the uncertainty associated with sampling and testing used to obtain the manifest concentrations.

4. **Generator's certification of compliance with the SNM exemption:** I certify that the information provided on this form is complete, true, and correct and is based on process knowledge, physical observations, or approved laboratory testing. I also certify that sampling and radiological testing of waste containing SNM was performed in accordance with EnergySolutions' Radioactive Material License and that any supporting documentation and analytical results have been submitted to EnergySolutions.

	Elizabeth Lamerson	Environmental Engineer	
Authorized Signature	Printed Name	Title	Date

ENERGYSOLUTIONS

CL-WM-PR-001 F2 (EC-0230)
Revision 7

RADIOACTIVE WASTE PROFILE RECORD

A. GENERATOR AND WASTE STREAM INFORMATION

GENERAL: Complete this form for one waste stream. Contact EnergySolutions at (801) 532-1330 if you have any questions while completing this form. Please indicate "N/A" if a category does not apply.

1. GENERATOR INFORMATION

Generator Name: USEC/ Portsmouth EPA ID #: OHD987054723

Generator Contact: Elizabeth D. Lamerson Title: Environmental Engineer

Mailing Address: P.O. Box 628 M/S 9030

Piketon, OH 45661 Utah Site Access Permit #: 0111000043

Phone: 740-897-2812 Fax: 740-897-2143 Email: lamersoned@ports.usec.com

Contractor Name: N/A Location of Waste (City, State): Portsmouth

Name & Title of Person Completing Form: Elizabeth Lamerson/Env. Eng. Phone: 740-897-2812 Email: lamersoned@ports.usec.com

2. WASTE STREAM INFORMATION

Waste Stream ID: 0691A-12 Waste Stream Name: Used Oil State of Origin: OH

Revision: 0 Date: 05/31/2011 Volume (ft^3): TBD Delivery Date: Ongoing

CHECK APPROPRIATE BOXES BELOW. Please verify the required forms requested below are completed and submitted with the Radioactive Waste Profile Record.

HAZARDOUS WASTE: Is the waste classified as hazardous waste as defined by 40 CFR 261?

N ☒ If **NO**, complete and attach the "**Low-Level Radioactive Waste Certification Attachment**".
Y ☐ If **YES**, complete and attach the "**Hazardous Waste Certification Attachment**" and check applicable box below.
Has the waste been treated to meet applicable treatment standards per 40 CFR 268? Y ☐ N ☐
Is the waste to be treated by EnergySolutions? Y ☐ N ☐

LOW-LEVEL RADIOACTIVE WASTE: Is the radioactive waste defined as Low-Level Radioactive Waste in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 435.1?

Y ☒ If **YES**, a current copy of a LLRW Compact Export letter authorizing export must be submitted if applicable. This authorization is applicable for non-DOE LLRW (i.e., Mixed Waste, NORM/NARM, 11e.(2) material, and waste from DOE do not require a Compact Export Letter).
N ☐ If **NO**, check appropriate box: NORM/NARM ☐ 11e.(2) Byproduct Material ☐ Other: _____

SPECIAL NUCLEAR MATERIAL: Does the waste stream contain material with uranium enriched in U-235 or any of the following radionuclides: U-233, Pu-236, Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Pu-243, or Pu-244?

Y ☒ N ☐ If Yes, complete and attach the "SNM Exemption Certification" form (EC-0230-SNM). Supporting statements, analytical results, and documentation must be included with the submittal.

PCB WASTE: Does the waste contain Polychlorinated Biphenyls (PCB) that are regulated for disposal per 40 CFR 761?

Y ☐ N ☒ If Yes, complete and attach the "PCB Waste Certification" form (EC-98279).

ASBESTOS: Does the waste contain Asbestos Containing Material?

Y ☐ N ☒ If Yes, Asbestos Containing Material must be managed in accordance with applicable federal regulations. Provide a detailed description of the waste containing asbestos in Section B.5 of the waste profile.

RADIOACTIVE WASTE PROFILE RECORD

B. WASTE PHYSICAL PROPERTIES & PACKAGE INFORMATION

1. GENERAL CHARACTERISTICS

Does the waste contain free liquids? Y ☒ N ☐ If Yes, what is the percent of free liquid by waste volume? 75 %

If Yes, is the liquid aqueous (water-based)? Y ☐ N ☒

Does the waste contain absorbent? Y ☒ N ☐ Density range of the waste: 1.03 – 0.81 g/cc ☒ lb/ft³ ☐

List percentage of waste type by volume: Soil ____% Concrete & Metal ____% DAW 5% Resins ____% Sludge 45%

Other constituents and percentage by volume? Oil - 50%

2. MATERIAL SIZE

Gradation of Material: Indicate the percentage of waste material that would **pass through** the following grid sizes. For example, 95% of the material would pass through a 12" square, 90% passes through a 4" square, 80% passes through a 1" square, etc.

12" 100 % 4" 100 % 1" 80 % 1/4" 70 % 1/40" ≤1 % 1/200" ≤1 %

Does the waste stream contain oversize debris (i.e., no dimension < 10 inches and any dimension > 12 feet)? Y ☐ N ☒
If Yes, include a detailed description (i.e., weight, size, drawings, etc.) of the oversize debris in the narrative of Section B.5.

3. MOISTURE CONTENT

For soil or soil-like materials, please use **Std. Proctor Method ASTM D-698** to determine the optimum moisture content. The waste material must not exceed 3 percentage points above optimum moisture upon arrival at EnergySolutions' disposal facility unless approved by EnergySolutions.

Optimum Moisture Content: N/A % at Maximum Dry Density (lb/ft³): N/A

Average Moisture Content: ____% Moisture Content Range: ____% - ____%

4. WASTE SHIPPING & PACKAGING

Transportation Mode: ☒ Highway ☒ Rail

Shipping & Container Packages: (Check all that apply) ☒ Drums* (≤ 85 gallons) ☒ Boxes (≤ 100 ft³) ☒ Soft-Sided Bags (≤ 10 yd³)

☒ Intermodal ☒ Sealand ☐ Gondola** ☐ Box Car

Other:

*Palletized drums are preferred by the disposal site. Please specify in the "Other" field if drums will not be palletized.
**Dimensions of gondola railcars must be between 48 to 65 feet in length and 8.5 to 12.5 feet in height as measured from the top of the rail to the top of the railcar unless approved by EnergySolutions.

5. NARRATIVE DESCRIPTION AND HISTORY OF WASTE

Please submit a narrative description and history of the waste as an attachment to the Radioactive Waste Profile Record. This attachment should include the following:

- Process that generated the waste
- Waste material physical composition and characteristics
- Radiological and chemical characterization method
- Basis for determining manifested radionuclide concentrations
- Description and amounts of absorbents, if applicable
- Basis of non-hazardous or hazardous waste determinations
- Treatment processes, if applicable
- Product information or Material Safety Data Sheets associated with the waste as applicable
- Information requested in other sections of this form

RADIOACTIVE WASTE PROFILE RECORD

Waste Stream ID: 0691A-12 Revision: 0 Date of Revision: ***05/31/2011***

C. RADIOLOGICAL INFORMATION

Obtain sufficient samples to adequately determine a range and weighted average of activity in the waste. Attach the gamma spectroscopy or radiochemistry data supporting the radionuclide information listed below.

1. Does the waste material contain accessible surfaces with contact dose rates greater than 500 mR/hr? Y ☐ N ☒

2. Does the waste material contain any of the following isotopes: Aluminum-26, Berkelium-247, Calcium-41, Californium-250, Chlorine-36, Rhenium-187, Terbium-157, or Terbium-158? Y ☐ N ☒

3. Please list the following information for each isotope associated with the waste. Provide an explanation in the narrative description of Section B.5 if the waste contains localized "hot spots" or elevated concentrations that significantly exceed the upper concentration range. If additional space is needed, provide an Attachment C.3 to this profile record formatted as below.

Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)	Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)
Am-241	100	10			
Cm-248	0.08558	0.08558			
Th-228	300	10			
Th-230	300	10			
Th-231	2420	237.207			
Th-234	37010	3523.183			
Total U	38000	5000			
U-233/234	38000	5000			
U-235	1900	237.207			
U-236	181.1	29.668			
U-238	16500	5000			
Bi-214	0.5479	0.5479			
Fr-223	16.77	16.77			
Pa-234	112.2	13.091			
Pa-234m	16500	3966.195			
Tc-99	200	5.2312			
Tl-208	0.2854	0.2854			
U-234	38000	4658.064			
Ac-227	300	10			
Cs-137	300	10			
Np-237	300	10			
Pa-231	300	10			
Ra-226	300	10			
Th-229	300	10			
Th-232	300	10			

RADIOACTIVE WASTE PROFILE RECORD

HAZARDOUS WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked YES. Otherwise, complete the Low-Level Radioactive Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

pH (Liquid only): 5.45-6.9 — **Method 9045** Please provide the range of the pH analyses performed.

PFLT: N/A Pass / Fail — **Method 9095** Not applicable for liquid radioactive waste streams.

Analyze the waste for volatile or semi-volatile constituents (Methods 8260 & 8270), and attach the data.

Any distinguishing color or odor? Y ☐ N ☒ If Yes, color: ____; odor: ____

2. HAZARDOUS WASTE CODES AND TREATMENT STANDARDS (40 CFR 268)

List all hazardous waste codes and treatment standards. Include hazardous waste codes that have been removed through treatment and indicate "Former" in the second column. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.2 to this profile record formatted as below. Include a description of hazardous waste determinations and any variances, exclusions, etc. in the narrative requested in Section B.5.

EPA HW Codes	Description, Constituent of Concern, or Subcategory	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

3. **UNDERLYING HAZARDOUS CONSTITUENTS (40 CFR 268.48)**

List all underlying hazardous constituents (UHCs) and treatment standards. Include UHCs that have been removed through treatment. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below.

Underlying Hazardous Constituents	**Treatment Standard** (mg/kg unless noted as mg/L TCLP or Technology Code)	**Worst-Case Concentration** (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A

D. 4. **OTHER CHEMICAL CONSTITUENTS**

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	**Worst Case Concentration** (mg/kg unless noted as mg/L TCLP)	**Other Hazardous Constituents**	**Worst-Case Concentration** (mg/kg unless noted as mg/L TCLP)
N/A	N/A	N/A	N/A

5. **LABORATORY CERTIFICATION INFORMATION**

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

6. **CERTIFICATION**

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License or RCRA Permit.

Generator's Signature: _____ Title: Environmental Engineer Date: 6/9/11

RADIOACTIVE WASTE PROFILE RECORD

LOW-LEVEL RADIOACTIVE WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked No. Otherwise, complete the Hazardous Waste Certification Attachment instead of this attachment. EnergySolutions may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

PFLT: N/A Pass / Fail **Method 9095** Not applicable for liquid radioactive waste streams.

2. 40 CFR 261.24 Table 1 – Contaminants of Toxicity Characteristic

Metals: Methods 6010 & *7470 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Arsenic	ND	Chromium	0.00011	Selenium	0.0005
Barium	0.0003	Lead	0.0003	Silver	0.00007
Cadmium	0.000014	*Mercury	0.0000004		

Organics, Pesticides/Herbicides: Methods 8081/*8151 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Endrin	0.012	Toxaphene	ND	Chlordane	ND
Lindane	ND	*2,4-D	ND	Heptachlor	ND
Methoxychlor	ND	*2,4,5-TP Silvex	ND		

Organics, Semi-Volatile: Method 8270 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

o-Cresol	ND	Hexachlorobenzene	ND	Pentachlorophenol	ND
m-Cresol	ND	Hexachlorobutadiene	ND	Pyridine	ND
p-Cresol	ND	Hexachloroethane	ND	2,4,5-Trichlorophenol	ND
Total Cresol	ND	Nitrobenzene	ND	2,4,6-Trichlorophenol	ND
2,4-Dinitrotoluene	ND				

Organics, Volatile: Method 8260 ☒ TCLP (mg/L) or ☐ Total (mg/kg)

Benzene	0.012	1,4-Dichlorobenzene	ND	Methyl ethyl keytone	0.114
Carbon Tetrachloride	0.034	1,2-Dichloroethane	ND	Tetrachloroethylene	0.097
Chlorobenzene	ND	1,1-Dichloroethylene	ND	Trichloroethylene	ND
Chloroform	0.012	Vinyl Chloride	ND		

3. Was the waste at the point of generation a RCRA hazardous waste per 40 CFR 261? Y ☐ N ☒

If Yes, list former hazardous waste codes and former underlying hazardous constituents. List worst-case concentrations for each hazardous constituent. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below. Attach the most recent chemical analytical results demonstrating compliance with applicable treatment standards.

If No, indicate "N/A" in Section D.3 below.

RADIOACTIVE WASTE PROFILE RECORD

D. 3. Former EPA HW Codes or Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)

4. OTHER CHEMICAL CONSTITUENTS

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
Beryllium	0.198 mg/kg	N/A	N/A

5. LABORATORY CERTIFICATION

☒ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

6. CERTIFICATION

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to EnergySolutions and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at EnergySolutions) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by EnergySolutions. I certify that the results of any said testing have been submitted to EnergySolutions. I certify that the waste does not contain any prohibited items listed in EnergySolutions' Radioactive Material License.

Generator's Signature: _____ Title: Environmental Engineer Date: 6/9/14

ATTACHMENT B.5
PHYSICAL PROPERTIES

Generator Name: USEC/Portsmouth Waste Stream ID: 0691A-12
Revision #: 0 Revision Date:

USED OIL WASTE STREAM

The used oil waste stream originates in various buildings in the Portsmouth Gaseous Diffusion Plant (PORTS). Some of the gaseous diffusion process equipment employs a Buffer Gas System to prevent the in-leakage of moist, ambient air around motor shaft seals. During normal operations, wet-air will collect within the buffer gas system. A Seal Exhaust System is used to remove the gas from the Buffer Gas System. The Seal Exhaust System consists of one or more pumping stations for each process building. The station is equipped with multiple vacuum pumps that can be used for seal buffer gas exhaust. During the operation of the vacuum pump the oil becomes the sump for any solids and/or condensables carried over from the process and must be changed out. In accordance with the Preventative Maintenance Program Schedule, the oil used as a lubricant in these vacuum pumps is removed and placed into containers, along with any flushing fluid that may have been used as a rinsate. Oils that were used often with these pumps are Kinney mineral oil KV-100, Inland synthetic oil HV-68, and Inland Flushing Fluid FF-10.

Oil is used as a lubricant and coolant for motors and rotating shafts and bearings within many types of equipment employed at this facility. Over time and usage this oil becomes a sump for metal solids and condensables and must be replaced to maintain their lubricant and coolant property efficiency. In accordance to a Preventive Maintenance Program Schedule, this oil is removed from the equipment and place into containers for disposal.

The used oil is currently in a liquid or sludge form. The used oil waste stream is projected to be solidified prior to shipment. We will add some type of absorbent (i.e., Petroset II) to solidify the used oil. This waste stream should be considered a solid at the time of shipment. All of the samples were collected as a liquid/sludge.

The waste stream also contains small amounts of Dry Active Waste (DAW) that was used in cleanup, sampling, and operation of the process.
The containers of used oil were sampled and analyzed for the purpose of characterization and this profile. The results were found to be non-hazardous.

Radiological and Chemical Characterization Requirements and Methods:

The primary objective of the characterization sampling design was to achieve high confidence that at least a high percentage of the items in population are acceptable. A hypergeometric model with a 95%/90% confidence interval was used to characterize this waste stream. The sample size was calculated using a similar method to Bowen and Bennett 1988 (*Statistical Methods for Nuclear Material Management*, NUREG/CR-4604, US Nuclear Regulator Commission, Washington, DC). Twenty-five random samples were taken to meet the 95/90 confidence interval.

Chemical Characterization

Ohio Administrative Code (OAC) Section 3745-51 *et seq* and Title 40 Code of Federal Regulations (CFR) § 261 *et seq* clearly define the process for identifying a waste based on characteristics. OAC 3745-51-20 (40 CFR § 261.24) states:

"A waste is a hazardous waste if it exhibits any of the characteristics identified in rules 3745-51-20 (40 CFR § 261.20) to 3745-51-24 (40 CFR § 261.24) of the Administrative Code."

ATTACHMENT B.5
PHYSICAL PROPERTIES

To determine the regulatory status of this waste stream the following requirements were met:

1. Collect a representative sample.

2. Analyze the sample using TCLP Method 1311 in *"Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods,"* EPA Publication SW-846.

3. Compare the results of the analysis to OAC 3745-51-24, Table 1 (40 CFR § 261.24, Table 1).

4. If the contaminate is statistically (as defined by Chapter Nine of SW-846) at or above the regulatory limit outlined in Table 1 of OAC 3745-51-24 (40 CFR § 261.24), then the waste is characteristically hazardous for that contaminant and must be managed as such.

Also, waste may be characteristically hazardous if it meets the criteria outlined in OAC 3745-51-21 (40 CFR § 261.21) to OAC 3745-51-23 (40 CFR § 261.23). OAC 3745-51-30 (40 CFR § 261.30) clearly define the process for identifying a waste based on a listing. OAC 3745-51-30 (A) [40 CFR § 261.30 (a)] states:

> "A waste is a hazardous waste if it is listed as such in rules 3745-51-30 (§ 261.30) to 3745-51-35 (§ 261.35) of the Administrative Code."

To determine the regulatory status of this waste stream for listed hazardous waste, the following requirements were met:

1. Identify the generating process or identify the waste as derived from an already listed hazardous waste.

2. Identify the constituents, which may cause the waste to be classified as hazardous.

3. Compare the waste descriptions provided in OAC 3745-51-31 (40 CFR § 261.31) to OAC 3745-51-33 (40 CFR § 261.33).

4. If the process and constituents are listed in OAC 3745-51-31 (40 CFR § 261.31 to OAC 3745-51-33 (40 CFR § 261.33), then the waste is listed as hazardous and is managed as such.

This waste stream is not regulated for disposal as a RCRA hazardous waste as defined in 40 CFR 261. This waste is not regulated as TSCA (PCB) waste as defined in 40 CFR 761.

Radiological Characterization
Radiological characterization is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. Twenty-five random samples of the total population were analyzed to provide the radiological characterization data to adequately determine a range and concentration of activity in the waste.

Basis for Determining Manifested Radionuclide Concentrations

ATTACHMENT B.5
PHYSICAL PROPERTIES

Radiological characterization of outgoing shipments is performed through a combination of laboratory data and a Non-Destructive Analysis (NDA) method. The radiological laboratory results were used to establish scaling factors which are then synchronized with the NDA results and divided by net weight in the container to develop manifested nuclide concentrations. The SNM is typically in the form of dry non-visible uranium dust made up of oxide compounds, primarily UO_2F_2. The SNM is essentially distributed homogenously throughout the waste.

Typically the waste will be packaged for transportation and disposal in drums or metal boxes. Optional packages include soft-sided bags, intermodal containers and sea-land containers. Notification will be provided prior to shipping if any optional containers are to be utilized.

ENERGYSOLUTIONS

EC-0230-SNM
Revision 3

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

The Special Nuclear Material Exemption Certification form must be completed and signed by each generator certifying to the following conditions. Please attach this form and all required information to the Radioactive Waste Profile Record (EC-0230). **A completed and signed copy of this form must also accompany each waste manifest.**

Waste Stream ID: 0691A-12 Manifest No. 0691A-12

1. Check applicable category below for the waste stream:

√	Uranium Enrichment Percent	Weight Percent of Chemicals in Condition 2c	Weight Percent of Materials in Condition 2d	U-235 Concentration (pCi/g)	Measurement Uncertainty* (pCi/g)
☒	< 10 %	≤ 20 %	≤ 1 %	≤ 1,900	≤ 285
☐	Unlimited	≤ 20 %	≤ 1 %	≤ 1,190	≤ 179
☐	Unlimited	Sum of both ≤ 45 % of waste by weight		≤ 680	≤ 102
☐	Unlimited	Unlimited	Unlimited	≤ 26	≤ 10
☐	Not Applicable - Enriched U-235 is not present in the waste.				

* A concentration value is used for the maximum measurement uncertainty limit rather than a percentage value to allow greater flexibility for generators with waste having very low SNM concentrations.

2. Certify to the following requirements by checking each box:

☒ a. Concentrations of SNM in individual waste containers do not exceed the applicable values listed in the above table and SNM isotope concentrations listed in Table 1.

☒ b. The SNM is homogeneously distributed throughout the waste or the SNM concentrations in any contiguous mass of 600 kilograms (1,323 lbs) do not exceed on average the specified limits. (Based on process knowledge or testing).

☒ c. Except as allowed by Condition 1, the waste does not contain "pure forms" of chemicals containing carbon, fluorine, magnesium, or bismuth in bulk quantities (e.g., a pallet of drums, a B-25 box). By "pure forms," it is meant that mixtures of the above elements such as magnesium oxide, magnesium carbonate, magnesium fluoride, bismuth oxide, etc. do not contain other elements. (Based on process knowledge or testing).

☒ d. Except as allowed by Condition 1, the waste does not contain total quantities of beryllium, hydrogenous material enriched in deuterium, or graphite above one percent of the total weight of the waste. (Based on process knowledge, physical observations, or testing).

☒ e. Waste packages do not contain highly soluble forms of uranium greater than 350 grams of uranium-235 or 200 grams of uranium-233. If the waste contains mixtures of U-233 and U-235, the waste meets the sum of the fractions rule. Highly soluble forms of uranium include, but are not limited to: uranium sulfate, uranyl acetate, uranyl chloride, uranyl formate, uranyl fluoride, uranyl nitrate, uranyl potassium carbonate, and uranyl sulfate. (Based on process knowledge or testing).

☐ f. For containers of liquid waste with more than 600 kilograms of waste, the total activity (pCi) of SNM in the manifested container does not exceed the SNM concentration in the above table or Table 1 times 600 kilograms of waste (based on process knowledge or testing). For example, the maximum activity of Pu-239 in any manifested container of liquid waste is 6.0 mCi (6.0E+09 pCi) as shown below:

$$10{,}000\frac{\text{pCi}}{\text{g}} \times 600{,}000\,g = 6.0\text{X}10^{9}\ \text{pCi} = 6.0\,\text{mCi Pu-239}$$

SPECIAL NUCLEAR MATERIAL EXEMPTION CERTIFICATION

Table 1. Maximum concentrations of SNM in individual waste containers (refer to above table for U-235 limits).

Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)	Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pCi/g)
U-233	75,000	11,250	Pu-241	350,000	50,000
Pu-236	500	75	Pu-242	10,000	1,500
Pu-238	10,000	1,500	Pu-243	500	75
Pu-239	10,000	1,500	Pu-244	500	75
Pu-240	10,000	1,500			

3. **Indicate that the following information is attached to the Radioactive Waste Profile Record by checking each box. (Note: Only the two-page Special Nuclear Material Exemption Certification form needs to be included with each manifest).**

   ☒ a. Provide a description of how the waste was generated, list the physical forms in the waste, and identify the uranium chemical composition.

   ☒ b. Provide a general description of how the waste was characterized (including the volumetric extent of the waste, and the number, location, type, and results of any analytical testing), the range of SNM concentrations, and the analytical results with error values used to develop the concentration ranges.

   ☒ c. Describe the process by which the waste was generated showing that the spatial distribution of SNM must be uniform, or other information supporting spatial distribution.

   ☒ d. Describe the methods to be used to determine the concentrations on the manifests. These methods could include direct measurement and the use of scaling factors. Describe the uncertainty associated with sampling and testing used to obtain the manifest concentrations.

4. **Generator's certification of compliance with the SNM exemption:** I certify that the information provided on this form is complete, true, and correct and is based on process knowledge, physical observations, or approved laboratory testing. I also certify that sampling and radiological testing of waste containing SNM was performed in accordance with EnergySolutions' Radioactive Material License and that any supporting documentation and analytical results have been submitted to EnergySolutions.

Authorized Signature	Printed Name	Title	Date
	Elizabeth Lamerson	Environmental Engineer	6/9/11

Sampling and Analysis Plan

For the Characterization of

Source and Byproduct Materials

Sampling & Analysis Plan for the Characterization of Waste in the XT-847

United States Enrichment Corporation
P.O. Box 628
3930 US Route 23 South
Piketon, Ohio 45661

December 21, 2010
Revised: January 18, 2011
Revised: February 9, 2011

TABLE OF CONTENTS

ACRONYM LIST

ASTM- American Society for Testing and Materials

DOT- Department of Transportation

EPA- Environmental Protection Agency

LDR- Land Disposal Restrictions

NCS- Nuclear Criticality Safety

NRC- Nuclear Regulatory Commission

PCB- Polychlorinated Biphenyl

PORTS- Portsmouth Gaseous Diffusion Plant

QA/QC- Quality Assurance/Quality Control

RCRA- Resource Conservation and Recovery Act

RFD- Request For Disposal

SAP- Sampling & Analysis Plan

SVOC- Semi-Volatile Organic Compound

TCLP- Toxicity Characteristic Leaching Procedure

TSCA- Toxic Substances Control Act

TSD- Treatment Storage and Disposal

USEC- United States Enrichment Corporation

VOC- Volatile Organic Compound

WAC- Waste Acceptance Criteria

1.0 PROJECT OVERVIEW

1.1 Purpose

A. This Sampling and Analysis Plan (SAP) describes the process for collection and analysis of waste characterization samples of the waste streams in the XT-847. The characterization process will ensure safe storage, treatment, and disposal of the waste. The SAP also describes the quality assurance (QA)/quality control (QC) processes for sampling.

B. The sampling and analysis of these waste streams ensure that the actual chemical, physical and radioactive properties of the wastes are identified and documented for characterization of the various waste streams in the XT-847. The planned disposal option for the waste stream is land disposal at the EnergySolutions facility in Clive, Utah.

1.2 Waste Stream Description

A. These waste streams originate in various locations at the Portsmouth Gaseous Diffusion Plant (PORTS). The wastes consist of sludge material, dirt, floor sweepings, alumina, concrete, resin, and varnish chunks that contain radiological contamination.

B. The inventory currently consists of one thousand two hundred ninety containers (1290) containers inventoried under Requests for Disposals (RFDs). All of the containers are 5-gallon drums, 30-gallon drums, 55-gallon drums, 85-gallon drums, 110-gallon drums, B-25 boxes or over-packed B-25 boxes. The current inventory information is given in Appendix A.

1.3 Data Quality Objectives

A. The objective of characterization is to provide data to evaluate the preferred Treatment, Storage, and Disposal (TSD) option as well as alternative TSD options. The intended uses of the characterization data are:

- to confirm the regulatory status of the waste streams under RCRA,
- to determine the chemical, physical and radiological properties of the waste stream,
- to determine that the waste stream meets the potential treatment or disposal facility's Waste Acceptance Criteria (WAC),
- to determine compliance with the Land Disposal Restrictions (LDR) (40 CFR 268), and
- to provide information to satisfy Department of Transportation (DOT) requirements for off-site waste shipments.

B. Analytical data will be generated using EPA SW-846, EPA-600-4-80-032, and American Society for Testing and Materials (ASTM) methods for the regulatory

based parameters. For radiological parameters, EPA approved methods or other well-established, approved methods shall be used.

C. The analytical data will be statistically evaluated in accordance with EPA SW-846 methods to confirm that the waste stream is properly classified under RCRA.

2.0 METHODOLOGY FOR SAMPLE COLLECTION AND ANALYSIS

2.1 Sample Collection

A. Collection of representative samples is of primary importance during the sampling event. Extra care must be taken to minimize sample bias and increase representativeness when sampling. The sampling of this waste stream will adhere to XP4-EW-WM7582, *Sampling of Waste.*

B. An adequate sample size is determined by the greater of: 1) the minimum sample size required by the appropriate analytical method; or 2) the requirements of the analytical laboratory.

C. Waste characterization samples shall be collected from selected waste containers as specified in Appendix D. The sample quantities, containers, preservatives, holding times for each parameter will be determined by the laboratory or will be by test method.

D. Sample containers and volumes are specified by the laboratories. This information is shall be included in the Chain of Custody forms which accompany the samplers to the sampling location.

E. The Sampling schedule is listed in Appendix E.

2.2 Sample Management

2.2.1 Sample Identification and Labeling

A. Sample identification numbers will be assigned. Samples will be labeled in accordance with applicable procedures. Appropriate sample labels (e.g. analytical, hazard, polychlorinated biphenyl (PCB), and radioactive) are affixed to all sample containers prior to or at the time of sampling. To the extent practical, sample bottles are labeled prior to filling. Sample labels are waterproof paper or plastic with gummed backs or waterproof tags and completed with black indelible ink, as appropriate.

2.2.2 Chain-of-Custody

A. To ensure the security of samples from collection to final disposition, a chain-of-custody form (also called a sample log) is used. The chain-of-custody form is completed before transfer of sample custody. The chain-of-custody form provides an accurate written record that can be used

to trace the possession and handling of samples from the time of collection through data analysis and reporting.

B. The following information is included on the chain-of-custody form.

- Unique sample number
- Signature of sampler
- Date and time of sample collection
- Sample matrix type
- Sampling site
- Number of sample containers
- Sample handling and preservatives
- Date and time custody is accepted and relinquished
- Signature of custodian

C. If samples are shipped off-site, a signed or initialed custody seal will be affixed to the shipping container to ensure that the samples have not been disturbed during transportation.

2.3 Analytical Parameters

2.3.1 TCLP Constituent Parameters

A. Randomly selected containers will be sampled and analyzed for the following chemical parameters:

- Toxicity Characteristic Leaching Procedure (TCLP) Metals including Copper and Zinc
- TCLP Volatile Organic Compounds (VOCs)
- TCLP Semi-Volatile Organic Compounds (SVOCs)
- TCLP Herbicides and Pesticides

B. The objective of these analyses is to demonstrate whether or not the waste is a RCRA characteristic waste.

2.3.2 Total Constituent Parameters

A. Randomly selected containers will be sampled and analyzed for the following chemical parameters:

- Total Metals
- Total VOCs
- Total SVOCs

- Total Herbicides and Pesticides

B. The objective is to confirm the available process knowledge and to determine the parameter concentrations for compliance with the WAC for the chosen TSD option.

2.3.3 Physical Parameters

A. Randomly selected containers will be sampled and analyzed for the following physical parameters:

- Moisture Content
- Bulk Density
- Paint Filter Test

B. The objective is to determine the parameter properties for compliance with the WAC for the chosen TSD option.

2.3.4 Radiological Parameters

Uranium and Transuranic Parameters

A. Randomly selected containers will be sampled and analyzed for the following radiological parameters: Total Uranium

- Wt. % Uranium-235
- Uranium Isotopes - ^{232}U, ^{233}U, ^{234}U, ^{235}U, ^{236}U, ^{238}U
- Total Uranium
- Technetium-99
- Transuranic Isotopes - ^{237}Np, ^{238}Pu, ^{239}Pu, ^{240}Pu, ^{242}Pu, ^{244}Pu

B. The purpose of this sampling is to prevent unintentional release of radioactively contaminated materials to facilities that do not have the appropriate license to manage radioactive materials. This information will also meet the WAC for the chosen TSD facility.

Other Radiological Parameters

C. Randomly selected containers will be analyzed for the following radiological parameters:

- Gross Alpha and Beta
- Thorium Isotopes - ^{228}Th, ^{230}Th, ^{231}Th, ^{232}Th, ^{234}Th
- Transuranic Isotopes - ^{241}Am, ^{242}Am, ^{243}Am, ^{243}Cm, ^{244}Cm, ^{245}Cm, ^{246}Cm, ^{247}Cm, ^{248}Cm,
- Strontium-90
- Gamma Scan

- Fission Products - ^{141}Ce, ^{144}Ce, ^{134}Cs, ^{137}Cs, ^{95}Nb, ^{103}Ru, ^{106}Ru, ^{95}Zr, ^{125}Sb
- Actinium Isotopes - ^{227}Ac, ^{228}Ac
- Bismuth Isotopes - ^{212}Bi, ^{214}Bi
- Cadmium-109
- Cobalt Isotopes - ^{57}Co, ^{60}Co
- Iodine Isotopes- ^{129}I, ^{131}I
- Krypton -85
- Lead Isotopes - ^{210}Pb, ^{212}Pb, ^{214}Pb
- Radium Isotopes - ^{224}Ra, ^{226}Ra, ^{228}Ra
- Potassium-40
- Protactinium Isotopes - ^{231}Pa, ^{234m}Pa
- Thallium-208

D. The parameters are not reasonably expected to be a concern in the waste. Therefore, the objective is to determine the parameter concentrations for compliance with the WAC for the chosen TSD option.

2.3.5 Polychlorinated Biphenyls

A. This waste is not considered to be PCB waste. To confirm this characteristic, a representative amount of each waste stream will be sampled and analyzed for PCB's.

Beryllium

B. These wastes may or may not contain beryllium. A representative number of containers will be sampled and analyzed for beryllium.

3.0 ANALYTICAL METHODS

Samples will be analyzed for the parameters listed in Appendix B. Unless otherwise specified, Test Method numbers are from U.S. Environmental Protection Agency (U.S. EPA) SW-846, Test Methods for Evaluating Solid Waste.

The laboratories selected to analyze samples collected in accordance with this SAP follow established QA/QC programs for sampling, handling, and analysis.

Samples will be preserved as required by the analytical laboratory. Samples will be extracted and analyzed within the holding times specified in SW-846. The laboratory will be required to provide results within 28 days of receipt.

All analyses shall be performed by a laboratory certified by the State of Utah. The approved laboratory shall possess an appropriate license issued by the Nuclear Regulatory Commission (NRC) or a license issued by an NRC-approved agreement state.

4.0 QUALITY ASSURANCE REQUIREMENTS

4.1 QA/QC SAMPLES

A. QC samples will be analyzed to provide data that can be compared to characterization sample data to assess the quality of the sample collection process, sample handling, shipment, and sample analysis. The following quality control samples will be obtained during the sampling operation:

- **Field Blanks** - One for each analytical batch or one for each 20 samples, whichever is greater. Field blanks shall be analyzed for the full set of analytical parameters. The purpose of field blanks is to assess the potential of sample contamination from the existing environmental conditions at the sampling location.
- **Trip Blanks** - One for each analytical batch or one for each container used to transport VOC samples to the laboratory. Trip blanks shall be analyzed for VOCs only. The purpose of trip blanks is to assess the potential of sample contamination from the existing environmental conditions during the transport.
- **Equipment Blanks** - One for each analytical batch or one for each 10 samples, whichever is greater. Equipment blanks shall be analyzed for the full set of analytical parameters. The purpose of equipment blanks is to determine whether the decontamination procedure is adequate to avoid carryover of contamination from one sampling location to another.
- **Field Duplicates** - One duplicate for each analytical batch or for every 10 samples, whichever is greater. Field duplicates shall be analyzed for the full set of analytical parameters. The purpose of field duplicates is to determine precision that is function of variance in waste composition, sampling techniques and analytical techniques. Duplicate samples shall be collected in the same manner as waste characterization samples.

4.2 ANALYSIS

A. Analytical data obtained shall comply with applicable SW-846 regulatory methods and this SAP. The primary regulatory methods for compliance are the applicable methods described in *Test Methods for Evaluating Solid Waste, SW-846,* Third Edition, Final Update III, United States Environmental Protection Agency.

4.3 STATISTICAL APPROACH

A. The approach to this sampling event is based on a statistical sampling of TCLP constituent parameters, total constituent parameters, physical parameters and

radiological parameters. The waste population to be sampled is selected to yield the desired confidence level based on process knowledge, available analytical data, total number of containers, and the WAC requirements of the TSD Facility and regulatory requirements.

5.0 DATA MANAGEMENT

5.1 Data Verification

A. Data verification is the process by which analytical data provided by the laboratory are checked against the SAP to ensure that data are provided as stated in the SAP. Data verification consists of checking the data to ensure that a value is provided for every analyte that was listed in the SAP and chain-of-custody.

5.2 Data Summary

A. After completion of the activities discussed in the SAP, including data verification, a summary of analytical data will be completed. This summary will provide an assessment of the data for its intended use.

APPENDIX A—XT-847 INVENTORY

RFD Number	Waste stream	Container number	Container Type	Container Volume (Gallons)	Waste Location	Waste Description	Gross Weight (lbs)	Net Weight (lbs)
48886	RD-101	1	55M	7.4	C6	PCB cont. dirt, rubber, plastic	486	422
23285	RD-101	1	5M	.65	N4	PG, Plastic, Paper	25	20
Total		2						
59308	RD-101	1	55P	7.4	N4	Floor sweepings, chessecloth	187.95	164.95
50981	RD-101	1	55P	7.4	N4	Misc. scrap(rags, wipes)	154	132
50982	RD-101	1	55P	7.4	N4	Misc. scrap(rags, wipes)	181	159
53073	RD-101	1	55P	7.4	N4	Misc. scrap(rags, wipes)	250	227
57327	RD-101	1	55P	7.4	N4	Misc. scrap(rags, wipes)	87.64	64.64
57935	RD-101	1	55P	7.4	N4	Misc. scrap(rags, wipes)	106.43	83.43
57936	RD-101	1	55P	7.4	N4	Misc. scrap(rags, wipes)	104.67	81.67
34876	RD-101	1	5M	7.4	C6	Pigs, sponges& H2O	25	20
59314	RD-101	1	55P	7.4	N4	rags, mop heads, PG dust	84.38	61.38
55280	RD-101	1	55P	7.4	N4	Rags, wipes, shoe covers	101.01	78.01
56041	RD-101	1	55P	7.4	N4	Rags, wipes, shoe covers	105.23	83.23
60946	RD-101	1	30M	4	C6	Roofing tar	165	128
62463	RD-101	1	55	7.4	N4	Teflon gaskets	311	

50979	RD-101	1	55P	7.4	N4	Yellow cloth, gaskets, rubber tubing	234	212
Total		14						
60272	RD-101U	1	55P	7.4	N4	dust and rags	105.12	82.12
60271	RD-101U	1	55P	7.4	N4	Grease and oily rags	85.76	62.76
60990	RD-101U	1	55P	7.4	C5	PG dust side purge	71.21	48.21
60989	RD-101U	1	55P	7.4	C5	Side purge dust debris	40.64	17.64
Total		4						
32130A	RD-102	1	55M	7.4	C6	Spent carbon	351	287
32130B	RD-102	1	55M	7.4	C6	Spent carbon	418	354
Total		2						
58425	RD-101	1	55P	7.4	C5	Alumina, Waste code 828	211.18	188.18
59301	RD-101	1	55P	7.4	C5	Alumina, Waste code 828	205.97	182.97
55298	RD-101	1	55P	7.4	C5	Batch 197	126.12	103.12
40559	RD-103	1	55P	7.4	C5	Alumina	347	328

48327	RD-103	1	55P	7.4	C5	Alumina	452	433
48333	RD-103	1	55P	7.4	C5	Alumina	332	313
48337	RD-103	1	55P	7.4	C5	Alumina	418	399
48339	RD-103	1	55P	7.4	C5	Alumina	368	349
48341	RD-103	1	55P	7.4	C5	Alumina	436	417
48358	RD-103	1	55P	7.4	C5	Alumina	335	314
48360	RD-103	1	55P	7.4	C5	Alumina	327	305
48361	RD-103	1	55P	7.4	C5	Alumina	392	370
48362	RD-103	1	55P	7.4	C5	Alumina	483	461
48363	RD-103	1	55P	7.4	C5	Alumina	335	313
48899	RD-103	1	55P	7.4	C5	Alumina	381	359
53052	RD-103	1	55P	7.4	C5	Alumina	455	432
53066	RD-103	1	55P	7.4	C5	Alumina	413	390
53068	RD-103	1	55P	7.4	C5	Alumina	314	292

54034	RD-103	1	55P	7.4	C5	Alumina	455	432
54036	RD-103	1	55P	7.4	C5	Alumina	465	442
54507	RD-103	1	55P	7.4	C5	Alumina	279	257
54508	RD-103	1	55P	7.4	C5	Alumina	306	283
54509	RD-103	1	55P	7.4	C5	Alumina	320	298
54510	RD-103	1	55P	7.4	C5	Alumina	310	288
54511	RD-103	1	55P	7.4	C5	Alumina	304	281
54516	RD-103	1	55P	7.4	C5	Alumina	269	247
54521	RD-103	1	55P	7.4	C5	Alumina	339.06	317.06
54522	RD-103	1	55P	7.4	C5	Alumina	250.26	227.26
54525	RD-103	1	55P	7.4	C5	Alumina	276.5	253.5
55276	RD-103	1	55P	7.4	C5	Alumina	307.14	284.14
55278	RD-103	1	55P	7.4	C5	Alumina	252.02	229.02
55279	RD-103	1	55P	7.4	C5	Alumina	224.95	201.95

55282	RD-103	1	55P	7.4	C5	Alumina	216	193
55283	RD-103	1	55P	7.4	C5	Alumina	208	185
55284	RD-103	1	55P	7.4	C5	Alumina	204.1	181.1
55285	RD-103	1	55P	7.4	C5	Alumina	226.09	203.09
55296	RD-103	1	55P	7.4	C5	Alumina	224	201
55379A	RD-103	1	55P	7.4	C5	Alumina	420	397
55379B	RD-103	1	55P	7.4	C5	Alumina	435	412
55379C	RD-103	1	55P	7.4	C5	Alumina	430	407
55379D	RD-103	1	55P	7.4	C5	Alumina	430	407
55379E	RD-103	1	55P	7.4	C5	Alumina	445	422
55396	RD-103	1	55P	7.4	C5	Alumina	456	433
55397	RD-103	1	55P	7.4	C5	Alumina	426	403
55398	RD-103	1	55P	7.4	C5	Alumina	444	421
55399	RD-103	1	55P	7.4	C5	Alumina	452	429

55400	RD-103	1	55P	7.4	C5	Alumina	460	437
56028	RD-103	1	55P	7.4	C5	Alumina	403.18	380.18
56030	RD-103	1	55P	7.4	C5	Alumina	279.29	256.29
56031	RD-103	1	55P	7.4	C5	Alumina	284.72	261.72
56045	RD-103	1	55P	7.4	C5	Alumina	212.19	189.19
58408	RD-103	1	55P	7.4	C5	Alumina	201	178
58409	RD-103	1	55P	7.4	C5	Alumina	191	168
59011	RD-103	1	55M	7.4	C5	Alumina	318	254
59012	RD-103	1	55M	7.4	C5	Alumina	316	252
59018	RD-103	1	55M	7.4	C5	Alumina	261	197
59019	RD-103	1	55M	7.4	C5	Alumina	259	195
60549	RD-103	1	55M	7.4	C5	Alumina	255	191
60765	RD-103	1	55P	7.4	C5	Alumina	196.13	173.13
60994	RD-103	1	55P	7.4	C5	Alumina	44.58	21.58

60995	RD-103	1	55P	7.4	C5	Alumina	66.99	43.99
61461A	RD-103	1	5	0.65	C5	Alumina	21	
61461B	RD-103	1	5	0.65	C5	Alumina	21	
61461C	RD-103	1	5	0.65	C5	Alumina	21	
61461D	RD-103	1	5	0.65	C5	Alumina	21	
61461E	RD-103	1	5	0.65	C5	Alumina	21	
61461F	RD-103	1	5	0.65	C5	Alumina	20	
61461G	RD-103	1	5	0.65	C5	Alumina	22	
61461H	RD-103	1	5	0.65	C5	Alumina	22	
61461I	RD-103	1	5	0.65	C5	Alumina	21	
61461J	RD-103	1	5	0.65	C5	Alumina	20	
61461K	RD-103	1	5	0.65	C5	Alumina	21	
61461L	RD-103	1	5	0.65	C5	Alumina	20	
62034	RD-103	1	5	0.65	C5	Alumina	28	

62951	RD-103	1	55	7.4	C5	Alumina	259	
62952	RD-103	1	55	7.4	C5	Alumina	256	
62953	RD-103	1	55	7.4	C5	Alumina	246	
48359	RD-103	1	55P	7.4	C5	Alumina accountable container	339	318
60996	RD-103	1	55P	7.4	C5	Alumina and Soda lime	65.22	42.22
50519A	RD-103	1	55M	7.4	C5	Alumina pellets from air plant dryers	444	380
50519B	RD-103	1	55M	7.4	C5	Alumina pellets from air plant dryers	424	360
50519C	RD-103	1	55M	7.4	C5	Alumina pellets from air plant dryers	444	380
50519D	RD-103	1	55M	7.4	C5	Alumina pellets from air plant dryers	468	404
50519E	RD-103	1	55M	7.4	C5	Alumina pellets from air plant dryers	404	340
50519F	RD-103	1	55M	7.4	C5	Alumina pellets from air plant dryers	397	333
50519G	RD-103	1	55M	7.4	C5	Alumina pellets from air plant dryers	341	277
50519H	RD-103	1	55M	7.4	C5	Alumina pellets from air plant	506	442

						dryers		
62202G	RD-103	1	20	2.7	N3	Alumina Sample returns	29	16
62202H	RD-103	1	20	2.7	N3	Alumina Sample returns	27	14
62202O	RD-103	1	20	2.7	N3	Alumina Sample returns	24	11
48303	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	472	451
48306	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	404	382
48310	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	446	424
48311	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	464	442
48312	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	456	434
48313	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	467	445
48316	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	473	451
48317	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	465	443
48318	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	465	443
48319	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	465	443

48320	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	471	449
48322	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	466	444
48323	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	471	449
48366	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	464	442
48367	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	426	404
48368	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	420	398
50986	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	442	420
50987	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	510	488
53069	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	291	269
56043	RD-103	1	55P	7.4	C5	Alumina, Waste code 801	347.38	325.38
56036	RD-103	1	55P	7.4	C5	Alumina, Waste code 801, 821, 823, 846	193.81	170.81
60768	RD-103	1	55P	7.4	C5	Alumina, Waste code 801, 823, 841	107.55	85.55
59307	RD-103	1	55P	7.4	C5	Alumina, Waste code 801, 841	163.66	140.66
53051	RD-103	1	55P	7.4	C5	Alumina, Waste code 803	450	427

53053	RD-103	1	55P	7.4	C5	Alumina, Waste code 803	440	417
54519	RD-103	1	55P	7.4	C5	Alumina, Waste code 803	351	329
54520	RD-103	1	55P	7.4	C5	Alumina, Waste code 810	77	55
54027	RD-103	1	55P	7.4	C5	Alumina, Waste code 820	515	492
37709	RD-103	1	85M	11.4	C5	Alumina, Waste code 821	374	351
37711	RD-103	1	85M	11.4	C5	Alumina, Waste code 821	435	412
37713	RD-103	1	85M	11.4	C5	Alumina, Waste code 821	375	352
37714	RD-103	1	85M	11.4	C5	Alumina, Waste code 821	445	422
37715	RD-103	1	85M	11.4	C5	Alumina, Waste code 821	443	420
37716	RD-103	1	85M	11.4	C5	Alumina, Waste code 821	393	370
37717	RD-103	1	85M	11.4	C5	Alumina, Waste code 821	438	416
37720	RD-103	1	85M	11.4	C5	Alumina, Waste code 821	512	490
37721	RD-103	1	85M	11.4	C5	Alumina, Waste code 821	475	452
39466	RD-103	1	85M	11.4	C5	Alumina, Waste code 821	480	457

40553	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	343	324
40554	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	339	320
40555	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	243	224
40557	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	320	297
40558	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	355	332
40560	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	366	347
40561	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	371	352
40563	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	325	306
40564	RD-103	1	55	7.4	C5	Alumina, Waste code 821	336	317
40565	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	335	316
40567	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	367	348
40569	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	345	326
40571	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	420	401
40572	RD-103	1	55	7.4	C5	Alumina, Waste code 821	425	406

40573	RD-103	1	55	7.4	C5	Alumina, Waste code 821	423	404
40574	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	435	416
40575	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	394	375
40576	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	403	384
40577	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	416	397
40578	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	337	318
40579	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	342	321
40580	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	408	387
40581	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	344	323
40582	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	354	333
40583	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	344	323
40584	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	372	351
40585	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	357	336
40586	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	360	339

45141	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	324	302
45142	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	366	344
46188	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	332	309
46200	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	313	290
48301	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	472	450
48456	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	340	318
48676	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	347	325
48677	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	333	311
48678	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	343	321
48679	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	334	312
48897	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	424	402
48900	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	392	370
48919	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	486	464
48920	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	237	215

48921	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	397	374
48922	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	466	444
48924	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	370	347
49777	RD-103	1	85M	11.4	C5	Alumina, Waste code 821	600	
50045	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	390	367
50049	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	400	378
50050	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	410	387
50052	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	405	382
50053	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	395	373
50054	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	340	318
50058	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	325	302
50059	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	375	352
50069	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	390	368
50070	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	380	358

50071	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	375	353
50072	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	380	358
50073	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	375	353
50074	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	370	347
50204	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	352	330
50205	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	341	319
50209	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	338	316
50210	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	346	324
50211	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	347	325
50212	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	331	309
50213	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	337	315
50219	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	375	353
50221	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	345	323
52712	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	505	483
52716	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	520	497
52717	RD-103	1	55P	7.4	C5	Alumina, Waste code	471	448

						821		
52719	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	365	342
52720	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	361	338
52721	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	366	343
52722	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	382	359
52723	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	365	342
52725	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	475	452
53062	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	426	404
53063	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	459	437
53075	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	306	284
54029	RD-103	1	55P	7.4	C5	Alumina, Waste code 821	305	282
57945	RD-103	1	55P	7.4	C5	Alumina, Waste code 821, 823	217.94	194.94
59309	RD-103	1	55P	7.4	C5	Alumina, Waste code 821, 823	235.12	212.12
57348	RD-103	1	55P	7.4	C5	Alumina, Waste code 821, 823, 841, 842, 846, 801	201.44	178.44
60760	RD-103	1	55P	7.4	C5	Alumina, Waste code 822, 823	135.84	113.84
48369	RD-103	1	55P	7.4	C5	Alumina, Waste code	417	395

52076	RD-103	1	55P	7.4	C5	823 Alumina, Waste code 823	436	414
52083	RD-103	1	55P	7.4	C5	Alumina, Waste code 823	465	442
52084	RD-103	1	55P	7.4	C5	Alumina, Waste code 823	451	428
53067	RD-103	1	55P	7.4	C5	Alumina, Waste code 823	363	341
54514	RD-103	1	55P	7.4	C5	Alumina, Waste code 823	256	333
55277	RD-103	1	55P	7.4	C5	Alumina, Waste code 823	230.67	207.67
55287	RD-103	1	55P	7.4	C5	Alumina, Waste code 823	304.87	281.87
56032	RD-103	1	55P	7.4	C5	Alumina, Waste code 823	219.84	196.84
56033	RD-103	1	55P	7.4	C5	Alumina, Waste code 823	225.45	202.45
57336	RD-103	1	55P	7.4	C5	Alumina, Waste code 823	217.48	194.48
57927	RD-103	1	55P	7.4	C5	Alumina, Waste code 823	240.89	217.89
58404	RD-103	1	55P	7.4	C5	Alumina, Waste code 823	267.88	244.88
58405	RD-103	1	55P	7.4	C5	Alumina, Waste code 823	283.44	260.44
60757	RD-103	1	55P	7.4	C5	Alumina, Waste code 823	152.67	129.67
60758	RD-103	1	55P	7.4	C5	Alumina, Waste code 823	189.35	166.35
60769	RD-103	1	55P	7.4	C5	Alumina, Waste code	76.67	54.67

55290	RD-103	1	55P	7.4	C5	823 Alumina, Waste code 823, 824, 827	189.63	166.63
55293	RD-103	1	55P	7.4	C5	Alumina, Waste code 823, 824, 827	190.54	167.54
55294	RD-103	1	55P	7.4	C5	Alumina, Waste code 823, 824, 827, 842, 846	185.5	162.5
54523	RD-103	1	55P	7.4	C5	Alumina, Waste code 823, 827	222.39	199.39
54524	RD-103	1	55P	7.4	C5	Alumina, Waste code 823, 827	304.24	281.24
55281	RD-103	1	55P	7.4	C5	Alumina, Waste code 823, 827	275.82	252.82
55286	RD-103	1	55P	7.4	C5	Alumina, Waste code 823, 827	240.73	217.73
54501	RD-103	1	85M	11.4	C5	Alumina, Waste code 827	515	414
54515	RD-103	1	55P	7.4	C5	Alumina, Waste code 827	329	307
47995	RD-103	1	85M	11.4	C5	Alumina, Waste code 828	526	425
47996	RD-103	1	85M	11.4	C5	Alumina, Waste code 828	537	436
48285	RD-103	1	55P	7.4	C5	Alumina, Waste code 828	410	388
48296	RD-103	1	85M	11.4	C5	Alumina, Waste code 828	494	393
48297	RD-103	1	85M	11.4	C5	Alumina, Waste code 828	494	393
48302	RD-103	1	55P	7.4	C5	Alumina, Waste code 828	430	407
48308	RD-103	1	55P	7.4	C5	Alumina,	522	499

48466	RD-103	1	85M	11.4	C5	Waste code 828 Alumina, Waste code 828 Alumina,	492	391
50325	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	360	259
50976	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	406	384
50977	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	436	414
50978	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	495	394
50980	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	417	395
50988	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	429	407
50989	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	416	393
50990	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	500	399
50991	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	417	395
52077	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	500	399
52078	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	445	344
52079	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	496	395
52080	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	490	389
52081	RD-103	1	55P	7.4	C5	Waste code 828	415	392
52082	RD-103	1	85M	11.4	C5	Alumina,	515	

52506	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	484	461
53054	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	445	344
53056	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	480	379
53058	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	540	439
53060	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	416	394
53061	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	411	389
53074	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	540	
54502	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	435	
54512	RD-103	1	85M	11.4	C5	Waste code 828 Alumina,	341	240
55291	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	201	178
55292	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	217	194
55297	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	215	192
56038	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	202.23	180.23
56039	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	223	200
56044	RD-103	1	55P	7.4	C5	Waste code 828	229.04	206.04
56049	RD-103	1	55P	7.4	C5	Alumina,	222.2	199.2

56050	RD-103	1	55P	7.4	C5	Waste code 828 Alumina, Waste code 828 Alumina,	223	200
56827	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	236.97	213.97
56828	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	237.05	214.05
56831	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	238.19	215.19
56832	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	231.23	208.23
57930	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	195.53	172.53
57931	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	217.72	194.72
57946	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	219.27	196.27
57947	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	195.78	172.78
58413	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	201.73	178.73
59312	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	220.8	197.8
59313	RD-103	1	55P	7.4	C5	Waste code 828 Alumina,	222.9	199.9
57941	RD-103	1	55P	7.4	C5	Waste code 841 Alumina,	229.86	206.86
57942	RD-103	1	55P	7.4	C5	Waste code 841 Alumina,	223.69	200.69
58407	RD-103	1	55P	7.4	C5	Waste code 841	197.45	174.45
56037	RD-103	1	55P	7.4	C5	Alumina,	186.23	163.23

56042	RD-103	1	55P	7.4	C5	Waste code 841, 842 Alumina, Waste code 841, 842 Alumina,	294.11	272.11
56047	RD-103	1	55P	7.4	C5	Waste code 841, 842 Alumina, Waste code 841, 842, 846 Alumina,	302.06	279.06
57943	RD-103	1	55P	7.4	C5	Waste code 842 Alumina, Waste code 842 Alumina,	197.68	174.68
57337	RD-103	1	55P	7.4	C5	Waste code 842 Alumina, Waste code 842 Alumina,	221	198
57344	RD-103	1	55P	7.4	C5	Waste code 842 Alumina, Waste code 842 Alumina,	186.18	163.18
57926	RD-103	1	55P	7.4	C5	Waste code 842 Alumina, Waste code 842 Alumina,	295	272
58415	RD-103	1	55P	7.4	C5	Waste code 842 Alumina, Waste code 842 Alumina,	272.62	249.62
58416	RD-103	1	55P	7.4	C5	Waste code 842 Alumina, Waste code 842 Alumina,	276.46	253.46
60756	RD-103	1	55P	7.4	C5	Waste code 842 Alumina, Waste code 846	210.96	187.96
53065	RD-103	1	55P	7.4	C5	DAW and Alumina Filter Media, Alumina trap material	305	283
58053	RD-103	1	55M	7.4	C5	Filter Media, Alumina trap material	217	153
61435A	RD-103	1	5M	0.65	C5	Filter Media, Alumina trap material	39	34
61435B	RD-103	1	5M	0.65	C5	Filter Media, Alumina trap material	43	38
61435C	RD-103	1	5M	0.65	C5	Floor sweepings	24	19
60759	RD-103	1	55P	7.4	N4	Magnesium Fluoride Pellets and	115.43	92.43
62135	RD-103	1	55P	7.4	C5		466	402

56833	RD-103	1	55P	7.4	C5	powder unused Mg Fluoride	122	99
56834	RD-103	1	55P	7.4	C5	Mg Fluoride	114	71
56839	RD-103	1	55P	7.4	C5	Mg Fluoride	135	93
57328	RD-103	1	55P	7.4	C5	Mg Fluoride	132	89
57329	RD-103	1	55P	7.4	C5	Mg Fluoride	151	106
57338	RD-103	1	55P	7.4	C5	Mg Fluoride	156	110
57350	RD-103	1	55P	7.4	C5	Mg Fluoride	121.76	82.86
59302	RD-103	1	55P	7.4	C5	Mg Fluoride	181.97	132.5
59304	RD-103	1	55P	7.4	C5	Mg Fluoride	110.59	71.21
59305	RD-103	1	55P	7.4	C5	Mg Fluoride	162.67	117.89
53777	RD-103	1	55M	7.4	C6	NAF Powder/Dust	367	303
62142	RD-103	1	5M	0.65	C5	New Alumina from floor sweeping X-760	22.8	17.8
49797	RD-103	1	55M	7.4	C5	Sample jars of Alumina	338	274
48455	RD-103	1	55P	7.4	C5	Sodium Fluoride	469	447
48457	RD-103	1	55P	7.4	C5	Sodium Fluoride	470	448
48458	RD-103	1	55P	7.4	C5	Sodium Fluoride	462	440
48460	RD-103	1	55P	7.4	C5	Sodium Fluoride	471	449
48461	RD-103	1	55P	7.4	C5	Sodium Fluoride	473	451
48462	RD-103	1	55P	7.4	C5	Sodium Fluoride	465	443
50992	RD-103	1	55P	7.4	C5	Sodium Fluoride	481	459
50993	RD-103	1	55P	7.4	C5	Sodium Fluoride	483	461
50995	RD-103	1	55P	7.4	C5	Sodium Fluoride	477	454
53064	RD-103	1	55P	7.4	C5	Sodium Fluoride	430	407
53072	RD-103	1	55P	7.4	C5	Sodium Fluoride	358	336
56026	RD-103	1	55P	7.4	C5	Sodium Fluoride	280.05	257.05
56027	RD-103	1	55P	7.4	C5	Sodium Fluoride	291.89	268.89

56040	RD-103	1	55P	7.4	C5	Sodium Fluoride	287.1	265.1
56048	RD-103	1	55P	7.4	C5	Sodium Fluoride	337.89	314.89
56829	RD-103	1	55P	7.4	C5	Sodium Fluoride	209.32	186.32
56830	RD-103	1	55P	7.4	C5	Sodium Fluoride	311.67	288.67
56838	RD-103	1	55P	7.4	C5	Sodium Fluoride	303.24	280.24
56849	RD-103	1	55P	7.4	C5	Sodium Fluoride	332.55	309.55
56850	RD-103	1	55P	7.4	C5	Sodium Fluoride	341.59	318.59
57326	RD-103	1	55P	7.4	C5	Sodium Fluoride	324	301
57332	RD-103	1	55P	7.4	C5	Sodium Fluoride	349	326
57343	RD-103	1	55P	7.4	C5	Sodium Fluoride	315.27	292.27
57929	RD-103	1	55P	7.4	C5	Sodium Fluoride	307.93	284.93
57938	RD-103	1	55P	7.4	C5	Sodium Fluoride	340.83	317.83
57950	RD-103	1	55P	7.4	C5	Sodium Fluoride	308.27	285.27
58401	RD-103	1	55P	7.4	C5	Sodium Fluoride	318.66	259.66
58420	RD-103	1	55P	7.4	C5	Sodium Fluoride	309.57	286.57
58423	RD-103	1	55P	7.4	C5	Sodium Fluoride	300.22	277.22
60259	RD-103	1	55P	7.4	C5	Sodium Fluoride	305.62	283.62
60260	RD-103	1	55P	7.4	C5	Sodium Fluoride	307.29	285.29
60264	RD-103	1	55P	7.4	C5	Sodium Fluoride	321.42	298.42
60265	RD-103	1	55P	7.4	C5	Sodium Fluoride	335.17	312.17
60751	RD-103	1	55P	7.4	C5	Sodium Fluoride	328.18	305.81
60752	RD-103	1	55P	7.4	C5	Sodium Fluoride	327.56	304.56
60753	RD-103	1	55P	7.4	C5	Sodium Fluoride	310.36	287.36
59306	RD-103	1	55P	7.4	C5	Sodium Fluoride and	274.61	251.61

52133	RD-103	1	B-25 box	90	C5	Alumina Tc Trap System	2618	
63347	RD-103	1	55	7.4	C5	Top Purge Alumina		
63348	RD-103	1	55	7.4	C5	Top Purge Alumina		
63349	RD-103	1	55	7.4	C5	Top Purge Alumina		
63350	RD-103	1	55	7.4	C5	Top Purge Alumina		
63794	RD-103	1	55	7.4	C5	Top Purge Alumina		
63797	RD-103	1	55	7.4	C5	Top Purge Alumina		
63798	RD-103	1	55	7.4	C5	Top Purge Alumina		
63799	RD-103	1	55	7.4	C5	Top Purge Alumina		
63800	RD-103	1	55	7.4	C5	Top Purge Alumina		
64751	RD-103	1	55	7.4	C5	Top Purge Alumina		
64752	RD-103	1	55	7.4	C5	Top Purge Alumina		
64753	RD-103	1	55	7.4	C5	Top Purge Alumina		
64754	RD-103	1	55	7.4	C5	Top Purge Alumina		
60991	RD-103	1	55P	7.4	C5	Trap Change	156.49	133.49
60992	RD-103	1	55P	7.4	C5	Trap Change	154.14	131.14
60993	RD-103	1	55P	7.4	C5	Trap Change	147.49	124.49
45137	RD-103	1	85M	11.4	C5	Used Alumina	462	361
45139	RD-103	1	55P	7.4	C5	Used Alumina	367	344

45140	RD-103	1	55P	7.4	C5	Used Alumina	400	378
47363	RD-103	1	55M	7.4	C5	Vent sampler alumina trap change outs	469	405
49160	RD-103	1	55M	7.4	C5	Vent sampler alumina trap change outs	456	392
52294	RD-103	1	55M	7.4	C5	Vent sampler alumina trap change outs	400	336
52295	RD-103	1	55M	7.4	C5	Vent sampler alumina trap change outs	330	266
53185	RD-103	1	55M	7.4	C5	Vent sampler alumina trap change outs	336	272
54432	RD-103	1	55M	7.4	C5	Vent sampler alumina trap change outs	330	266
54433	RD-103	1	55M	7.4	C5	Vent sampler alumina trap change outs	330	266
55869	RD-103	1	55M	7.4	C5	Vent sampler alumina trap change outs	332	268
56128	RD-103	1	55M	7.4	C5	Vent sampler alumina trap change outs	350	286
56676	RD-103	1	55M	7.4	C5	Vent sampler alumina trap change outs	336	272
57744	RD-103	1	55M	7.4	C5	Vent sampler alumina trap change outs	366	302
57745	RD-103	1	55M	7.4	C5	Vent sampler alumina trap change outs	358	294
60777	RD-103	1	55M	7.4	C5	Vent sampler alumina trap change outs	259	195
60778	RD-103	1	55M	7.4	C5	Vent sampler alumina trap change outs	271	207

57333	RD-103C	1	55P	7.4	C5	Alumina, Waste code 823 Class C	220.62	197.62
57339	RD-103C	1	55P	7.4	C5	Alumina, Waste code 828 Class C	205.47	182.47
57340	RD-103C	1	55P	7.4	C5	Alumina, Waste code 828 Class C	184.71	161.71
Total		398						
59899A	RD-104	1	55M	7.4	C6	Mississippi Lime	213	149
59899B	RD-104	1	55M	7.4	C6	Mississippi Lime	161	97
Total		2						
62444	RD-104	1	5	0.65	N3	Epoxy Resin B		
62442	RD-104	1	5	0.65	N3	Penn Mar Kote 2260		
Total		2						
60650	RD-104	1	55M	7.4	C6	Sodium Bisulfate	424	360
Total		1						
19573	RD-107	1	85M	11.4	C6	absorbal to soak up water, some grease and new PCB oil	460	318
Total		1						

48548A	RD-107	1	55M	7.4	C6	Black Beauty sand from sand blasting	891	827
48548B	RD-107	1	85M	11.4	C6	Black Beauty sand from sand blasting	613	471
48548C	RD-107	1	55M	7.4	C6	Black Beauty sand from sand blasting	321	257
48548D	RD-107	1	55M	7.4	C6	Black Beauty sand from sand blasting	624	560
54976A	RD-107	1	55M	7.4	C6	Black Beauty sand from sand blasting	330	266
54976B	RD-107	1	85M	11.4	C6	Black Beauty sand from sand blasting	415	273
49813A	RD-107	1	5M	0.65	C6	Blasting media	52	47
49813B	RD-107	1	5M	0.65	C6	Blasting media	36	31
54301	RD-107	1	55M	7.4	C6	Blasting media	541	477
54569A	RD-107	1	5M	0.65	C6	Blasting media	60	55
54569B	RD-107	1	5M	0.65	C6	Blasting media	65	60
54569C	RD-107	1	5M	0.65	C6	Blasting media	20	15
54569D	RD-107	1	5M	0.65	C6	Blasting media	65	60
56373	RD-107	1	30M	4	C6	Blasting media	460	423
58806	RD-107	1	55M	7.4	C6	Blasting media	177	113
49847	RD-107	1	5M	0.65	C6	Blasting media (Glass beads)	50	45
50137	RD-107	1	30M	4	C6	Blasting media (Glass beads)	291	254

53753	RD-107	1	55M	7.4	N4	Blasting media (Glass beads)	368	304
56533A	RD-107	1	5M	0.65	C6	Blasting media (Glass beads)	47	42
56533B	RD-107	1	5M	0.65	C6	Blasting media (Glass beads)	44	39
57425A	RD-107	1	5M	0.65	C6	Blasting media (Glass beads)	42	37
57425B	RD-107	1	5M	0.65	C6	Blasting media (Glass beads)	28	23
57898	RD-107	1	55M	7.4	C6	Blasting media (Glass beads)	402	338
59605A	RD-107	1	5M	0.65	C6	Blasting media (Glass beads)	37	32
59605B	RD-107	1	5M	0.65	C6	Blasting media (Glass beads)	45	40
59553A	RD-107	1	5M	0.65	C6	Blasting media (Glass beads) possible metals	47	42
59553B	RD-107	1	5M	0.65	C6	Blasting media (Glass beads) possible metals	47	42
57418	RD-107	1	85M	11.4	C6	Ceramic tumbling media	788	646
50145A	RD-107	1	85M	11.4	C6	Filters from sand blasting unit	665	523
50145B	RD-107	1	85M	11.4	C6	Filters from sand blasting unit	586	444
49792A	RD-107	1	55M	7.4	C6	Sand bags	396	332
49792B	RD-107	1	55M	7.4	C6	Sand bags	611	547

49792C	RD-107	1	55M	7.4	C6	Sand bags	503	439
Total		33						
51282A	RD-107	1	55M	7.4	C6	Coal from Bio D Reactors	528	464
51282B	RD-107	1	55M	7.4	C6	Coal from Bio D Reactors	448	384
Total		2						
55026	RD-107	1	55M	7.4	N4	Concrete	483	419
55027	RD-107	1	55M	7.4	N4	Concrete	424	360
55028	RD-107	1	55M	7.4	N4	Concrete	379	315
62501	RD-107	1	30	4	C6	Concrete		
52120	RD-107	1	55M	7.4	C6	Concrete	473	409
55033	RD-107	1	55M	7.4	N4	Concrete and ceramic tile	327	263
55034	RD-107	1	55M	7.4	N4	Concrete and ceramic tile	252	188
55035	RD-107	1	55M	7.4	N4	Concrete and ceramic tile	494	430
32902A	RD-107	1	5M	0.65	C6	Concrete saturated with lube oil, < 50 ppm PCB	40	35
32902B	RD-107	1	5M	0.65	C6	Concrete saturated with lube oil, < 50 ppm PCB	41	36
32902C	RD-107	1	5M	0.65	C6	Concrete saturated with lube oil, < 50 ppm PCB	47	42
32902D	RD-107	1	5M	0.65	C6	Concrete saturated	52	47

						with lube oil, < 50 ppm PCB		
Total		12						
55932	RD-107	1	85M	11.4	N4	rust, metal dirt	1092	950
Total		1						
62147A	RD-109	1	55	7.4	C6	Welding slag for #3 economizer tubes		
62147B	RD-109	1	55	7.4	C6	Welding slag for #3 economizer tubes		
62147C	RD-109	1	55	7.4	C6	Welding slag for #3 economizer tubes		
Total		3						
61474	RD-111	1	5	0.65	N3	Grease /Oil Mixture		
62217	RD-111	1	20	2.7	N3	Misc. grease from XT-847 sorting		
59802	RD-111	1	55	7.4	N3	Oil and water		
62462	RD-111	1	55M	7.4	N3	Saturated material soaked with oil	199	
19628	RD-111	1	5	0.65	N3	Used Oil	42.00	37.00
43685	RD-111	1	5	0.65	N3	Used Oil	53.00	48.00

43698	RD-111	1	5	0.65	N3	Used Oil	45.00	40.00
43981	RD-111	1	5	0.65	N3	Used Oil	51.00	46.00
43990	RD-111	1	5	0.65	N3	Used Oil	45.00	40.00
44001	RD-111	1	5	0.65	N3	Used Oil	51.00	46.00
44009	RD-111	1	5 (Overpack)	0.65	N3	Used Oil	49.00	
44014	RD-111	1	5	0.65	N3	Used Oil	45.00	40.00
44016	RD-111	1	5 (Overpack)	0.65	N3	Used Oil	48.00	
44019	RD-111	1	5	0.65	N3	Used Oil	44.00	39.00
44021	RD-111	1	5	0.65	N3	Used Oil	44.00	39.00
44024	RD-111	1	5	0.65	N3	Used Oil	50.00	45.00
44025	RD-111	1	5	0.65	N3	Used Oil	48.00	43.00
44358	RD-111	1	5 (Overpack)	0.65	N3	Used Oil	42.00	
44372	RD-111	1	5	0.65	N3	Used Oil	44.00	39.00
44379	RD-111	1	5	0.65	N3	Used Oil	52.00	47.00
44387	RD-111	1	5	0.65	N3	Used Oil	45.00	40.00
44388	RD-111	1	5	0.65	N3	Used Oil	49.00	44.00
44398	RD-111	1	5	0.65	N3	Used Oil	44.00	39.00
44785	RD-111	1	5	0.65	N3	Used Oil	46.00	41.00
44786	RD-111	1	5	0.65	N3	Used Oil	54.00	49.00
44821	RD-111	1	5	0.65	N3	Used Oil	50.00	45.00
45474	RD-111	1	5	0.65	N3	Used Oil	46.00	41.00

45488	RD-111	1	55	7.4	N3	Used Oil	376.00	329.00
55117	RD-111	1	55	7.4	N3	Used Oil	305.00	258.00
62221	RD-111	1	5	0.65	N3	Used Oil		-5.00
58713	RD-111	1	55	7.4	N3	Used Oil	285.00	238.00
58714	RD-111	1	55	7.4	N3	Used Oil	301.00	254.00
59801	RD-111	1	55	7.4	N3	Used Oil	335	288
61413	RD-111	1	5	0.65	N3	Used Oil	43.00	38.00
61433A	RD-111	1	5	0.65	N3	Used Oil	41.00	36.00
61433B	RD-111	1	5	0.65	N3	Used Oil	41.00	36.00
61434A	RD-111	1	5	0.65	N3	Used Oil	24.00	19.00
61434B	RD-111	1	5	0.65	N3	Used Oil	42.00	37.00
62187	RD-111	1	55	7.4	N3	Used Oil		
63176	RD-111	1	55	7.4	N3	Used Oil		
63388	RD-111	1	55	7.4	N3	Used Oil		
55614	RD-111	1	55	7.4	N3	Used Oil from Blending Unit	304.00	257.00
64803A	RD-111	1	55	7.4	N3	Used oil from tail lube oil		
64803B	RD-111	1	55	7.4	N3	Used oil from tail lube oil		
64803C	RD-111	1	55	7.4	N3	Used oil from tail lube oil		
38526A	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	381.00	334.00
38526B	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	392.00	345.00
38534	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	412.00	365.00

39440	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	317.00	270.00
39443	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	331.00	284.00
39451	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	359.00	312.00
43681	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	48.00	43.00
43688	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	47.00	42.00
43695	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	49.00	44.00
43697	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	44.00	39.00
43979	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	45.00	40.00
43994	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	46.00	41.00
43998	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	47.00	42.00
44002	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	52.00	47.00
44007	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	50.00	45.00
44013	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	46.00	41.00
44023	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	49.00	44.00
44351	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	47.00	42.00
44378	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	56.00	51.00
44380	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	51.00	46.00
44383	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	49.00	44.00
44384	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	46.00	41.00
44385	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	50.00	45.00

44389	RD-111	1	5 (Overpack)	0.65	N3	Used Seal Exhaust Oil	48.00	
44393	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	52.00	47.00
44394	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	50.00	45.00
44395	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	52.00	47.00
44397	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	51.00	46.00
44399	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	50.00	45.00
44759	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	402.00	355.00
44760	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	397.00	350.00
44761	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	407.00	360.00
44766	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	391.00	344.00
44790	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	50.00	45.00
44804	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	50.00	45.00
44811	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	49.00	44.00
44822	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	44.00	39.00
44823	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	47.00	42.00
44824	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	45.00	40.00
44825	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	46.00	41.00
45102	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	45.00	40.00
45104	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	49.00	44.00
45105	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	48.00	43.00
45112	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	43.00	38.00

45208	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	52.00	47.00
45209	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	53.00	48.00
45225	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	48.00	43.00
45301	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	45.00	40.00
45306	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	49.00	44.00
45309	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	51.00	46.00
45455	RD-111	1	5	0.65	N3	Used Seal Exhaust Oil	48.00	43.00
50038	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	404.00	357.00
50040	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	365.00	318.00
50041	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	395.00	348.00
50046	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	387.00	340.00
50062	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	398.00	351.00
50063	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	404.00	357.00
50066	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	384.00	337.00
50067	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	361.00	314.00
54042	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil	390.00	343.00
54043	RD-111	1	55	7.4	N3	Used Seal Exhaust Oil (10 buckets)	372.00	325.00
59803	RD-111	1	55	7.4	N3	Waste eubeocl and water		
Total		107						

55636	RD-114	1	55M	7.4	C6	Chromate sweepings	265	201
Total		1						
51152A	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	532	468
51152B	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	129	65
51152C	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	478	414
51152D	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	584	520
51152E	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	568	504
51152F	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	535	471
51152G	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	458	394
51152H	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	595	531
51152I	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	506	442
51152J	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	526	462
51152K	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	401	337
51152L	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	314	250
51152M	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	407	343

51152N	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	364	300
51152O	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	243	179
62426A	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	200	136
62426B	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	334	270
62426C	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	531	467
62426D	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	418	354
62426E	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	470	406
62426F	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	454	390
62426G	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	540	476
62426H	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	449	385
62426I	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	482	418
62426J	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	498	434
62426K	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	284	220
62426L	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	293	229
62426M	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	426	362

62426N	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	314	250
62426O	RD-114	1	55M	7.4	C6	Dirt and soap to clean filters	289	225
47138	RD-114	1	55M	7.4	C6	X-342 dirt	460	396
51166	RD-107	1	55M	7.4	C6	Dry Dirt	150	86
54632	RD-107	1	55M	7.4	C6	Soils	350	286
Total		33						
19940B	RD-114	1	55M	7.4	C6	Ion Exchange Resin	261	197
19940C	RD-114	1	85M	11.4	C6	Ion Exchange Resin	340	276
53003A	RD-114	1	55M	7.4	C6	Ion Exchange Resin	265	201
53003B	RD-114	1	55M	7.4	C6	Ion Exchange Resin	256	192
53003C	RD-114	1	55M	7.4	C6	Ion Exchange Resin	244	180
54086A	RD-114	1	55M	7.4	C6	Ion Exchange Resin	328	264
54086B	RD-114	1	55M	7.4	C6	Ion Exchange Resin	238	174
57673A	RD-114	1	55M	7.4	N4	Ion Exchange Resin	238	174
57673B	RD-114	1	55M	7.4	N4	Ion Exchange Resin	278	198
57673C	RD-114	1	55M	7.4	N4	Ion Exchange Resin	262	178
57673D	RD-114	1	55M	7.4	N4	Ion Exchange Resin	236	172
58834A	RD-114	1	55M	7.4	C6	Ion Exchange Resin	271	207
58834B	RD-114	1	55M	7.4	C6	Ion Exchange Resin	267	203
58834C	RD-114	1	55M	7.4	C6	Ion Exchange Resin	272	208
59403	RD-114	1	55M	7.4	C6	Ion Exchange Resin	307	243
Total		15						

52516	RD-114	1	B-25 box	90	N4	Micro and Ogru sludge	4781	
13822	RD-114	1	55M	7.4	N4	Micro Sludge	208	147
18756	RD-114	1	55M	7.4	N4	Micro Sludge	284	220
18759	RD-114	1	55M	7.4	N4	Micro Sludge	331	267
18989	RD-114	1	55M	7.4	N4	Micro Sludge	250	186
18991	RD-114	1	55M	7.4	N4	Micro Sludge	222	158
22411	RD-114	1	55M	7.4	N4	Micro Sludge	324	260
22412	RD-114	1	55M	7.4	N4	Micro Sludge	302	238
22414	RD-114	1	55M	7.4	N4	Micro Sludge	300	236
22440	RD-114	1	55M	7.4	C6	Micro Sludge	375	311
22804	RD-114	1	55M	7.4	C6	Micro Sludge	399	335
24497	RD-114	1	55M	7.4	N4	Micro Sludge	154	93
25081	RD-114	1	55M	7.4	N4	Micro Sludge	324	260
25090	RD-114	1	55M	7.4	N4	Micro Sludge	324	260
25455	RD-114	1	55M	7.4	N4	Micro Sludge	181	120
25456	RD-114	1	55M	7.4	N4	Micro Sludge	170	109
25460	RD-114	1	55M	7.4	N4	Micro Sludge	184	123
25463	RD-114	1	55M	7.4	N4	Micro Sludge	311	247
25465	RD-114	1	55M	7.4	C6	Micro Sludge	276	212
25469	RD-114	1	55M	7.4	C6	Micro Sludge	323	259
38118	RD-114	1	55M	7.4	N4	Micro Sludge	144	80
38190	RD-114	1	55M	7.4	N4	Micro Sludge	161	97
38191	RD-114	1	55M	7.4	N4	Micro Sludge	172	108
41339	RD-114	1	55M	7.4	C6	Micro Sludge	282	218
41342	RD-114	1	55M	7.4	N4	Micro Sludge	304	240
41452	RD-114	1	55M	7.4	C6	Micro Sludge	279	215
41453	RD-114	1	55M	7.4	C6	Micro Sludge	380	316
41454	RD-114	1	55M	7.4	C6	Micro Sludge	322	258
41458	RD-114	1	55M	7.4	N4	Micro Sludge	346	282
41459	RD-114	1	55M	7.4	C6	Micro Sludge	163	99

42639	RD-114	1	55M	7.4	C6	Micro Sludge	207	143
43630	RD-114	1	55M	7.4	N4	Micro Sludge	350	284
44734	RD-114	1	55M	7.4	C6	Micro Sludge	296	232
44747	RD-114	1	55M	7.4	C6	Micro Sludge	378	314
44750	RD-114	1	55M	7.4	N4	Micro Sludge	340	276
46318	RD-114	1	55M	7.4	N4	Micro Sludge	302	235
46323	RD-114	1	55M	7.4	C6	Micro Sludge	342	278
46327	RD-114	1	55M	7.4	N4	Micro Sludge	274	209
46331	RD-114	1	55M	7.4	N4	Micro Sludge	315	249
46341	RD-114	1	55M	7.4	N4	Micro Sludge	264	198
46346	RD-114	1	55M	7.4	N4	Micro Sludge	343	279
46638	RD-114	1	55M	7.4	N4	Micro Sludge	338	270
52368	RD-114	1	55M	7.4	N4	Micro Sludge	318	257
53001	RD-114	1	55M	7.4	N4	Micro Sludge	368	308
53013	RD-114	1	55M	7.4	N4	Micro Sludge	376	315
53778	RD-114	1	55M	7.4	C6	Micro Sludge	376	312
53787	RD-114	1	55M	7.4	N4	Micro Sludge	328	267
53793	RD-114	1	55M	7.4	N4	Micro Sludge	352	292

56580	RD-114	1	55M	7.4	N4	Micro Sludge	351	291
56581	RD-114	1	55M	7.4	N4	Micro Sludge	355	293
57206	RD-114	1	55M	7.4	N4	Micro Sludge	425	365
62012	RD-114	1	55	7.4	N4	Micro Sludge	361	297
Total		52						
58816	RD-114	1	55M	7.4	C6	Liquid and sludge from V-12 tank	482	418
52984	RD-114	1	85M	11.4	C6	Ogru sludge, gloves, absorbent	553	411
52985	RD-114	1	55M	7.4	C6	Ogru sludge, gloves, absorbent	523	459
46324	RD-114	1	55M	7.4	N4	Oil and grease sludge	362	298
46629	RD-114	1	55M	7.4	C6	Oil and grease sludge	473	409
49403	RD-114	1	55M	7.4	C6	Oil and grease sludge	483	419
49417	RD-114	1	85M	11.4	N4	Oil and grease sludge	530	388
49419	RD-114	1	55M	7.4	C6	Oil and grease sludge	576	512
50084	RD-114	1	55M	7.4	N4	Oil and grease sludge	481	417
50086	RD-114	1	55M	7.4	N4	Oil and grease sludge	420	356
52982	RD-114	1	85M	11.4	N4	Oil and grease sludge	588	446
53764	RD-114	1	55M	7.4	C6	Oil and grease sludge	325	261

53779	RD-114	1	55M	7.4	C6	Oil and grease sludge	466	402
53780	RD-114	1	55M	7.4	N4	Oil and grease sludge	501	437
55045	RD-114	1	55M	7.4	N4	Oil and grease sludge	355	291
55070	RD-114	1	55M	7.4	C6	Oil and grease sludge	303	239
55970	RD-114	1	55M	7.4	C6	Oil and grease sludge	90	26
59905	RD-114	1	55M	7.4	N4	Oil and grease sludge	412	348
62255	RD-114	1	55M	7.4	N4	Oil and grease sludge	418	354
42660	RD-114	1	55M	7.4	C6	Press sludge, gloves, rags	292	228
49794	RD-114	1	55M	7.4	C6	Sample jars of micro & heavy metal sludge	346	282
49795	RD-114	1	55M	7.4	C6	Sample jars of micro & heavy metal sludge	339	275
49796	RD-114	1	55M	7.4	C6	Sample jars of micro & heavy metal sludge	126	62
62045	RD-114	1	5	0.65	N3	Sludge samples		
47095	RD-114	1	55M	7.4	N4	sludge, gloves, cheese cloth	370	306
49434	RD-114	1	55M	7.4	C6	Sludge, paper, gloves, cheesecloth	448	384
Total		26						
18765A	RD-114	1	55M	7.4	C6	Spent resin	320	256
18765B	RD-114	1	55M	7.4	C6	Spent resin	302	238
18765C	RD-114	1	55M	7.4	C6	Spent resin	244	180
21837	RD-114	1	85M	11.4	C6	Spent resin	362	
21838A	RD-114	1	85M	11.4	C6	Spent resin	356	214

21838B	RD-114	1	85M	11.4	C6	Spent resin	340	198
21838C	RD-114	1	55M	7.4	C6	Spent resin	250	186
22405A	RD-114	1	55M	7.4	C6	Spent resin	258	194
22405B	RD-114	1	85M	11.4	C6	Spent resin	487	345
37693	RD-114	1	55M		C6	Spent resin	335	271
37694	RD-114	1	85M	11.4	C6	Spent resin	390	
37695	RD-114	1	85M	11.4	C6	Spent resin	395	
45570	RD-114	1	55M	7.4	C6	Spent resin	298	234
45572	RD-114	1	55M	7.4	C6	Spent resin	264	200
46300	RD-114	1	55M	7.4	C6	Spent resin	342	276
47039	RD-114	1	55M	7.4	C6	Spent resin	309	245
50099	RD-114	1	55M	7.4	C6	Spent resin	265	201
50100	RD-114	1	55M	7.4	C6	Spent resin	267	203
50103	RD-114	1	55M	7.4	C6	Spent resin	340	276
50104	RD-114	1	55M	7.4	C6	Spent resin	268	204
50105	RD-114	1	55M	7.4	C6	Spent resin	278	214
51337	RD-114	1	55M	7.4	C6	Spent resin	261	195
51338	RD-114	1	55M	7.4	C6	Spent resin	251	184
51339	RD-114	1	55M	7.4	C6	Spent resin	258	194
54087	RD-114	1	85M	11.4	C6	Spent resin	360	282
59402	RD-114	1	55M	7.4	C6	Spent resin	278	214
Total		26						

40487A	RD-114	1	55M	7.4	C6	Varnish chunks	520	456
40487B	RD-114	1	55M	7.4	C6	Varnish chunks	520	456
40487C	RD-114	1	55M	7.4	C6	Varnish chunks	505	441
40487D	RD-114	1	55M	7.4	C6	Varnish chunks	540	476
40487E	RD-114	1	55M	7.4	C6	Varnish chunks	505	441
40487F	RD-114	1	55M	7.4	C6	Varnish chunks	545	481
40487G	RD-114	1	55M	7.4	C6	Varnish chunks	513	449
40487H	RD-114	1	55M	7.4	C6	Varnish chunks	404	340
40487I	RD-114	1	55M	7.4	C6	Varnish chunks	520	456
40487J	RD-114	1	55M	7.4	C6	Varnish chunks	520	456
40487K	RD-114	1	55M	7.4	C6	Varnish chunks	383	319
40487L	RD-114	1	55M	7.4	C6	Varnish chunks	525	461
40487M	RD-114	1	55M	7.4	C6	Varnish chunks	500	436
40487N	RD-114	1	55M	7.4	C6	Varnish chunks	515	451
40487O	RD-114	1	55M	7.4	C6	Varnish chunks	520	456
40487P	RD-114	1	55M	7.4	C6	Varnish chunks	541	477
40487Q	RD-114	1	55M	7.4	C6	Varnish chunks	520	456
40487R	RD-114	1	55M	7.4	C6	Varnish chunks	545	481
40487S	RD-114	1	55M	7.4	C6	Varnish chunks	515	451
39064A	RD-104	1	55M	7.4	C6	Solid chunks of varnish	452	388
39064B	RD-104	1	85M	11.4	C6	Solid chunks of varnish	606	453
39064C	RD-104	1	55M	7.4	C6	Solid chunks	245	181

						of varnish		
Total		22						
62206A	RD-103	1	20	2.7	N3	Sample Returns	30	17
62206B	RD-103	1	20	2.7	N3	Sample Returns	23	10
62206C	RD-103	1	20	2.7	N3	Sample Returns	30	17
62206D	RD-103	1	20	2.7	N3	Sample Returns	29	16
62206E	RD-103	1	20	2.7	N3	Sample Returns	26	13
62206F	RD-103	1	20	2.7	N3	Sample Returns	29	16
62206G	RD-103	1	20	2.7	N3	Sample Returns	29	16
62206H	RD-103	1	5	0.65	N3	Sample Returns	7	2
62206I	RD-103	1	20	2.7	N3	Sample Returns	32	19
62206J	RD-103	1	5	0.65	N3	Sample Returns	8	3
62206K	RD-103	1	5	0.65	N3	Sample Returns	11	6
62206L	RD-103	1	5	0.65	N3	Sample Returns	19	14
62206M	RD-103	1	5	0.65	N3	Sample Returns	13	8
62206N	RD-103	1	5	0.65	N3	Sample Returns	7	2
62206O	RD-103	1	5	0.65	N3	Sample Returns	10	5

62206P	RD-103	1	5	0.65	N3	Sample Returns	6	1
62206Q	RD-103	1	5	0.65	N3	Sample Returns	18	5
62206R	RD-103	1	5	0.65	N3	Sample Returns	16	3
42490A	RD-116	1	55M	7.4	C6	Treatability study residuals	286	222
42490B	RD-116	1	55M	7.4	C6	Treatability study residuals	542	478
63137	RD-114	1	5	0.65	N2	Unused samples		
47929	RD-114	1	5M	0.65	N3	4 gunk samples	11	6
62203A	RD-104	1	20	2.7	N3	Sample Returns	95	82
62203B	RD-104	1	20	2.7	N3	Sample Returns	63	50
62203C	RD-104	1	20	2.7	N3	Sample Returns	16	3
62203D	RD-104	1	20	2.7	N3	Sample Returns	31	18
52092	RD-104	1	5M	0.65	N3	lapping compound sample returns	33	28
51355	RD-103	1	30M		C5	Excess Alumina samples	60	23
54077	RD-103	1	5M	0.65	C5	Excess Alumina samples	17	12
54078	RD-103	1	5M	0.65	C5	Excess Alumina samples	10	5
54082	RD-103	1	5M	0.65	C5	Excess Alumina samples	27	22
61751	RD-103	1	55M	7.4	C5	Excess Alumina samples	252	188
Total		32						

62476	1	55	7.4	N4	Pigtail Gaskets
Total	1				
Total	788				

APPENDIX B--ANALYTE SUMMARY

ANALYTE SUMMARY		
Analyte	Method	Req'd Reporting Limit
TCLP Metals + Cu + Zn	6010B	Per method
TCLP Hg	7470A	Per method
TCLP Volatile Organic Compounds	8260B	Per method
TCLP Semi-Volatile Organic Compounds	8270C	Per method
TCLP Herbicides and Pesticides	8151A/8081A	Per method
Metals	6010B	Per method
VOC	8260B	Per method
SVOC	8270C	Per method
Herbicides and Pesticides	8151A/8081A	Per method
Bulk Density	ASTM D-5057	Per method
Moisture Content	ASTM D-2216	Per method
Polychlorinated Biphenyls	8082	Per method
Gross Alpha/Gross Beta	Approved Method	Per method
Am-241	Approved Method	Per method
Am-242	Approved Method	Per method
Am-243	Approved Method	Per method
Cm-243	Approved Method	Per method
Cm-244	Approved Method	Per method
Cm-245	Approved Method	Per method
Cm-246	Approved Method	Per method
Cm-247	Approved Method	Per method
Cm-248	Approved Method	Per method
Np-237	Approved Method	Per method
Pu-238	Approved Method	Per method

ANALYTE SUMMARY		
Analyte	Method	Req'd Reporting Limit
Pu-239/240	Approved Method	Per method
Pu-242	Approved Method	Per method
Pu-244	Approved Method	Per method
Th-228	Approved Method	Per method
Th-230	Approved Method	Per method
Th-231 (assumes secular equilibrium)	Approved Method	Per method
Th-232	Approved Method	Per method
Th-234 (assumes secular equilibrium)	Approved Method	Per method
U-232	Approved Method	Per Method
U-233/234	Approved Method	Per method
U-235	Approved Method	Per method
U-236	Approved Method	Per method
U-238	Approved Method	Per method
% U-235	Approved Method	None
Total Uranium	Approved Method	Per method
B. Fission Products - ^{141}Ce, ^{144}Ce, ^{134}Cs, ^{137}Cs, ^{95}Nb, ^{103}Ru, ^{106}Ru, ^{95}Zr, ^{125}Sb	Gamma Spectroscopy (Scan)	Per method
Actinium Isotopes - ^{227}Ac, ^{228}Ac	Gamma Spectroscopy (Scan)	Per method
C. Bismuth Isotopes - ^{212}Bi, ^{214}Bi	Gamma Spectroscopy (Scan)	Per method
Cd-109	Gamma Spectroscopy (Scan)	Per method
Co-57, Co-60	Gamma Spectroscopy (Scan)	Per method
Cs-134, Cs-137	Gamma Spectroscopy (Scan)	Per method

ANALYTE SUMMARY		
Analyte	Method	Req'd Reporting Limit
I-129-Qualified "J" as an estimate-out of calibration	Gamma Spectroscopy (Scan)	Per method
I-131	Gamma Spectroscopy (Scan)	Per method
K-40	Gamma Spectroscopy (Scan)	Per method
Kr-85	Gamma Spectroscopy (Scan)	Per method
Pa-231, Pa-234m	Gamma Spectroscopy (Scan)	Per method
Pb-210	Gamma Spectroscopy (Scan)	Per method
Pb-212, Pb-214	Gamma Spectroscopy (Scan)	Per method
Ra-224, Ra-226, Ra-228	Gamma Spectroscopy (Scan)	Per method
Tl-208	Gamma Spectroscopy (Scan)	Per method
Strontium-90	Approved Method	Per method
Tc-99	Approved Method	Per method
Any gamma detected at or greater than "per method".	Gamma Spectroscopy (Scan)	Per method

APPENDIX C--RANDOM SELECTION FOR STATISTICAL ANALYSIS

PCB dirt, PG, plastic

RFD	Random Value Assignment	Selected Containers by Rank
23285	0.113852187949512	23285
48886	0.326450013926988	48886
55645	0.700748471354676	55645
55646	0.737513795951433	

Floor Sweepings, Misc. Rags

RFD	Random Value Assignment	Selected Containers by Rank
50981	0.019807897	50981
34876	0.078237634	34876
50979	0.079414007	50979
57327	0.300296517	57327
53073	0.41887113	53073
55280	0.593161574	55280
56041	0.625731294	56041
57936	0.626418997	57936
57935	0.737036736	57935
59308	0.76843301	59308
60946	0.814432151	60946
59314	0.875781222	59314
62463	0.96143278	62463
50982	0.968205749	

Oily rags, dust

RFD	Random Value Assignment	Selected Containers by Rank
60271	0.158539361	60271
60989	0.170572744	60989
60990	0.183344121	60990
60272	0.661305684	60272

Spent Carbon

RFD	Random Value Assignment	Selected Containers by Rank
32130A	0.11772800185252	32130A

32130B 0.258072834492149

Alumina/Sodium Fluoride/Magnesium Fluoride

Random Value		Selected Containers by
RFID	Assignment	Rank
52079	0.000558768	57344
63800	0.003710135	40583
63797	0.019152939	48900
56850	0.019516956	56850
57945	0.028368519	57945
57930	0.028615864	57930
48677	0.029843006	48677
56036	0.033914768	56036
57745	0.036449111	57745
53058	0.038274663	49160
56043	0.039001921	56043
60759	0.0412429	61461K
56829	0.05236851	56829
63349	0.05889305	52083
52717	0.061238725	52717
62953	0.064269171	48320
59305	0.066341687	56042
61461A	0.067490723	61461A
62202G	0.075235865	56039
50072	0.07661461	50072
57941	0.079023734	57941
54516	0.081112555	54516
50976	0.084215541	50976
50052	0.085110057	50052
61435A	0.08515609	61435A
59301	0.0860636322821016	59301
52077	0.088565829	50219
56026	0.09196425	56026
61461K	0.0936719	
57344	0.095980607	
40583	0.096743785	
48900	0.106828801	
49160	0.109230558	
52083	0.11138725	
48320	0.114189463	
56042	0.114189797	
53777	0.114800128	
50219	0.115615975	

56039	0.120073333
60752	0.12231971
54522	0.123175149
47363	0.130388387
61461E	0.130532021
59312	0.130658879
54523	0.130738678
60777	0.132547853
54510	0.134380987
55396	0.137689805
60778	0.139540513
48327	0.140424319
56050	0.147980004
59309	0.14860092
63348	0.14954102
48333	0.150996632
50519D	0.152922949
55296	0.155333235
50988	0.15556131
48317	0.157140668
56037	0.159344796
58423	0.162913803
55294	0.164213967
37720	0.164694015
56038	0.165906304
54524	0.172198595
56128	0.177105937
53074	0.180347374
40569	0.180406029
56831	0.181491852
57931	0.186668217
64752	0.187059928
47996	0.189788401
54525	0.195320551
50977	0.196031624
52133	0.196375425
56032	0.204497041
48458	0.207289459
50213	0.209329997
56028	0.211586042
56030	0.212668064
55287	0.213894075
50045	0.217057633

37717	0.219388035
53064	0.221416087
37714	0.229414364
50993	0.229798339
57929	0.231302117
57328	0.247882745
48296	0.250099585
55379D	0.261396555
61461F	0.268783253
59018	0.272284956
54519	0.27313638
50995	0.275571625
57744	0.276244895
59012	0.279097749
40574	0.27924629
58420	0.280622227
48306	0.280671258
55283	0.281856686
54433	0.282395987
62952	0.285414897
48899	0.287810639
50990	0.287984119
48455	0.29082258
48313	0.290961087
40584	0.292721877
56047	0.294824151
48679	0.296009472
60765	0.297169692
50519E	0.298775169
37715	0.299386559
54508	0.299927012
54501	0.303941056
40564	0.306470543
52722	0.306753598
54507	0.311796534
57338	0.315442335
53185	0.317981725
48318	0.318285259
40572	0.32628195
59011	0.327950357
55398	0.331446413
37709	0.342315231
40555	0.344963792

58408	0.345507509
48360	0.350070454
61435B	0.350537015
60751	0.351278328
50212	0.360419941
50221	0.366885664
55379E	0.367897757
49777	0.370538075
62142	0.372070453
48919	0.373215178
52719	0.373423629
40571	0.376075837
55284	0.37965197
50325	0.381685903
54502	0.38352396
53069	0.385303802
48362	0.386462286
52720	0.391390712
48311	0.392200765
52721	0.394791779
60760	0.397993724
58409	0.399141035
50991	0.401335177
50210	0.402494698
56827	0.40362586
58413	0.403830887
60768	0.404779035
55292	0.404973802
54036	0.407074728
40575	0.408104258
53056	0.413953071
60265	0.418844726
40581	0.419381036
55277	0.421145742
50519A	0.423001778
55279	0.42459689
48339	0.429404081
64753	0.437159761
57926	0.437636354
55379C	0.441570545
50519F	0.441648154
58053	0.449295575
48323	0.450807091

56838	0.451226427
55282	0.453162357
60996	0.453624809
48341	0.455453044
56832	0.456876079
55400	0.457753902
52295	0.459344394
55285	0.46278895
52294	0.462950171
49797	0.463322522
56027	0.471307524
60769	0.474431825
50073	0.475710224
48297	0.475798856
60259	0.477450802
55276	0.478512152
48920	0.47899563
48361	0.48015889
56045	0.481578959
50205	0.484359335
40579	0.490138863
55298	0.496245566045964
48457	0.503631648
60757	0.506267481
60995	0.50673186
57326	0.512858989
61461I	0.513598031
40582	0.514224565
50519H	0.515315816
53053	0.515873167
48337	0.516060329
59304	0.519209025
37711	0.520094893
63350	0.522836638
62951	0.523816875
48303	0.530970841
50992	0.535784804
40577	0.536382698
48897	0.538215014
60756	0.544599933
56839	0.544915417
55379A	0.545513921
40559	0.54894728202117

61461H	0.552986339
56044	0.55512259
56040	0.556991784
63798	0.562595241
52506	0.563109319
50209	0.568192243
53051	0.575385206
48924	0.579410582
60994	0.585059092
48676	0.585351026
57343	0.591350776
59306	0.592309117
37713	0.068769509
50986	0.594882453
48369	0.595990636
60549	0.602562296
59302	0.603323471
54520	0.607443007
46200	0.609430946
40586	0.613752105
56830	0.621872427
53066	0.62363059
54521	0.632571295
45141	0.632817936
52084	0.632992392
57942	0.63335239
48456	0.636142503
55379B	0.636224565
55293	0.637876424
40561	0.640974489
48461	0.645992939
48678	0.649517963
53067	0.652243007
53062	0.653819979
48363	0.660768052
45142	0.663709503
61461D	0.664334754
54432	0.665321496
50059	0.668817594
48922	0.66934308
40580	0.670509304
45140	0.671207168
63347	0.675339864

57947	0.676640648
55291	0.677319222
63799	0.681789828
53054	0.683746761
48322	0.685014293
52082	0.693211799
58425	0.688032308708048
37721	0.694320304
60264	0.696764762
57946	0.697096872
40573	0.701576261
60993	0.704453362
55399	0.705018213
55290	0.712047742
48310	0.71280348
52712	0.717501638
53072	0.718001796
60992	0.721774442
62202O	0.721907081
55397	0.723454898
40565	0.725060163
48301	0.726929782
52078	0.727091034
63794	0.731336523
56049	0.731915008
55281	0.734233397
40567	0.735100004
57332	0.737407075
48921	0.742511458
48316	0.743354208
50989	0.747449977
57337	0.748539218
48366	0.752146189
52723	0.754970869
61461B	0.755024414
57350	0.755068233
40560	0.761118065
50519G	0.768859925
53052	0.773428148
40557	0.780141494
61435C	0.785198719
45139	0.788025728
56676	0.789933403

52076	0.792924819
48368	0.793776318
50058	0.795662031
59019	0.79983158
48319	0.801333058
50070	0.802685425
57950	0.816974498
57329	0.820454728
57348	0.821296468
54512	0.821909041
60758	0.825484216
58407	0.827356693
47995	0.827903055
48308	0.82929628
50204	0.831360893
53065	0.832331505
53061	0.833417378
56834	0.835020783
37716	0.835760261
60991	0.838191774
54515	0.83907021
54511	0.839100956
40576	0.840724076
50069	0.841427565
50049	0.842379221
60753	0.842773188
56828	0.843577902
48367	0.845903481
40558	0.846401697
46188	0.84746116
53075	0.849972011
52725	0.85325341
60260	0.853735831
50987	0.856528159
40554	0.858605087
48460	0.858702159
48359	0.859361561
54027	0.859624613
52081	0.864531921
48285	0.865993475
57938	0.866499926
64754	0.866715034
52716	0.867845928

50519B	0.871803186
58416	0.875215278
54509	0.879607923
48462	0.881711902
40585	0.882400238
50054	0.888145058
59307	0.890089298
54029	0.897586925
48466	0.901620609
56031	0.903544914
56849	0.912038736
45137	0.92083134
40553	0.921319998
58404	0.923405611
55297	0.926103767
50980	0.92718073
53063	0.930888523
57336	0.933708848
61461L	0.935089874
62135	0.935173144
50053	0.938104055
48302	0.938797095
54514	0.944255536
59313	0.94435537
57943	0.952913488
56833	0.953072443
55278	0.953693247
56048	0.956008107
50071	0.956530162
62034	0.959478819
58415	0.96005941
48358	0.960402037
61461C	0.960739646
50050	0.962898834
58401	0.964401916
40578	0.964695962
61461J	0.967854614
62202H	0.969262499
50519C	0.972018952
58405	0.97262924
50074	0.973642083
50211	0.973872018
61461G	0.976299482

48312	0.977995282
55869	0.978522697
64751	0.979017339
53060	0.980816369
39466	0.980871455
57927	0.981036296
55286	0.982603726
54034	0.983146099
53068	0.983255986
52080	0.987213567
50978	0.991148392
40563	0.991791942
56033	0.997858621

Blasting Media

RFID	Random Value Assignment	Selected Containers by Rank
54976A	0.0419067903488337	54976A
49792A	0.0565213572065253	49792A
49792B	0.072787737271045	49792B
49847	0.0760153346715864	49847
50145A	0.0785101754773359	50145A
54569A	0.107796328013678	54569A
48548B	0.128332785101361	48548B
49813B	0.139588000960728	49813B
59553B	0.181256343777172	59553B
49792C	0.18131590063044	49792C
57418	0.208564262970747	57418
57425B	0.411264026028507	57425B
59553A	0.461570001563258	59553A
54569D	0.466252506616638	54569D
58806	0.520684445584452	58806
56533B	0.629332677428125	56533B
49813A	0.657610907691348	49813A
53753	0.658513420275185	53753
57425A	0.667350261084479	57425A
54976B	0.685940027548958	54976B
57898	0.707793592807187	
50137	0.712233832604853	
50145B	0.731917155793971	
48548C	0.7759148542557	
59605B	0.808247846922587	

59605A	0.819644969594624
56533A	0.84798224675632
54301	0.851447227639741
54569B	0.869048606839554
48548A	0.888818920540986
56373	0.968399970519967
48548D	0.972188684632561
54569C	0.974147523848621

Coal from BioD

RFID	Random Value Assignment	Selected Containers by Rank
51282A	0.603973992406518	51282A
51282B	0.983141839633003	

Concrete

RFID	Random Value Assignment	Selected Containers by Rank
32902C	0.0822625223060083	32902C
62501	0.138711259854328	62501
55026	0.246940579501298	55026
55027	0.371646034298157	55027
32902B	0.588029889831595	32902B
32902D	0.67663598274195	32902D
52120	0.712850528852572	52120
55033	0.832283858831656	55033
32902A	0.860719357659592	32902A
55035	0.866997812468517	55035
55028	0.872743293365595	55028
55034	0.967487692401104	

Welding Slag

RFID	Random Value Assignment	Selected Containers by Rank
62147C	0.432667378287317	62147C
62147B	0.495551656323473	62147B
62147A	0.570420974555525	62147A

Used Oil

RFID	Random Value Assignment	Selected Containers by Rank
19628	0.00035442416943865	44393
44393	0.00509158080388161	44372
44372	0.00613034929722112	62221
62221	0.017610141606859	61434B
61434B	0.0209642863440558	43698
43698	0.0258552960288592	50062
50062	0.0332563530452639	39440
39440	0.0333669923370215	43981
43981	0.0403857368741214	58714
58714	0.046495258435657	44002
54043	0.0479898245994872	44383
44002	0.0532270523118843	54042
44383	0.0606632238955962	43685
54042	0.0759259560925041	61433B
43685	0.0908722664441211	44388
61433B	0.123506085543718	45455
44388	0.129503377718574	44822
45455	0.132511381996647	43688
44822	0.138323933005439	44021
43688	0.146258112685992	44804
44021	0.151571588480702	44398
44804	0.17368171550531	45488
44398	0.174685012029232	58713
45488	0.177010198905648	45225
58713	0.178341552530308	39451
45225	0.217885806379576	
39451	0.219059865571831	
44394	0.220448010637944	
45112	0.23483340050907	
44024	0.250036194972668	
38534	0.25561393953836	
44007	0.272895641015322	
43979	0.277462051837653	
61474	0.288323341920613	
44821	0.298886787046582	
38526A	0.302720412833359	
44825	0.310730251762531	

45209	0.314821628646829
63176	0.319590308885993
59802	0.320948811580854
43998	0.322008006221007
43990	0.343022037094737
44384	0.386048249272882
50038	0.393468432878213
50041	0.405979632654627
44399	0.430671621951895
44790	0.438410134215415
45105	0.457096695923989
44009	0.460533143335105
50063	0.461963686720373
44760	0.46392647534873
43695	0.469704718731103
44785	0.487208127670147
43697	0.495336591800195
44766	0.509007048935167
59803	0.518042349603993
50067	0.522276877667701
50040	0.524529078108845
45208	0.53420876132836
44380	0.542163334167297
61434A	0.543062800631667
44397	0.55059413662172
45301	0.564830956001144
44811	0.59869352473925
44389	0.628377734178374
44387	0.633126106867145
43681	0.63414159474944
61413	0.655876715490812
45306	0.658029999590831
59801	0.667135170261407
64803C	0.668493655737155
50066	0.684501397290857
44013	0.694262245684097
62187	0.702493937983543
44823	0.732244708245204
44395	0.750497050522112
44001	0.752530448736914
61433A	0.768493084693217
45104	0.779208523329428
55117	0.783445801063698

62217	0.791226822538461
45309	0.799163433635109
44351	0.800602042840951
44378	0.804752705467286
55614	0.80899930578132
44759	0.814122309962836
44761	0.815105321760175
44824	0.823584983518574
44019	0.827716029445661
44016	0.829383433867187
44023	0.833315124281318
45102	0.84007156162657
39443	0.840828881345641
45474	0.850996686684405
44786	0.862589354452201
44385	0.874562216688413
38526B	0.889004436436323
64803B	0.911200783985082
44014	0.912570098412043
44358	0.932081567853721
44379	0.945515429528279
63388	0.948417060128755
44025	0.95910364775759
50046	0.962013019982895
43994	0.994314387388478

Dirt/Soap Filters

RFID	Random Value Assignment	Selected Containers by Rank
51152H	0.0243376983396617	51152H
62426A	0.0411602783926635	62426A
51152D	0.0578305276558777	51152D
62426K	0.0901576577849257	62426K
62426J	0.0967270827576403	62426J
51152F	0.0975478686930229	51152F
51152E	0.102425309899684	51152E
62426E	0.10946167527186	62426E
47138	0.180404319027532	47138
51166	0.180651970966192	51166
54632	0.190167271999597	54632

51152J	0.244649947240996
51152G	0.276361376131549
51152B	0.28288249832845
51152I	0.331459136360396
62426G	0.343711765382375
51152K	0.367955808498825
62426H	0.457899351697454
62426B	0.542836584492625
51152C	0.54748051700147
62426I	0.556103771505202
51152N	0.614296412719346
62426O	0.627207282598341
62426F	0.672395984384693
62426C	0.688344927412643
62426L	0.716159869672094
62426M	0.776959117150098
62426N	0.837816443138399
51152L	0.872435612817714
51152A	0.926160263861962
51152M	0.92771275515772
62426D	0.93202678683196
51152O	0.938091471599518

Selected Containers by Rank
51152J
51152G
51152B
51152I
62426G
51152K
62426H
62426B
51152C

Ion Exchange Resin

RFID	Random Value Assignment
57673A	0.0552971605530685
53003B	0.0817955833803214
53003C	0.119391126307894
57673C	0.404820050229005
58834B	0.512476838426117
54086B	0.518840870707124
58834C	0.55064534667479
54086A	0.562484880039374
19940C	0.737748056426324
57673D	0.753990834354644
53003A	0.776614394759664
57673B	0.850520075328972
58834A	0.923843830972787
19940B	0.950999205094776
59403	0.965256677518882

Selected Containers by Rank
57673A
53003B
53003C
57673C
58834B
54086B
58834C
54086A
19940C
57673D
53003A
57673B

Microsludge

RPD	Random Value Assignment	Selected Containers by Rank
46331	0.00318326937209967	46331
53787	0.0038117833224951	53787
25081	0.00882217166368715	25081
22414	0.0255014273408563	22414
41452	0.0354035271552267	41452
25465	0.0445901094558421	25465
53001	0.0605536628786219	53001
53793	0.103561017816321	53793
62012	0.126691990894129	62012
43630	0.130039887406211	43630
18991	0.159059304729485	18991
18989	0.204681640409672	18989
42639	0.29119939552576	42639
24497	0.311070740652344	24497
25456	0.31724394684685	25456
44734	0.339217646044198	44734
18759	0.388054014891624	18759
38118	0.388984438275184	38118
41342	0.416662027313303	41342
46638	0.419396903432751	46638
41339	0.419760038731077	41339
53013	0.419993979245169	53013
46341	0.431479192779143	
41458	0.438576284430964	
13822	0.442593406625015	
56580	0.46049573529873	
22440	0.461342437827577	
18756	0.471734370801808	
56581	0.480472950733945	
25460	0.521395480527813	
52368	0.527829166425706	
25455	0.558347763794618	
44747	0.619856284845504	
46346	0.660094604203487	
53778	0.665211546769884	
38190	0.673941939880662	
57206	0.678030006170534	

46318	0.684837308053321
22412	0.706532100556601
25090	0.714292215496873
52516	0.781294236443212
46323	0.783302772499811
41459	0.827985965699022
25469	0.84453743016301
25463	0.867781819704462
22804	0.92984190054914
38191	0.940041998665782
22411	0.946004429198631
41454	0.950763059556883
41453	0.954317661811491
46327	0.961428003692226
44750	0.989016055996923

Oil and Grease Sludge

RFID	Random Value Assignment	Selected Containers by Rank
53780	0.0248962694277299	53780
49417	0.0306314799360461	49417
49419	0.0688830410793537	49419
46324	0.137643050903525	46324
52984	0.137994367284627	52984
55970	0.273985841139336	55970
53779	0.275736032880867	53779
49403	0.295029138365257	49403
55070	0.376543469255392	55070
42660	0.379132771327862	55045
49434	0.508578251735194	49434
59905	0.603459890731892	59905
53764	0.650886457743105	53764
50084	0.666396053661991	50084
58816	0.719696564941182	58816
52982	0.73654682250125	52982
46629	0.762428018152168	46629
62255	0.764759315078131	62255
49795	0.823043901500053	
55045	0.877720563808094	
52985	0.936458036206613	
50086	0.993172576523167	

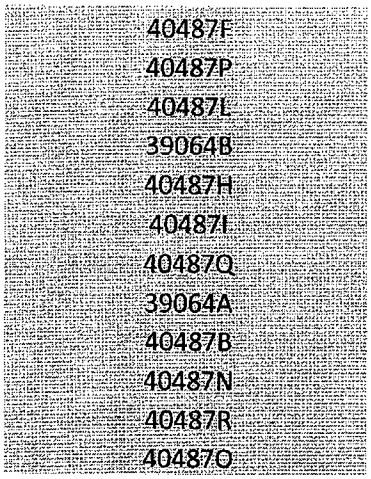
Spent Resin

RFID	Random Value Assignment	Selected Containers by Rank
21838A	0.0234236451477319	21838A
50104	0.0905152550337349	50104
50100	0.106730744879504	50100
18765B	0.118586717856325	18765B
37693	0.146024543639327	37693
45572	0.18266662849186	45572
47039	0.185659100302135	47039
37694	0.22002304403527	37694
51339	0.251802307559811	51339
51338	0.291297887893243	51338
50105	0.294205240721042	50105
46300	0.306105489058879	46300
18765A	0.435255217557978	18765A
54087	0.446308889472416	54087
21838B	0.498384388752325	21838B
21837	0.574160433560404	21837
21838C	0.575833476868854	21838C
50099	0.594782849273466	50099
37695	0.597007663959982	
45570	0.673097828921874	
18765C	0.757764210395997	
22405B	0.776630527108718	
59402	0.861647629961132	
51337	0.881219461154287	
50103	0.939376885080368	
22405A	0.961729859233254	

Varnish Chunks

RFID	Random Value Assignment	Selected Containers by Rank
40487J	0.10767487994975	40487J
40487C	0.12877478060497	40487C
40487M	0.144983899446195	40487M
40487E	0.239230564045539	40487E

40487F	0.286395644419008
40487P	0.338681830505912
40487K	0.354402765044644
39064B	0.427985806252943
40487H	0.490407388525242
40487I	0.506847933189621
40487Q	0.512108776625733
39064A	0.531242922319199
40487B	0.610714603769392
40487N	0.659518669751817
40487R	0.696528510636329
40487O	0.727247111229993
40487S	0.760483406774871
40487D	0.797051114869118
39064C	0.823299764435764
40487L	0.854068087471962
40487A	0.923939312629215
40487G	0.994770453246276



APPENDIX D--PARAMETER ANALYSIS BY CONTAINER

RFD No.	Notes
23285	1,2,3,4,5,6,7
48886	1,2,3,4,5,6
55645	1,2,3,4,5,6,7
RFD No.	**Notes**
50981	1,2,3,4,5,6,7
34876	1,2,3,4,5,6,7
50979	1,2,3,4,5,6
57327	1,2,3,4,5
53073	1,2,3,4,5
55280	1,2,3,4,5
56041	1,2,3,4,5
57936	1,2,3,4,5
57935	1,2,3,4,5
59308	1,2,3,4,5
60946	1,2,3,4,5
59314	1,2,3,4,5
62463	1,2,3,4,5
RFD No.	**Notes**
60271	1,2,3,4,5,6,7
60989	1,2,3,4,5,6,7
60990	1,2,3,4,5,6
60272	1,2,3,4,5
RFD No.	**Notes**
32130A	1,2,3,4,5,6,7
RFD No.	**Notes**
52079	1,2,3,4,5,6,7
63800	1,2,3,4,5,6,7
63797	1,2,3,4,5,6
56850	1,2,3,4,5

57945	1,2,3,4,5
57930	1,2,3,4,5
48677	1,2,3,4,5
56036	1,2,3,4,5
57745	1,2,3,4,5
53058	1,2,3,4,5
56043	1,2,3,4,5
60759	1,2,3,4,5
56829	1,2,3,4,5
63349	1,2,3,4,5
52717	1,2,3,4,5
62953	1,2,3,4,5
59305	1,2,3,4,5
61461A	1,2,3,4,5
62202G	1,2,3,4,5
50072	1,2,3,4,5
57941	1,2,3,4,5
54516	1,2,3,4,5
50976	1,2,3,4,5
50052	1,2,3,4,5
61435A	1,2,3,4,5,6,7
59301	1,2,3,4,5,6,7
52077	1,2,3,4,5,6
56026	1,2,3,4,5,6
RFD No.	**Notes**
54976A	1,2,3,4,5,6,7
49792A	1,2,3,4,5,6,7
49792B	1,2,3,4,5,6
49847	1,2,3,4,5
50145A	1,2,3,4,5
54569A	1,2,3,4,5
48548B	1,2,3,4,5
49813B	1,2,3,4,5
59553B	1,2,3,4,5
49792C	1,2,3,4,5

57418	1,2,3,4,5
57425B	1,2,3,4,5
59553A	1,2,3,4,5
54569D	1,2,3,4,5
58806	1,2,3,4,5
56533B	1,2,3,4,5
49813A	1,2,3,4,5
53753	1,2,3,4,5
57425A	1,2,3,4,5
54976B	1,2,3,4,5
RFD No.	**Notes**
51282A	1,2,3,4,5,6,7
RFD No.	**Notes**
32902C	1,2,3,4,5,6,7
62501	1,2,3,4,5,6,7
55026	1,2,3,4,5,6
55027	1,2,3,4,5
32902B	1,2,3,4,5
32902D	1,2,3,4,5
52120	1,2,3,4,5
55033	1,2,3,4,5
32902A	1,2,3,4,5
55035	1,2,3,4,5
55028	1,2,3,4,5
RFD No.	**Notes**
62147C	1,2,3,4,5,6,7
62147B	1,2,3,4,5,6
62147A	1,2,3,4,5
RFD No.	**Notes**
19628	1,2,3,4,5,6,7
44393	1,2,3,4,5,6,7
44372	1,2,3,4,5,6
62221	1,2,3,4,5
61434B	1,2,3,4,5
43698	1,2,3,4,5

50062	1,2,3,4,5
39440	1,2,3,4,5
64803A	1,2,3,4,5
43981	1,2,3,4,5
58714	1,2,3,4,5
54043	1,2,3,4,5
44002	1,2,3,4,5
44383	1,2,3,4,5
54042	1,2,3,4,5
43685	1,2,3,4,5
62462	1,2,3,4,5,6,7
61433B	1,2,3,4,5,6,7
44388	1,2,3,4,5,6
45455	1,2,3,4,5
44822	1,2,3,4,5
43688	1,2,3,4,5
44021	1,2,3,4,5
44804	1,2,3,4,5
44398	1,2,3,4,5
RFD No.	**Notes**
51152H	1,2,3,4,5,6,7
62426A	1,2,3,4,5,6,7
51152D	1,2,3,4,5,6
62426K	1,2,3,4,5
62426J	1,2,3,4,5
51152F	1,2,3,4,5
51152E	1,2,3,4,5
62426E	1,2,3,4,5
47138	1,2,3,4,5
51166	1,2,3,4,5
54632	1,2,3,4,5
51152J	1,2,3,4,5
51152G	1,2,3,4,5
51152B	1,2,3,4,5
51152I	1,2,3,4,5

62426G	1,2,3,4,5
51152K	1,2,3,4,5,6,7
62426H	1,2,3,4,5,6,7
62426B	1,2,3,4,5,6
51152C	1,2,3,4,5
RFD No.	**Notes**
57673A	1,2,3,4,5,6,7
53003B	1,2,3,4,5,6,7
53003C	1,2,3,4,5,6
57673C	1,2,3,4,5
58834B	1,2,3,4,5
54086B	1,2,3,4,5
58834C	1,2,3,4,5
54086A	1,2,3,4,5
19940C	1,2,3,4,5
57673D	1,2,3,4,5
53003A	1,2,3,4,5
57673B	1,2,3,4,5
RFD No.	**Notes**
46331	1,2,3,4,5,6,7
53787	1,2,3,4,5,6,7
25081	1,2,3,4,5,6
22414	1,2,3,4,5
41452	1,2,3,4,5
25465	1,2,3,4,5
53001	1,2,3,4,5
53793	1,2,3,4,5
62012	1,2,3,4,5
43630	1,2,3,4,5
18991	1,2,3,4,5
18989	1,2,3,4,5
42639	1,2,3,4,5
24497	1,2,3,4,5
25456	1,2,3,4,5
44734	1,2,3,4,5

18759	1,2,3,4,5,6,7
38118	1,2,3,4,5,6,7
41342	1,2,3,4,5,6
46638	1,2,3,4,5
41339	1,2,3,4,5
53013	1,2,3,4,5
RFD No.	**Notes**
53780	1,2,3,4,5,6,7
49417	1,2,3,4,5,6,7
49419	1,2,3,4,5,6
46324	1,2,3,4,5
52984	1,2,3,4,5
49794	1,2,3,4,5
55970	1,2,3,4,5
53779	1,2,3,4,5
49403	1,2,3,4,5
47095	1,2,3,4,5
55070	1,2,3,4,5
55045	1,2,3,4,5
62045	1,2,3,4,5
49796	1,2,3,4,5
49434	1,2,3,4,5
59905	1,2,3,4,5
53764	1,2,3,4,5,6,7
50084	1,2,3,4,5,6
RFD No.	**Notes**
21838A	1,2,3,4,5,6,7
50104	1,2,3,4,5,6,7
50100	1,2,3,4,5,6
18765B	1,2,3,4,5
37693	1,2,3,4,5
45572	1,2,3,4,5
47039	1,2,3,4,5
37694	1,2,3,4,5
51339	1,2,3,4,5

51338	1,2,3,4,5
50105	1,2,3,4,5
46300	1,2,3,4,5
18765A	1,2,3,4,5
54087	1,2,3,4,5
21838B	1,2,3,4,5,6,7
21837	1,2,3,4,5,6,7
21838C	1,2,3,4,5,6
50099	1,2,3,4,5
40487J	1,2,3,4,5,6,7
40487C	1,2,3,4,5,6,7
40487M	1,2,3,4,5,6
40487E	1,2,3,4,5
40487F	1,2,3,4,5
40487P	1,2,3,4,5
40487L	1,2,3,4,5
39064B	1,2,3,4,5
40487H	1,2,3,4,5
40487I	1,2,3,4,5
40487Q	1,2,3,4,5
39064A	1,2,3,4,5
40487B	1,2,3,4,5
40487N	1,2,3,4,5
40487R	1,2,3,4,5
40487O	1,2,3,4,5

Notes:

1. These containers shall be sampled for TCLP constituents as listed in Section 2.3.1.

2. These containers shall be sampled for the total constituent parameters listed in Section 2.3.2.

3. These containers shall be sampled for the physical parameters listed in Section 2.3.3.

4. These containers shall be sampled for the uranium and transuranic parameters listed in Section 2.3.4 A.

5. These containers shall be sampled for the other radiological parameters listed in Section 2.3.4 B.

6. These containers shall be sampled for polychlorinated biphenyls as stated in Section 2.3.5.

7. This container shall be sampled in duplicate.

APPENDIX E—SAMPLING SCHEDULE

Characterization of the XT-847 Sampling and Analysis Schedule			
Waste Stream	Sampling beginning week of	Total Sample Number	Total per week
Alumina	1/3/2011	28	28
Blasting media	1/10/2011	20	23
Welding slag	1/10/2011	3	
Grease/rags	1/24/2011	4	26
Microsludge	1/24/2011	22	
Spent carbon	1/31/2011	1	22
Coal from Bio D	1/31/2011	1	
Dirt/soap filters	1/31/2011	20	
Misc. rags, floor sweepings	2/7/2011	13	24
Concrete	2/7/2011	11	
Ion Exchange resin	2/14/2011	12	28
Varnish chunks	2/14/2011	16	
Spent resin	2/21/2011	18	21
PG, dirt, plastic	2/21/2011	3	
Oil and Grease sludge	2/28/2011	18	18
Used oil	3/7/2011	25	25

Enclosure 7
GDP 11-0014

USEC AND DOE RESOLUTION OF SHARED SITE ISSUES AT THE GASEOUS DIFFUSION PLANTS

Department of Energy

Oak Ridge Office
P.O. Box 2001
Oak Ridge, Tennessee 37831

February 20, 2009

Mr. R. B. Starkey, Jr.
Vice President, American Centrifuge
USEC Inc.
American Centrifuge Plant
P. O. Box 628
Piketon, Ohio 45661

Dear Mr. Starkey:

REVISION OF "USEC AND DOE RESOLUTION OF SHARED SITE ISSUES AT THE GASEOUS DIFFUSION PLANTS" (REVISION 2)

This letter is in response to your letter of February 13, 2009, requesting execution of a revision to the United States Enrichment Corporation (USEC) and Department of Energy (DOE) Resolution of Shared Site Issues document. The proposed revision implements a corrective action from the Paducah fork lift incident of July 12, 2007, and will necessitate a revision to the Shared Site Procedure USEC-100 to ensure consistency in language and intent. The effect of the changes to the Shared Site Issues document and USEC-100 is to provide for the timely sharing of safety documentation between DOE and USEC when it has the potential to affect the other party. The existing language requires transmittal of "all" safety documentation, which includes documentation that has no impact or affect on the other party.

Please note that after discussions with various members of your staff, we have replaced those pages denoting "Revision 3" with "Revision 2" pages as this is the next revision of the document.

Please call me at (865) 576-2678 or Randy DeVault of my staff at (865) 241-8277, if you have any questions.

Sincerely,

Larry W. Clark
Assistant Manager
for Nuclear Fuel Supply

cc:
R. DeVault, NS-52, ORO
M. Heiskell, NS-51, ORO
K. Walling, CC-10, ORO
W. Murphie, PPPO, LEX
W. Jordan, USEC, Portsmouth
S. Penrod, USEC, Paducah

R. B. Starkey, Jr.
Vice President, American Centrifuge

Dir: (740)-897-3272
Fax: (740)-897-3240

February 13, 2009
DOE 09-0008

Mr. Larry W. Clark
Assistant Manager for Nuclear Fuel Supply
U.S. Department of Energy
Post Office Box 2001
Oak Ridge, Tennessee 37831

REVISION OF "USEC AND DOE RESOLUTION OF SHARED SITE ISSUES AT THE GASEOUS DIFFUSION PLANTS" (REVISION 3)

Dear Mr. Clark:

USEC and DOE, in attempting to resolve all outstanding issues concerning the Paducah fork lift incident of July 12, 2007, agreed to revise the shared site procedure USEC-100. In addition, USEC agreed to make one change in the USEC and DOE Resolution of Shared Site Issues document. Please find attached for your execution the revised Shared Site Issues document. The language in the proposed change will establish consistency with the new language in the proposed USEC 100 document.

The effect of the changes to both USEC-100 and the Shared Site Issues document is to provide for the timely sharing of safety documentation between DOE and USEC when it has the potential to affect the other party. The existing language requires transmittal of "all" safety documentation, which includes documentation that has no impact or affect on the other party

USEC appreciates your consideration and execution of the document. If you have any questions or need additional information, please contact Charlie Martin at (270) 441-5802.

Sincerely,

R.B. Starkey, Jr.

Enclosure: As Stated.

cc:

Rachel Blumenfeld, DOE-LEX
Tullus Crawford, USEC
Randy DeVault, DOE-ORO
Dave Dollins, PPPO-PAD
Marianne Heiskell, DOE-ORO
J.T. Howell, DOE-ORO
Wray Jordan, USEC
Reinhard Knerr, PPPO-PAD
Charles Martin, USEC
William Murphie, DOE-LEX
Steve Penrod, USEC
Vijay Sazawal, USEC
Dennis Scott, USEC
Mark Smith, USEC
Paul Sullivan, USEC
Joe Taratino, PRS
Dean Terry, USEC
Allen Williams, USEC

USEC AND DOE RESOLUTION OF

SHARED SITE ISSUES

AT THE

GASEOUS DIFFUSION PLANTS

(Revision 2)

USEC AND DOE RESOLUTION OF

SHARED SITE ISSUES

AT THE

GASEOUS DIFFUSION PLANTS

(Revision 2)

- Background

  Once the NRC assumes nuclear regulatory oversight for USEC activities at the GDPs, there will be a need to coordinate DOE and USEC activities at the GDPs to ensure that:

  1. USEC and DOE activities at the GDPs do not adversely affect the operations of the other party in terms of health and safety, environmental protection, safeguards and security, and nuclear regulatory compliance.

  2. Situations with the potential to affect both DOE and USEC operations and personnel, such as emergencies and threats directed toward site activities, are managed in a coordinated manner that protects the safety and health of DOE and USEC personnel, including their respective contractors/subcontractors, and the public.

- Premises

  The following premises support the proposed resolution of shared site issues:

  1. This joint USEC and DOE approach to shared site issues does not modify, amend, or alter in any way the lease[1] between USEC and DOE for the GDP's or any memoranda of agreement, or any other agreements between USEC and DOE.

  2. The site can be divided into three types of areas: (1) DOE areas (generally non-leased) in which DOE managed or overseen activities, which are exempt from NRC regulation under Section 110.a of the Atomic Energy Act of 1954, as amended, are conducted; (2) USEC leased areas in which USEC activities subject to NRC regulation are conducted; and (3) common areas (e.g., site roads) which are used for USEC and DOE activities.

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[1]The term "lease" refers to the Lease Agreement between the United States Department of Energy and the United States Enrichment Corporation dated as of July 1, 1993.

3. DOE will self-regulate DOE activities conducted in DOE areas and common areas in accordance with applicable DOE requirements. This includes DOE personnel and their contractors/subcontractors. DOE assumes full responsibility for the safety, safeguards, and security of DOE activities.

4. USEC activities conducted in USEC areas and common areas are subject to NRC regulation under terms of the certification application. This includes USEC personnel, their contractors, and subcontractors. USEC assumes full responsibility for the safety, safeguards and security of USEC activities.

- Shared Site Issues

1. **Shared Systems and Continuity of Essential Services**

USEC provides certain services and utilities (e.g., lighting, heat) to DOE that are necessary for the safety, safeguards or conduct of DOE activities. Similarly, USEC and DOE activities are protected or supported by shared systems (e.g., nuclear criticality and security alarm systems, fire protection sprinklers) that are important to the safety and safeguards of USEC and DOE activities.

USEC and DOE will work together to ensure that interruptions to services necessary for the safety, safeguards and security of the GDPs are minimized and that shared systems remain operable. Additionally, USEC will apply configuration management controls to these systems, in a manner commensurate with that applied to equivalent USEC systems, to ensure that safety, safeguards and security systems and conduct of USEC and DOE activities are not adversely affected. Similarly, USEC and DOE will work together to establish a process for controlling the scheduling of interruptions to essential services to ensure that the safety, safeguards, and security of the GDPs are not adversely affected.

2. **Control of Work Activities**

DOE and USEC agree that activities in leased spaces must be conducted in accordance with USEC commitments to NRC. Accordingly, DOE (including their contractors/subcontractors) will obtain USEC's approval prior to conducting work in leased spaces. Similarly, prior to conducting work in non-leased spaces, USEC (including their contractors/subcontractors) will obtain DOE's approval. Both parties will strive to ensure that such approvals do not impede the schedule for the work activities of either party. Additionally, both parties will ensure that work activities that affect either party are conducted in accordance with the appropriate procedures.

3. **Plant Changes**

DOE and USEC agree to establish procedural controls to ensure that each party is promptly notified, and appropriate approvals obtained, prior to conducting activities that affect the design, construction, operation or maintenance of facilities and systems on their respective portions of the GDP sites. This process will allow the other party to evaluate the potential safety impact of such a change on its own facilities, systems, and activities at the site.

USEC shall provide copies of revised or new safety analyses to DOE contractors when changes to the leased premises or operation of the leased premises have the potential to impact these contractors. Similarly, DOE contractors will provide copies of revised or new USQDs/Safety Analyses when changes to DOE retained facilities, systems, or operations have the potential to impact USEC. This will include any USQD evaluation that concludes a proposed change does involve an unreviewed safety question. In the event that either party has a concern about the potential impact of any plant changes by the other party on the safety of its own operations and activities at either GDP site, the appropriate USEC and DOE representatives for that site shall jointly review the change and take appropriate action to resolve the concern (including any required plant modifications) in a prompt manner.

4. **Emergency Management Coordination**

In accordance with Exhibit F of the lease, USEC will provide emergency response training to DOE personnel, DOE contractors, and personnel of third party tenants of DOE at each of the GDPs. In accordance with the lease, DOE will reimburse USEC for the cost of this service. DOE will make necessary arrangements to assure that these personnel attend such training and be responsible for tracking their participation to assure they receive the required initial and periodic training.

The Emergency Plan for both GDPs describes the roles and responsibilities of USEC and DOE in the event of an emergency. For a declared emergency, USEC has the lead in responding to the emergency and DOE serves as an onsite member of the Emergency Operations Center. This relationship will continue to be maintained when NRC assumes regulatory oversight of the GDPs.

In the event of an emergency, in coordination with the USEC emergency management team, DOE will take the appropriate actions to control activities in the reservation area surrounding each of the GDP sites, as defined in the current Emergency Plan for each GDP. This includes the exclusion or evacuation of

personnel from such area during an emergency. Additionally, USEC has ample authority to restrict access to the controlled area of the GDPs[2] for the purposes of plant protection, security, emergency preparedness, and radiation protection.[3]

5. **Third Party Activities on GDP Sites**

DOE and USEC agree to promptly provide each other with pertinent information concerning any operations or activities being conducted on their respective portions of each of the GDP sites, and the surrounding DOE-owned reservation on which that site is located, by or on behalf of third parties (e.g., The National Guard and other DOE tenants or lessees) that could have a potential impact on the operations or activities of the other part at that site. Specifically, DOE will provide USEC (and vice versa) with a written description of each existing third party lease agreement for each GDP site, including a detailed description of (a) any hazardous materials used or stored on site in connection with such lease (b) any operations or activities being conducted under such lease that cold pose a hazard to USEC's operations on the leased premises or act as an initiating event for an accident on the leased premises, and (c) any transportation or other access requirements on the leased premises or common areas of the site associated with such lease, particularly with respect to the transportation or storage of hazardous materials or equipment. Such descriptions shall be updated promptly to reflect changes in third party activities. In the event that either party has a concern about the potential impact that third party activities could have on the safe operation of either GDP site, the appropriate USEC and DOE representatives for that site shall jointly review the issue and take appropriate action to resolve the concern in a prompt and cost-effective manner.

6. **Physical Protection Coordination**

Effective access control and response to threats against site activities and facilities requires integrated access control for USEC and DOE activities and coordinated command and control in responding to threats against site facilities and activities. USEC will continue to maintain a physical security protection plan for the GDPs which defines the roles and responsibilities of the site security organizations. In the event of a security threat at the GDPs (including both leased and non-leased areas),

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[2]The controlled area is defined as an area outside the restricted area but inside the site (reservation) boundary.

[3]See USEC letter to NRC dated December 13, 1995, in response to Question 2.0Q5 of the application for PGDP and PORTS.

USEC's security force has the responsibility to initially respond to the threat and determine the appropriate course of action. Depending on the significance of the security threat, the Emergency Operations Center at the affected site will be activated and, as discussed in Item 4 of this enclosure, USEC and DOE will respond accordingly. This relationship will continue to be maintained when NRC assumes regulatory oversight of the GDPs.

7. **Event Notification**

USEC will promptly notify DOE of any reportable events required by 10 CFR 76 or other applicable NRC regulations. This notification will normally be made by the Plant Shift Superintendent's (PSS) office. However, this notification will not take precedence over the prompt notification of the NRC as required by NRC regulations. Similarly, DOE will promptly inform USEC of any reportable events, under DOE's occurrence reporting system, for which DOE is responsible. Such notification will normally be made to the PSS's office.

8. **Helipad**

USEC will establish written controls for helicopter access to the GDP sites and the air space over the sites for use by USEC, DOE or other DOE tenant organizations at the sites and to assist state or local law enforcement or emergency response personnel. Once established, DOE agrees to abide by these controls. As part of these controls, DOE will obtain USEC's concurrence from the PSS prior to utilizing the site helipad.

9. **Communication of Incident Information and Media Coordination**

DOE and USEC will coordinate information releases to the media in the following manner:

a. DOE has the lead role in providing information relating to DOE activities and USEC will refer the media to DOE in such cases; and

b. USEC has the lead role in providing information relating to USEC activities and DOE will refer the media to USEC in such cases unless there is a need for DOE to provide information in its role as site landlord.

c. DOE and USEC will promptly provide each other with information copies of news releases of events that occur at the GDPs.

10. Radiation Protection

Radiation Protection (e.g., exposure monitoring) of employees is the responsibility of the employer (USEC or DOE) and is independent of the activities upon which they are working. That is, radiation protection for DOE personnel and their contractors/subcontractors is performed under the DOE radiation protection program. Similarly, radiation protection for USEC personnel and their contractors/subcontractors is performed under the USEC radiation program. In addition:

a. Radiation exposure information for individuals who work on both DOE and USEC activities will be shared to permit DOE and USEC to satisfy their radiation exposure reporting requirements; and

b. DOE will provide NRC with the radiation exposure information for DOE employees and their contractors/subcontractors, as requested, in order to meet NRC's reporting requirements.

In accordance with Exhibit F of the lease, USEC will provide radiation protection training to DOE personnel, DOE contractors, and personnel of third party tenants of DOE at each of the GDPs. In accordance with the lease, DOE will reimburse USEC for the cost of this service. DOE will make the necessary arrangements to assure that these personnel attend such training and be responsible for tracking their participation to assure they receive the required initial and periodic training.

11. International Atomic Energy Agency (IAEA) Safeguards Agreement Implementation

DOE and USEC will cooperate with the NRC in development, review, and revision of Subsidiary Arrangements and Facility Attachments for DOE and USEC activities at the sites which are applicable to the safeguards requirements of the IAEA.

12. Unclassified Controlled Nuclear Information (UCNI)

DOE is developing guidelines with consultation and technical support from USEC for the identification of UCNI at the GDPs and will provide these guidelines to NRC.

13. **Access to Deleased Outside Areas**

All activities in non-leased areas will be executed consistent with DOE requirements. USEC procedures which comply with NRC requirements may be utilized provided they meet or exceed equivalent DOE requirements. Subject to DOE approval, USEC may be permitted to run additional or new utilities over and/or under these outside areas to serve additional needs of USEC and DOE. USEC will contact DOE prior to work in these areas and will not violate any requirements imposed on the DOE by other regulatory agencies (e.g., EPA, OSHA). In cases where prior notification would deter USEC's ability to respond to an exigent situation (e.g., emergency response situations, water main breaks, etc.), notification will occur as soon as practical.

CONCURRED BY:

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