



Figure 1. Map of the C-400 Facility including Work Zones and Column Grid

The isotopic analysis of 41 swipes taken during routine S&M radiological surveys over the last 2 years (CY16 & CY17) within all of the work zones identified above, indicated the presence of up to the following 12 radionuclides:

(Alpha) α
Americium-241
Neptunium-237
Plutonium-238
Plutonium-239/240
Thorium-230
Thorium-232
Uranium-234
Uranium-235
Uranium-238
(Beta-Gamma) $\beta\gamma$
Cesium-137
Strontium-90
Technetium-99

It is assumed that an average of the isotopic swipe analysis can be used to calculate an activity ratio for each isotope and that the isotopes exist in those ratios in gross alpha and gross beta-gamma surveys taken throughout the facility. The average activities for each isotope calculated are listed below:

Average Activity per Isotope in C-400

Average Activity	
(Alpha) α	pCi/sample
Americium-241	1.864
Neptunium-237	8.523
Plutonium-238	0.187
Plutonium-239/240	8.700
Thorium-230	45.600
Thorium-232	0.500
Uranium-234	186.231
Uranium-235	11.651
Uranium-238	275.885
(Beta-Gamma) $\beta\gamma$	
Cesium-137	0.505
Strontium-90	0.178
Technetium-99	1181.707

The averages were summed to get a total average activity for alpha and for beta-gamma-emitting isotopes. The activity ratio was calculated by dividing the isotope's average activity by the sum of activities for isotopes of like radiation. The resulting data can be seen below:

Average Activity and Activity Ratio per Isotope

Isotope i	Average Activity	Activity Ratio
(Alpha) α	A_i (pCi/sample)	α %
Americium-241	1.864	0.35%
Neptunium-237	8.523	1.58%
Plutonium-238	0.187	0.03%

Plutonium-239/240	8.700	1.61%
Thorium-230	45.600	8.46%
Thorium-232	0.500	0.09%
Uranium-234	186.231	34.54%
Uranium-235	11.651	2.16%
Uranium-238	275.885	51.17%
Sum Alpha	539.142	100%
(Beta-Gamma) $\beta\gamma$		$\beta\gamma$ %
Cesium-137	0.505	0.04%
Strontium-90	0.178	0.02%
Technetium-99	1181.707	99.94%
Sum Beta-Gamma	1182.390	100%

Notes:

The activity ratios calculated from averaging the activity of each isotope are applicable for the entire facility of C-400.

No accountable nuclear material, such as uranium, uranium bearing material, thorium, or neptunium that requires accountability by DOE, remains in the C-400 facility.

Equipment that may contain radiological holdup material beyond contamination levels in the C-400 facility has been removed.

The gross alpha and gross beta-gamma surveys used may include items that have since been removed from the facility.

The maximum gross alpha swipe was obtained in work zone 9 (floor surface), while the maximum beta-gamma swipe was obtained in work zone 5 (piping exterior).

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-001

from: C-400

on 10/21/2016

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	3.14	pCi/samp			0.251	0.421	0.702	RL-7128	PGDP	/X/
Cesium-137	6.29	pCi/samp			2.41	2.36	2.69	RL-7124	PGDP	/X/
Neptunium-237	11.1	pCi/samp			0.502	0.703	2.47	RL-7128	PGDP	/X/
Plutonium-238	0.762	pCi/samp			0.104	0.184	0.247	RL-7128	PGDP	/X/
Plutonium-239/240	9.38	pCi/samp			0.21	0.637	2.09	RL-7128	PGDP	/X/
Strontium-90	0.977	pCi/samp BU			11.1	0.175	0.278	RL-7140	PGDP	/X/
Technetium-99	10900	pCi/samp			4.5	45.8	562	RL-7100	PGDP	/X/
Thorium-230	34.2	pCi/samp			1.13	1.31	6.15	RL-7128	PGDP	/X/
Thorium-232	0.372	pCi/samp			0.294	0.154	0.199	RL-7128	PGDP	/X/
Uranium-234	543	pCi/samp T			1.28	10.5	120	RL-7128	PGDP	/X/J
Uranium-235	29.2	pCi/samp T			0.529	2.72	6.99	RL-7128	PGDP	/X/J
Uranium-238	549	pCi/samp T			1.03	10.6	122	RL-7128	PGDP	/X/J

17-400-ISO-002

from: C-400

on 10/21/2016

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	2.55	pCi/samp			0.258	0.428	0.637	RL-7128	PGDP	/X/
Cesium-137	-0.27	pCi/samp U			2.15	0.539	1.23	RL-7124	PGDP	/X/
Neptunium-237	0.55	pCi/samp			0.475	0.158	0.268	RL-7128	PGDP	/X/
Plutonium-238	0.136	pCi/samp			0.0983	0.0754	0.0858	RL-7128	PGDP	/X/
Plutonium-239/240	8.42	pCi/samp			0.203	0.585	1.85	RL-7128	PGDP	/X/
Strontium-90	-0.918	pCi/samp BU			11.8	0.174	0.267	RL-7140	PGDP	/X/
Technetium-99	2370	pCi/samp			4.5	21.5	124	RL-7100	PGDP	/X/
Thorium-230	172	pCi/samp			1.14	3.22	31	RL-7128	PGDP	/X/
Thorium-232	1.92	pCi/samp			0.31	0.345	0.499	RL-7128	PGDP	/X/
Uranium-234	103	pCi/samp			0.965	2.15	17.5	RL-7128	PGDP	/X/
Uranium-235	4.9	pCi/samp			0.168	0.521	0.979	RL-7128	PGDP	/X/
Uranium-238	79.8	pCi/samp			0.872	1.89	13.6	RL-7128	PGDP	/X/

Comments: Smear inside receiving booth in C-400 TRU Area near Col. A-2 1/2 Zone 4Floor area 4 pan area, Col. B-4. SC 4-5-17

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	11.2	pCi/samp			0.513	1.23	2.34	RL-7128	PGDP	/X/
Cesium-137	0.167	pCi/samp U			2.94	0.335	1.6	RL-7124	PGDP	/X/
Neptunium-237	2.99	pCi/samp			0.664	0.598	0.915	RL-7128	PGDP	/X/
Plutonium-238	1.04	pCi/samp			0.263	0.338	0.414	RL-7128	PGDP	/X/
Plutonium-239/240	57.5	pCi/samp			0.436	2.51	12.8	RL-7128	PGDP	/X/
Strontium-90	-1.99	pCi/samp BU			12.9	0.371	0.544	RL-7140	PGDP	/X/
Technetium-99	137	pCi/samp			4.37	5.98	9.24	RL-7100	PGDP	/X/
Thorium-230	213	pCi/samp			3.3	5.83	35.9	RL-7128	PGDP	/X/
Thorium-232	2.31	pCi/samp			0.948	0.632	0.819	RL-7128	PGDP	/X/
Uranium-234	804	pCi/samp T			3.47	19.1	172	RL-7128	PGDP	/X/
Uranium-235	45.6	pCi/samp T			1.51	5.08	10.9	RL-7128	PGDP	/X/
Uranium-238	927	pCi/samp T			3.01	20.5	198	RL-7128	PGDP	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-019

from: C-400

on 4/5/2017

Media: SW

SmpMethod: GR

Comments:

Smear inside receiving booth in C-400 TRU Area near Col. AB-3 Zone 4Area 4 North floor under pan. SC 4-5-17

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	2.46	pCi/samp			0.521	0.566	0.734	RL-7128	PGDP	/X/
Cesium-137	1.17	pCi/samp U			2.77	2.33	2.33	RL-7124	PGDP	/X/
Neptunium-237	3.01	pCi/samp			0.679	0.586	0.906	RL-7128	PGDP	/X/
Plutonium-238	0.184	pCi/samp U			0.248	0.142	0.165	RL-7128	PGDP	/X/
Plutonium-239/240	7.53	pCi/samp			0.412	0.9	1.87	RL-7128	PGDP	/X/
Strontium-90	3.03	pCi/samp BU			13.3	0.514	0.795	RL-7140	PGDP	/X/
Technetium-99	25.2	pCi/samp			4.37	3.99	4.19	RL-7100	PGDP	/X/
Thorium-230	42.5	pCi/samp			3.3	2.5	7.54	RL-7128	PGDP	/X/
Thorium-232	0.357	pCi/samp U			0.932	0.262	0.441	RL-7128	PGDP	/X/
Uranium-234	578	pCi/samp			2.77	13.4	113	RL-7128	PGDP	/X/
Uranium-235	37.5	pCi/samp			0.907	3.79	8.2	RL-7128	PGDP	/X/
Uranium-238	640	pCi/samp			2.39	14.1	125	RL-7128	PGDP	/X/

17-400-ISO-020

from: C-400

on 4/5/2017

Media: SW

SmpMethod: GR

Comments:

Smear south of receiving booth in C-400 TRU Area near Col. AB-1 1/2 Zone 4Area 7 floor Col. C-4. SC 4-5-17

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	1.22	pCi/samp			0.503	0.405	0.492	RL-7128	PGDP	/X/
Cesium-137	0.668	pCi/samp U			2.52	1.34	1.34	RL-7124	PGDP	/X/
Neptunium-237	1.4	pCi/samp			0.689	0.396	0.547	RL-7128	PGDP	/X/
Plutonium-238	0.147	pCi/samp U			0.241	0.123	0.147	RL-7128	PGDP	/X/
Plutonium-239/240	4.39	pCi/samp			0.383	0.664	1.17	RL-7128	PGDP	/X/
Strontium-90	-2.82	pCi/samp BU			14.2	0.533	0.777	RL-7140	PGDP	/X/
Technetium-99	86.2	pCi/samp			4.37	5.17	6.81	RL-7100	PGDP	/X/
Thorium-230	37.2	pCi/samp			3.26	2.16	6.56	RL-7128	PGDP	/X/
Thorium-232	0.322	pCi/samp U			0.916	0.267	0.443	RL-7128	PGDP	/X/
Uranium-234	277	pCi/samp			2.57	7.03	50.1	RL-7128	PGDP	/X/
Uranium-235	15.9	pCi/samp			0.495	1.87	3.41	RL-7128	PGDP	/X/
Uranium-238	315	pCi/samp			2.24	7.47	56.8	RL-7128	PGDP	/X/

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.459	pCi/samp			0.224	0.16	0.194	RL-7128	PGDP	/X/
Cesium-137	2.79	pCi/samp			2	1.86	1.91	RL-7124	PGDP	/X/
Neptunium-237	0.487	pCi/samp			0.268	0.166	0.217	RL-7128	PGDP	/X/
Plutonium-238	0.0379	pCi/samp U			0.0979	0.0405	0.051	RL-7128	PGDP	/X/
Plutonium-239/240	1.59	pCi/samp			0.155	0.254	0.434	RL-7128	PGDP	/X/
Strontium-90	0.136	pCi/samp U			4.97	0.0237	0.0368	RL-7140	PGDP	/X/
Technetium-99	41.1	pCi/samp			3.95	4.41	4.89	RL-7100	PGDP	/X/
Thorium-230	8.78	pCi/samp			1.35	0.715	1.71	RL-7128	PGDP	/X/
Thorium-232	0.0386	pCi/samp U			0.402	0.0819	0.163	RL-7128	PGDP	/X/
Uranium-234	25.6	pCi/samp			1.01	1.31	4.65	RL-7128	PGDP	/X/
Uranium-235	1.57	pCi/samp			0.238	0.371	0.465	RL-7128	PGDP	/X/
Uranium-238	37.9	pCi/samp			0.902	1.58	6.76	RL-7128	PGDP	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-025

from: C-400

on 6/7/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.402	pCi/samp			0.228	0.164	0.194	RL-7128	PGDP	/X/
Cesium-137	2.21	pCi/samp U			2.24	1.41	1.45	RL-7124	PGDP	/X/
Neptunium-237	0.777	pCi/samp			0.312	0.196	0.277	RL-7128	PGDP	/X/
Plutonium-238	0.0204	pCi/samp U			0.106	0.0458	0.0585	RL-7128	PGDP	/X/
Plutonium-239/240	2.21	pCi/samp			0.161	0.312	0.589	RL-7128	PGDP	/X/
Strontium-90	0.33	pCi/samp U			5.7	0.0571	0.089	RL-7140	PGDP	/X/
Technetium-99	44.7	pCi/samp			3.95	5.12	5.61	RL-7100	PGDP	/X/
Thorium-230	10.3	pCi/samp			1.35	0.815	2.11	RL-7128	PGDP	/X/
Thorium-232	0.136	pCi/samp U			0.387	0.111	0.181	RL-7128	PGDP	/X/
Uranium-234	26.4	pCi/samp			1.01	1.35	4.82	RL-7128	PGDP	/X/
Uranium-235	1.41	pCi/samp			0.236	0.35	0.432	RL-7128	PGDP	/X/
Uranium-238	36.9	pCi/samp			0.892	1.59	6.63	RL-7128	PGDP	/X/

17-400-ISO-026

from: C-400

on 6/7/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.733	pCi/samp			0.234	0.209	0.255	RL-7128	PGDP	/X/
Cesium-137	2.21	pCi/samp			2.12	1.34	1.38	RL-7124	PGDP	/X/
Neptunium-237	0.421	pCi/samp			0.273	0.131	0.182	RL-7128	PGDP	/X/
Plutonium-238	0.079	pCi/samp U			0.109	0.0544	0.0644	RL-7128	PGDP	/X/
Plutonium-239/240	2.15	pCi/samp			0.153	0.279	0.534	RL-7128	PGDP	/X/
Strontium-90	-0.609	pCi/samp U			5.54	0.11	0.167	RL-7140	PGDP	/X/
Technetium-99	12.1	pCi/samp			3.95	4.33	4.37	RL-7100	PGDP	/X/
Thorium-230	16.2	pCi/samp			1.38	1.01	3.12	RL-7128	PGDP	/X/
Thorium-232	0.148	pCi/samp U			0.38	0.119	0.186	RL-7128	PGDP	/X/
Uranium-234	22.4	pCi/samp			1.01	1.25	4.14	RL-7128	PGDP	/X/
Uranium-235	1.42	pCi/samp			0.231	0.349	0.433	RL-7128	PGDP	/X/
Uranium-238	24.7	pCi/samp			0.898	1.31	4.51	RL-7128	PGDP	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-049

from: C-400

on 6/27/2017

Media: SW

SmpMethod: GR

Comments:

Smear inside exhaust duct on cleaning tank exhaust fan #81 in C-400 basement zone 131/S exhaust duct.

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.599	pCi/samp			0.219	0.183	0.226	RL-7128	PGDP	/X/
Cesium-137	1.1	pCi/samp			2.96	2.2	2.2	RL-7124	PGDP	/X/
Neptunium-237	0.723	pCi/samp			0.353	0.206	0.276	RL-7128	PGDP	/X/
Plutonium-238	0.0627	pCi/samp U			0.112	0.06	0.0685	RL-7128	PGDP	/X/
Plutonium-239/240	1.97	pCi/samp			0.163	0.295	0.528	RL-7128	PGDP	/X/
Strontium-90	1.49	pCi/samp BU			4.99	0.244	0.393	RL-7140	PGDP	/X/
Technetium-99	1320	pCi/samp DL		D	35	59	90	RL-7100	PGDP	/X/
Thorium-230	32.5	pCi/samp			1.4	1.46	5.65	RL-7128	PGDP	/X/
Thorium-232	0.173	pCi/samp U			0.41	0.116	0.185	RL-7128	PGDP	/X/
Uranium-234	73	pCi/samp			1.12	3.1	14.7	RL-7128	PGDP	/X/
Uranium-235	5.98	pCi/samp			0.31	0.989	1.54	RL-7128	PGDP	/X/
Uranium-238	235	pCi/samp			0.951	5.54	46.6	RL-7128	PGDP	/X/

17-400-ISO-050

from: C-400

on 6/27/2017

Media: SW

SmpMethod: GR

Comments:

Smear inside exhaust duct on cleaning tank exhaust fan #83 in C-400 basement zone 131/S exhaust duct.

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.298	pCi/samp			0.23	0.144	0.173	RL-7128	PGDP	/X/
Cesium-137	0.0886	pCi/samp U			2.35	0.177	1.26	RL-7124	PGDP	/X/
Neptunium-237	0.144	pCi/samp U			0.305	0.0891	0.131	RL-7128	PGDP	/X/
Plutonium-238	0.00831	pCi/samp U			0.108	0.0218	0.037	RL-7128	PGDP	/X/
Plutonium-239/240	0.425	pCi/samp			0.158	0.139	0.176	RL-7128	PGDP	/X/
Strontium-90	1.8	pCi/samp BU			4.79	0.29	0.471	RL-7140	PGDP	/X/
Technetium-99	280	pCi/samp DL		D	35	36	38.7	RL-7100	PGDP	/X/
Thorium-230	6.35	pCi/samp			1.37	0.644	1.36	RL-7128	PGDP	/X/
Thorium-232	0.0261	pCi/samp U			0.382	0.0668	0.158	RL-7128	PGDP	/X/
Uranium-234	10.5	pCi/samp			0.996	0.653	1.89	RL-7128	PGDP	/X/
Uranium-235	0.513	pCi/samp			0.2	0.175	0.204	RL-7128	PGDP	/X/
Uranium-238	19.6	pCi/samp			0.878	0.881	3.33	RL-7128	PGDP	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-051

from: C-400

on 6/27/2017

Media: SW

SmpMethod: GR

Comments:

Smear inside exhaust duct on cleaning tank exhaust fan #85 in C-400 basement zone 131/S exhaust duct.

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.114	pCi/samp U			0.241	0.108	0.135	RL-7128	PGDP	/X/
Cesium-137	1.59	pCi/samp U			1.73	1.54	1.56	RL-7124	PGDP	/X/
Neptunium-237	0.527	pCi/samp			0.271	0.157	0.215	RL-7128	PGDP	/X/
Plutonium-238	0.0282	pCi/samp U			0.0988	0.0355	0.0468	RL-7128	PGDP	/X/
Plutonium-239/240	0.32	pCi/samp			0.156	0.124	0.151	RL-7128	PGDP	/X/
Strontium-90	0.968	pCi/samp BU			5.25	0.163	0.258	RL-7140	PGDP	/X/
Technetium-99	1.78	pCi/samp DL		D	35	32.8	34.1	RL-7100	PGDP	/X/
Thorium-230	2.49	pCi/samp			1.36	0.42	0.817	RL-7128	PGDP	/X/
Thorium-232	-0.073	pCi/samp U			0.383	0.0839	0.164	RL-7128	PGDP	/X/
Uranium-234	31.6	pCi/samp			1	1.26	5.45	RL-7128	PGDP	/X/
Uranium-235	1.73	pCi/samp			0.203	0.326	0.44	RL-7128	PGDP	/X/
Uranium-238	52.4	pCi/samp			0.879	1.61	8.89	RL-7128	PGDP	/X/

17-400-ISO-052

from: C-400

on 6/27/2017

Media: SW

SmpMethod: GR

Comments:

Smear inside exhaust duct on cleaning tank exhaust fan #87 in C-400 basement zone 131/S exhaust fan duct.

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.204	pCi/samp U			0.22	0.113	0.142	RL-7128	PGDP	/X/
Cesium-137	2.39	pCi/samp U			2.95	4.78	4.78	RL-7124	PGDP	/X/
Neptunium-237	0.219	pCi/samp U			0.289	0.109	0.149	RL-7128	PGDP	/X/
Plutonium-238	0.0364	pCi/samp U			0.0981	0.0389	0.0497	RL-7128	PGDP	/X/
Plutonium-239/240	0.527	pCi/samp			0.154	0.148	0.193	RL-7128	PGDP	/X/
Strontium-90	0.849	pCi/samp BU			5.07	0.143	0.226	RL-7140	PGDP	/X/
Technetium-99	249	pCi/samp DL		D	35	35	37.3	RL-7100	PGDP	/X/
Thorium-230	3.57	pCi/samp			1.36	0.481	0.952	RL-7128	PGDP	/X/
Thorium-232	0.0288	pCi/samp U			0.385	0.0722	0.169	RL-7128	PGDP	/X/
Uranium-234	14	pCi/samp			0.995	0.771	2.46	RL-7128	PGDP	/X/
Uranium-235	0.633	pCi/samp			0.215	0.189	0.225	RL-7128	PGDP	/X/
Uranium-238	22	pCi/samp			0.879	0.961	3.74	RL-7128	PGDP	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-053

from: C-400

on 6/27/2017

Media: SW

SmpMethod: GR

Comments:

Smear inside exhaust duct on cleaning tank exhaust fan#89 in C-400 basement zone 131/S exhaust duct.

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.183	pCi/samp U			0.235	0.123	0.149	RL-7128	PGDP	/X/
Cesium-137	1.83	pCi/samp U			2.95	3.66	3.66	RL-7124	PGDP	/X/
Neptunium-237	0.189	pCi/samp U			0.278	0.12	0.156	RL-7128	PGDP	/X/
Plutonium-238	-0.00162	pCi/samp U			0.106	0.0019	0.0415	RL-7128	PGDP	/X/
Plutonium-239/240	0.354	pCi/samp			0.158	0.129	0.16	RL-7128	PGDP	/X/
Strontium-90	-0.483	pCi/samp BU			5.03	0.0867	0.132	RL-7140	PGDP	/X/
Technetium-99	139	pCi/samp DL		D	35	31.6	32.4	RL-7100	PGDP	/X/
Thorium-230	3.09	pCi/samp			1.34	0.449	0.885	RL-7128	PGDP	/X/
Thorium-232	0.00884	pCi/samp U			0.379	0.0323	0.149	RL-7128	PGDP	/X/
Uranium-234	8.77	pCi/samp			0.998	0.587	1.6	RL-7128	PGDP	/X/
Uranium-235	0.495	pCi/samp			0.205	0.157	0.188	RL-7128	PGDP	/X/
Uranium-238	13.5	pCi/samp			0.882	0.722	2.34	RL-7128	PGDP	/X/

17-400-ISO-054

from: C-400

on 6/27/2017

Media: SW

SmpMethod: GR

Comments:

Smear inside exhaust duct on cleaning tank exhaust fan #91 in C-400 basement zone 131/S exhaust duct.

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.312	pCi/samp			0.219	0.138	0.168	RL-7128	PGDP	/X/
Cesium-137	1.74	pCi/samp U			2.92	3.47	3.47	RL-7124	PGDP	/X/
Neptunium-237	0.386	pCi/samp			0.27	0.128	0.178	RL-7128	PGDP	/X/
Plutonium-238	0.0489	pCi/samp U			0.0984	0.0528	0.0617	RL-7128	PGDP	/X/
Plutonium-239/240	1.81	pCi/samp			0.155	0.273	0.486	RL-7128	PGDP	/X/
Strontium-90	0.132	pCi/samp BU			4.87	0.023	0.0357	RL-7140	PGDP	/X/
Technetium-99	340	pCi/samp DL		D	4.87	37.7	357	RL-7100	PGDP	/X/
Thorium-230	5.34	pCi/samp			1.35	0.551	1.18	RL-7128	PGDP	/X/
Thorium-232	0.0738	pCi/samp U			0.386	0.0662	0.156	RL-7128	PGDP	/X/
Uranium-234	45.4	pCi/samp			0.998	1.48	7.7	RL-7128	PGDP	/X/
Uranium-235	2.68	pCi/samp			0.22	0.401	0.603	RL-7128	PGDP	/X/
Uranium-238	61.8	pCi/samp			0.882	1.72	10.4	RL-7128	PGDP	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-057

from: C-400

on 3/23/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	1.02	pCi/samp			0.217	0.224	0.29	RL-7128	PGDP	/X/
Cesium-137	1.44	pCi/samp B,U			2.15	1.38	1.39	RL-7124	PGDP	/X/
Neptunium-237	2.81	pCi/samp			0.264	0.369	0.763	RL-7128	PGDP	/X/
Plutonium-238	0.17	pCi/samp			0.106	0.0887	0.102	RL-7128	PGDP	/X/
Plutonium-239/240	5.8	pCi/samp			0.159	0.516	1.46	RL-7128	PGDP	/X/
Strontium-90	-0.711	pCi/samp BU			6.59	0.129	0.196	RL-7140	PGDP	/X/
Technetium-99	83.2	pCi/samp DL		D	7.43	8.24	9.28	RL-7100	PGDP	/X/
Thorium-230	22.5	pCi/samp			1.12	1.22	3.98	RL-7128	PGDP	/X/
Thorium-232	0.117	pCi/samp U			0.388	0.139	0.2	RL-7128	PGDP	/X/
Uranium-234	51	pCi/samp			0.967	1.56	8.91	RL-7128	PGDP	/X/
Uranium-235	3.16	pCi/samp			0.237	0.438	0.703	RL-7128	PGDP	/X/
Uranium-238	63.2	pCi/samp			0.886	1.74	11	RL-7128	PGDP	/X/

17-400-ISO-058

from: C-400

on 3/23/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	1.18	pCi/samp			0.216	0.246	0.323	RL-7128	PGDP	/X/
Cesium-137	0.227	pCi/samp B,U			2.47	0.455	1.42	RL-7124	PGDP	/X/
Neptunium-237	3.83	pCi/samp			0.262	0.417	0.994	RL-7128	PGDP	/X/
Plutonium-238	0.221	pCi/samp			0.114	0.0994	0.117	RL-7128	PGDP	/X/
Plutonium-239/240	7.67	pCi/samp			0.16	0.585	1.89	RL-7128	PGDP	/X/
Strontium-90	1.87	pCi/samp BU			5.75	0.308	0.495	RL-7140	PGDP	/X/
Technetium-99	87.8	pCi/samp DL		D	7.43	8.35	9.49	RL-7100	PGDP	/X/
Thorium-230	41.3	pCi/samp			1.1	1.62	7.06	RL-7128	PGDP	/X/
Thorium-232	0.473	pCi/samp			0.385	0.197	0.256	RL-7128	PGDP	/X/
Uranium-234	64.3	pCi/samp			0.988	1.89	11.9	RL-7128	PGDP	/X/
Uranium-235	3.75	pCi/samp			0.247	0.512	0.859	RL-7128	PGDP	/X/
Uranium-238	79.7	pCi/samp			0.877	2.1	14.7	RL-7128	PGDP	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-059

from: C-400

on 4/1/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	3.33	pCi/samp			0.222	0.413	0.686	RL-7128	PGDP	/X/
Cesium-137	-0.0772	pCi/samp B,U			2.41	0.154	1.28	RL-7124	PGDP	/X/
Neptunium-237	6.17	pCi/samp			0.291	0.546	1.57	RL-7128	PGDP	/X/
Plutonium-238	0.293	pCi/samp			0.107	0.118	0.141	RL-7128	PGDP	/X/
Plutonium-239/240	19	pCi/samp			0.16	0.948	4.65	RL-7128	PGDP	/X/
Strontium-90	0.395	pCi/samp BU			5.75	0.0688	0.107	RL-7140	PGDP	/X/
Technetium-99	173	pCi/samp DL		D	7.43	10.3	13.6	RL-7100	PGDP	/X/
Thorium-230	82.8	pCi/samp			1.12	2.42	14.2	RL-7128	PGDP	/X/
Thorium-232	0.716	pCi/samp			0.622	0.28	0.337	RL-7128	PGDP	/X/
Uranium-234	137	pCi/samp			1.1	3.4	26.5	RL-7128	PGDP	/X/
Uranium-235	7.92	pCi/samp			0.33	0.913	1.78	RL-7128	PGDP	/X/
Uranium-238	162	pCi/samp			0.921	3.69	31.3	RL-7128	PGDP	/X/

17-400-ISO-060

from: C-400

on 4/1/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	1.32	pCi/samp			0.223	0.264	0.35	RL-7128	PGDP	/X/
Cesium-137	-0.084	pCi/samp B,U			2.21	0.168	1.15	RL-7124	PGDP	/X/
Neptunium-237	2.15	pCi/samp			0.301	0.3	0.563	RL-7128	PGDP	/X/
Plutonium-238	0.139	pCi/samp			0.105	0.0751	0.0868	RL-7128	PGDP	/X/
Plutonium-239/240	6.21	pCi/samp			0.153	0.501	1.45	RL-7128	PGDP	/X/
Strontium-90	2.18	pCi/samp BU			5.92	0.354	0.573	RL-7140	PGDP	/X/
Technetium-99	76	pCi/samp DL		D	7.43	8.04	8.94	RL-7100	PGDP	/X/
Thorium-230	38	pCi/samp			1.09	1.57	6.7	RL-7128	PGDP	/X/
Thorium-232	0.361	pCi/samp U			0.446	0.2	0.253	RL-7128	PGDP	/X/
Uranium-234	63.9	pCi/samp			0.978	1.9	11.8	RL-7128	PGDP	/X/
Uranium-235	3.84	pCi/samp			0.246	0.517	0.876	RL-7128	PGDP	/X/
Uranium-238	76.9	pCi/samp			0.877	2.08	14.2	RL-7128	PGDP	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-061

from: C-400

on 5/6/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.294	pCi/samp			0.213	0.125	0.155	RL-7128	PGDP	/X/
Cesium-137	-0.152	pCi/samp B,U			2.31	0.303	1.22	RL-7124	PGDP	/X/
Neptunium-237	0.646	pCi/samp			0.317	0.207	0.27	RL-7128	PGDP	/X/
Plutonium-238	0.0123	pCi/samp U			0.117	0.0276	0.0528	RL-7128	PGDP	/X/
Plutonium-239/240	1.73	pCi/samp			0.176	0.301	0.505	RL-7128	PGDP	/X/
Strontium-90	0.205	pCi/samp BU			5.64	0.0359	0.0555	RL-7140	PGDP	/X/
Technetium-99	35.8	pCi/samp DL		D	7.43	6.89	7.13	RL-7100	PGDP	/X/
Thorium-230	7.23	pCi/samp			1.1	0.674	1.5	RL-7128	PGDP	/X/
Thorium-232	0.0287	pCi/samp U			0.38	0.0704	0.166	RL-7128	PGDP	/X/
Uranium-234	22.3	pCi/samp			0.98	1.03	4.15	RL-7128	PGDP	/X/
Uranium-235	1.38	pCi/samp			0.235	0.286	0.388	RL-7128	PGDP	/X/
Uranium-238	49	pCi/samp			0.872	1.51	8.91	RL-7128	PGDP	/X/

17-400-ISO-062

from: C-400

on 5/13/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.145	pCi/samp U			0.216	0.094	0.124	RL-7128	PGDP	/X/
Cesium-137	-0.435	pCi/samp B,U			2.07	0.87	1.11	RL-7124	PGDP	/X/
Neptunium-237	0.482	pCi/samp			0.279	0.144	0.198	RL-7128	PGDP	/X/
Plutonium-238	0.00845	pCi/samp U			0.103	0.02	0.0369	RL-7128	PGDP	/X/
Plutonium-239/240	0.947	pCi/samp			0.153	0.196	0.289	RL-7128	PGDP	/X/
Strontium-90	-0.981	pCi/samp BU			5.43	0.182	0.273	RL-7140	PGDP	/X/
Technetium-99	42.7	pCi/samp DL		D	7.43	7.1	7.43	RL-7100	PGDP	/X/
Thorium-230	6.84	pCi/samp			1.1	0.661	1.41	RL-7128	PGDP	/X/
Thorium-232	0.0428	pCi/samp U			0.384	0.0802	0.164	RL-7128	PGDP	/X/
Uranium-234	21.9	pCi/samp			0.985	0.939	4.02	RL-7128	PGDP	/X/
Uranium-235	1.53	pCi/samp			0.258	0.279	0.398	RL-7128	PGDP	/X/
Uranium-238	50.5	pCi/samp			0.88	1.42	9.07	RL-7128	PGDP	/X/

Comments:

Smear inside scrubber of scrubber system at south side of C-400, Zone 31/S scrubber vent/

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.229	pCi/Filter	U		0.427	0.313	0.315	HASL 300, AM-05-RC M	GEL	/X/
Cesium-137	0.363	pCi/Filter	U		3.28	1.79	1.8	HASL 300, 4.5.2.3	GEL	/X/
Neptunium-237	0.335	pCi/Filter	U		0.438	0.351	0.353	Alpha Spectroscopy	GEL	/X/
Plutonium-238	0.427	pCi/Filter			0.213	0.37	0.376	HASL 300, Pu-11-RC M	GEL	/X/
Plutonium-239/240	0.571	pCi/Filter			0.468	0.447	0.456	HASL 300, Pu-11-RC M	GEL	/X/
Strontium-90	-0.802	pCi/Filter	U		1.96	0.936	0.936	EPA-905.0-M	GEL	/X/
Technetium-99	92.2	pCi/Filter			47.4	31	32.3	HASL 300, Tc-02-RC M	GEL	/X/
Thorium-230	3.93	pCi/Filter			0.513	0.911	1.07	HASL 300, Th-01-RC M	GEL	/X/
Thorium-232	0.557	pCi/Filter			0.348	0.365	0.373	HASL 300, Th-01-RC M	GEL	/X/
Uranium-234	14.4	pCi/Filter			0.579	2.15	3.03	HASL 300, U-02-RC M	GEL	/X/
Uranium-235	2.04	pCi/Filter			0.306	0.918	0.966	HASL 300, U-02-RC M	GEL	/X/
Uranium-238	24.2	pCi/Filter			0.248	2.77	4.52	HASL 300, U-02-RC M	GEL	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-065	from: C-400	on 7/27/2017	Media: SW	SmpMethod: GR
Comments:				

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.118	pCi/Filter U			0.428	0.27	0.27	HASL 300, AM-05-RC M	GEL	/X/
Cesium-137	1.68	pCi/Filter U			4.22	1.83	1.84	HASL 300, 4.5.2.3	GEL	/X/
Neptunium-237	0.902	pCi/Filter			0.386	0.499	0.508	Alpha Spectroscopy	GEL	/X/
Plutonium-238	0.0651	pCi/Filter U			0.413	0.223	0.223	HASL 300, Pu-11-RC M	GEL	/X/
Plutonium-239/240	-0.0125	pCi/Filter U			0.439	0.188	0.188	HASL 300, Pu-11-RC M	GEL	/X/
Strontium-90	0.645	pCi/Filter U			1.96	1.13	1.14	EPA-905.0-M	GEL	/X/
Technetium-99	28.6	pCi/Filter U			50.8	30.3	30.4	HASL 300, Tc-02-RC M	GEL	/X/
Thorium-230	7.34	pCi/Filter			0.709	1.31	1.68	HASL 300, Th-01-RC M	GEL	/X/
Thorium-232	0.28	pCi/Filter U			0.523	0.343	0.346	HASL 300, Th-01-RC M	GEL	/X/
Uranium-234	54.2	pCi/Filter			0.638	4.15	9.1	HASL 300, U-02-RC M	GEL	/X/
Uranium-235	5.14	pCi/Filter			0.563	1.44	1.63	HASL 300, U-02-RC M	GEL	/X/
Uranium-238	67.4	pCi/Filter			0.577	4.62	11.1	HASL 300, U-02-RC M	GEL	/X/

17-400-ISO-066	from: C-400	on 7/27/2017	Media: SW	SmpMethod: GR
Comments: Smear on the floor of the Receiving Booth near Col. AB-3 in Area 4 in C-400.Southeast corner of booth floor.				

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.667	pCi/Filter			0.439	0.472	0.481	HASL 300, AM-05-RC M	GEL	/X/
Cesium-137	-0.219	pCi/Filter U			3.06	1.6	1.6	HASL 300, 4.5.2.3	GEL	/X/
Neptunium-237	1.72	pCi/Filter			0.434	0.687	0.712	Alpha Spectroscopy	GEL	/X/
Plutonium-238	0.25	pCi/Filter			0.188	0.276	0.278	HASL 300, Pu-11-RC M	GEL	/X/
Plutonium-239/240	2.41	pCi/Filter			0.346	0.776	0.857	HASL 300, Pu-11-RC M	GEL	/X/
Strontium-90	-0.602	pCi/Filter U			1.26	0.688	0.688	EPA-905.0-M	GEL	/X/
Technetium-99	312	pCi/Filter			52.8	42	52.4	HASL 300, Tc-02-RC M	GEL	/X/
Thorium-230	15.5	pCi/Filter			0.514	1.68	2.68	HASL 300, Th-01-RC M	GEL	/X/
Thorium-232	0.355	pCi/Filter			0.243	0.276	0.28	HASL 300, Th-01-RC M	GEL	/X/
Uranium-234	49.6	pCi/Filter			0.867	4.74	9.77	HASL 300, U-02-RC M	GEL	/X/
Uranium-235	4.6	pCi/Filter			0.694	1.63	1.82	HASL 300, U-02-RC M	GEL	/X/
Uranium-238	220	pCi/Filter			0.716	9.97	39.2	HASL 300, U-02-RC M	GEL	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-067

from: C-400

on 7/27/2017

Media: SW

SmpMethod: GR

Comments:

Smear on the floor of the Receiving Booth near Col. AB-3 in Area 4 in C-400.Southwest corner booth floor.

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	2.04	pCi/Filter			0.165	0.667	0.714	HASL 300, AM-05-RC M	GEL	/X/
Cesium-137	1.74	pCi/Filter U			5.27	2.29	2.42	HASL 300, 4.5.2.3	GEL	/X/
Neptunium-237	6.67	pCi/Filter			0.402	1.31	1.5	Alpha Spectroscopy	GEL	/X/
Plutonium-238	0.595	pCi/Filter			0.392	0.421	0.431	HASL 300, Pu-11-RC M	GEL	/X/
Plutonium-239/240	13.1	pCi/Filter			0.518	1.81	2.69	HASL 300, Pu-11-RC M	GEL	/X/
Strontium-90	1.23	pCi/Filter U			1.94	1.17	1.21	EPA-905.0-M	GEL	/X/
Technetium-99	2180	pCi/Filter			47.5	78	233	HASL 300, Tc-02-RC M	GEL	/X/
Thorium-230	96.6	pCi/Filter			0.692	4.75	14.7	HASL 300, Th-01-RC M	GEL	/X/
Thorium-232	2.06	pCi/Filter			0.381	0.713	0.772	HASL 300, Th-01-RC M	GEL	/X/
Uranium-234	235	pCi/Filter			3.13	19.6	38.6	HASL 300, U-02-RC M	GEL	/X/
Uranium-235	24.4	pCi/Filter			2.51	7.11	7.9	HASL 300, U-02-RC M	GEL	/X/
Uranium-238	817	pCi/Filter			2.79	36.4	121	HASL 300, U-02-RC M	GEL	/X/

17-400-ISO-068

from: C-400

on 7/27/2017

Media: SW

SmpMethod: GR

Comments:

Smear on the floor of the Receiving Booth near Col. AB-3 in Area 4 in C-400.East wall of booth.

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	2.77	pCi/Filter			0.552	0.976	1.06	HASL 300, AM-05-RC M	GEL	/X/
Cesium-137	-1.06	pCi/Filter U			2.93	1.71	1.77	HASL 300, 4.5.2.3	GEL	/X/
Neptunium-237	7.15	pCi/Filter			0.573	1.63	1.81	Alpha Spectroscopy	GEL	/X/
Plutonium-238	-0.0304	pCi/Filter U			0.819	0.365	0.365	HASL 300, Pu-11-RC M	GEL	/X/
Plutonium-239/240	13.3	pCi/Filter			0.93	2.12	3.11	HASL 300, Pu-11-RC M	GEL	/X/
Strontium-90	-0.138	pCi/Filter U			1.94	1.07	1.07	EPA-905.0-M	GEL	/X/
Technetium-99	380	pCi/Filter			51.6	43.4	57.8	HASL 300, Tc-02-RC M	GEL	/X/
Thorium-230	73	pCi/Filter			0.453	3.51	10.2	HASL 300, Th-01-RC M	GEL	/X/
Thorium-232	1.53	pCi/Filter			0.279	0.522	0.559	HASL 300, Th-01-RC M	GEL	/X/
Uranium-234	313	pCi/Filter			3.44	24.3	52.9	HASL 300, U-02-RC M	GEL	/X/
Uranium-235	24.6	pCi/Filter			3.36	7.71	8.55	HASL 300, U-02-RC M	GEL	/X/
Uranium-238	851	pCi/Filter			2.35	40	134	HASL 300, U-02-RC M	GEL	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-069

from: C-400

on 7/27/2017

Media: SW

SmpMethod: GR

Comments: Smear on the floor of the Receiving Booth near Col. AB-3 in Area 4 in C-400.North wall of booth.

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	3.64	pCi/Filter			0.557	0.942	1.05	HASL 300, AM-05-RC M	GEL	/X/
Cesium-137	0.763	pCi/Filter U			3.4	1.5	1.54	HASL 300, 4.5.2.3	GEL	/X/
Neptunium-237	16.2	pCi/Filter			0.446	2.14	2.79	Alpha Spectroscopy	GEL	/X/
Plutonium-238	0.852	pCi/Filter			0.32	0.492	0.509	HASL 300, Pu-11-RC M	GEL	/X/
Plutonium-239/240	19.5	pCi/Filter			0.37	2.24	3.77	HASL 300, Pu-11-RC M	GEL	/X/
Strontium-90	2.87	pCi/Filter			1.97	1.36	1.55	EPA-905.0-M	GEL	/X/
Technetium-99	814	pCi/Filter			55.4	57.7	100	HASL 300, Tc-02-RC M	GEL	/X/
Thorium-230	96.6	pCi/Filter			0.525	4.49	14.2	HASL 300, Th-01-RC M	GEL	/X/
Thorium-232	2.67	pCi/Filter			0.314	0.758	0.845	HASL 300, Th-01-RC M	GEL	/X/
Uranium-234	253	pCi/Filter			1.17	14.3	58.4	HASL 300, U-02-RC M	GEL	/X/
Uranium-235	19.6	pCi/Filter			0.782	4.46	6.25	HASL 300, U-02-RC M	GEL	/X/
Uranium-238	564	pCi/Filter			1.48	21.4	128	HASL 300, U-02-RC M	GEL	/X/

17-400-ISO-070

from: C-400

on 7/27/2017

Media: SW

SmpMethod: GR

Comments: Smear on the floor of the Receiving Booth near Col. AB-3 in Area 4 in C-400.Northeast corner of booth floor.

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	3.68	pCi/Filter			0.561	1.02	1.14	HASL 300, AM-05-RC M	GEL	/X/
Cesium-137	1.63	pCi/Filter U			2.89	1.23	1.44	HASL 300, 4.5.2.3	GEL	/X/
Neptunium-237	19.4	pCi/Filter			0.313	2.21	3.05	Alpha Spectroscopy	GEL	/X/
Plutonium-238	0.439	pCi/Filter			0.373	0.377	0.383	HASL 300, Pu-11-RC M	GEL	/X/
Plutonium-239/240	22.4	pCi/Filter			0.472	2.42	4.24	HASL 300, Pu-11-RC M	GEL	/X/
Strontium-90	0.959	pCi/Filter U			1.14	0.698	0.742	EPA-905.0-M	GEL	/X/
Technetium-99	1070	pCi/Filter			58.5	65.9	126	HASL 300, Tc-02-RC M	GEL	/X/
Thorium-230	57.4	pCi/Filter			0.485	3.33	8.52	HASL 300, Th-01-RC M	GEL	/X/
Thorium-232	1.51	pCi/Filter			0.317	0.556	0.593	HASL 300, Th-01-RC M	GEL	/X/
Uranium-234	150	pCi/Filter			1.02	8.93	29.2	HASL 300, U-02-RC M	GEL	/X/
Uranium-235	11.7	pCi/Filter			0.51	2.79	3.53	HASL 300, U-02-RC M	GEL	/X/
Uranium-238	337	pCi/Filter			0.965	13.4	63.8	HASL 300, U-02-RC M	GEL	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-071

from: C-400

on 7/27/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	1.37	pCi/Filter			0.354	0.602	0.629	HASL 300, AM-05-RC M	GEL	/X/
Cesium-137	1.4	pCi/Filter U			2.79	1.11	1.28	HASL 300, 4.5.2.3	GEL	/X/
Neptunium-237	54.1	pCi/Filter			0.398	3.68	6.95	Alpha Spectroscopy	GEL	/X/
Plutonium-238	0.441	pCi/Filter			0.375	0.379	0.385	HASL 300, Pu-11-RC M	GEL	/X/
Plutonium-239/240	6.43	pCi/Filter			0.446	1.31	1.65	HASL 300, Pu-11-RC M	GEL	/X/
Strontium-90	1.22	pCi/Filter U			1.95	1.17	1.22	EPA-905.0-M	GEL	/X/
Technetium-99	4520	pCi/Filter			52.5	115	470	HASL 300, Tc-02-RC M	GEL	/X/
Thorium-230	10.6	pCi/Filter			0.525	1.48	2.09	HASL 300, Th-01-RC M	GEL	/X/
Thorium-232	0.515	pCi/Filter			0.22	0.34	0.348	HASL 300, Th-01-RC M	GEL	/X/
Uranium-234	318	pCi/Filter			3.24	22.7	50.6	HASL 300, U-02-RC M	GEL	/X/
Uranium-235	27.8	pCi/Filter			3.62	7.6	8.56	HASL 300, U-02-RC M	GEL	/X/
Uranium-238	653	pCi/Filter			2.31	32.4	98.3	HASL 300, U-02-RC M	GEL	/X/

17-400-ISO-072

from: C-400

on 7/27/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.31	pCi/Filter U			0.406	0.326	0.328	HASL 300, AM-05-RC M	GEL	/X/
Cesium-137	-1.49	pCi/Filter U			6.13	3.5	3.57	HASL 300, 4.5.2.3	GEL	/X/
Neptunium-237	91.6	pCi/Filter			0.387	4.3	10.9	Alpha Spectroscopy	GEL	/X/
Plutonium-238	0.349	pCi/Filter U			0.427	0.376	0.38	HASL 300, Pu-11-RC M	GEL	/X/
Plutonium-239/240	1.38	pCi/Filter			0.73	0.722	0.758	HASL 300, Pu-11-RC M	GEL	/X/
Strontium-90	4.41	pCi/Filter			1.97	1.39	1.8	EPA-905.0-M	GEL	/X/
Technetium-99	663	pCi/Filter			63.6	59.1	89.2	HASL 300, Tc-02-RC M	GEL	/X/
Thorium-230	8.41	pCi/Filter			0.544	1.31	1.76	HASL 300, Th-01-RC M	GEL	/X/
Thorium-232	0.347	pCi/Filter			0.214	0.281	0.285	HASL 300, Th-01-RC M	GEL	/X/
Uranium-234	234	pCi/Filter			1.11	11.9	47.6	HASL 300, U-02-RC M	GEL	/X/
Uranium-235	20.1	pCi/Filter			0.585	3.9	5.55	HASL 300, U-02-RC M	GEL	/X/
Uranium-238	334	pCi/Filter			0.474	14.2	67.2	HASL 300, U-02-RC M	GEL	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-073

from: C-400

on 7/26/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.666	pCi/samp			0.365	0.19	0.264	RL-7128	PGDP	/X/
Cesium-137	-0.375	pCi/samp U			2.24	0.75	1.21	RL-7124	PGDP	/X/
Neptunium-237	2.64	pCi/samp			0.363	0.357	0.722	RL-7128	PGDP	/X/
Plutonium-238	0.0692	pCi/samp U			0.111	0.0637	0.0728	RL-7128	PGDP	/X/
Plutonium-239/240	4.14	pCi/samp			0.171	0.435	1.07	RL-7128	PGDP	/X/
Strontium-90	1.6	pCi/samp BU			5.82	0.267	0.426	RL-7140	PGDP	/X/
Technetium-99	195	pCi/samp			6.18	9.81	14	RL-7100	PGDP	/X/
Thorium-230	24.5	pCi/samp			1.13	1.15	4.18	RL-7128	PGDP	/X/
Thorium-232	0.151	pCi/samp U			0.46	0.114	0.168	RL-7128	PGDP	/X/
Uranium-234	26	pCi/samp			1.02	1.36	4.77	RL-7128	PGDP	/X/
Uranium-235	1.72	pCi/samp			0.279	0.391	0.502	RL-7128	PGDP	/X/
Uranium-238	56.6	pCi/samp			0.919	1.99	10.1	RL-7128	PGDP	/X/

17-400-ISO-074

from: C-400

on 7/26/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	1.29	pCi/samp			0.366	0.262	0.376	RL-7128	PGDP	/X/
Cesium-137	1.02	pCi/samp U			2.85	2.04	2.04	RL-7124	PGDP	/X/
Neptunium-237	7.36	pCi/samp			0.269	0.553	1.7	RL-7128	PGDP	/X/
Plutonium-238	0.0619	pCi/samp U			0.105	0.057	0.0664	RL-7128	PGDP	/X/
Plutonium-239/240	6.33	pCi/samp			0.165	0.509	1.48	RL-7128	PGDP	/X/
Strontium-90	2.56	pCi/samp BU			7.96	0.42	0.675	RL-7140	PGDP	/X/
Technetium-99	1100	pCi/samp			6.18	20.9	60.4	RL-7100	PGDP	/X/
Thorium-230	50.4	pCi/samp			1.03	1.77	8.54	RL-7128	PGDP	/X/
Thorium-232	0.343	pCi/samp			0.34	0.151	0.202	RL-7128	PGDP	/X/
Uranium-234	203	pCi/samp T			1.5	7.2	48.6	RL-7128	PGDP	/X/
Uranium-235	15.1	pCi/samp T			0.675	2.18	4.19	RL-7128	PGDP	/X/
Uranium-238	598	pCi/samp T			1.96	12.3	143	RL-7128	PGDP	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-075

from: C-400

on 7/26/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.139	pCi/samp U			0.371	0.0944	0.172	RL-7128	PGDP	/X/
Cesium-137	1.42	pCi/samp U			1.55	1.65	1.67	RL-7124	PGDP	/X/
Neptunium-237	0.797	pCi/samp			0.29	0.195	0.277	RL-7128	PGDP	/X/
Plutonium-238	0.0124	pCi/samp U			0.11	0.0252	0.0557	RL-7128	PGDP	/X/
Plutonium-239/240	0.766	pCi/samp			0.169	0.181	0.255	RL-7128	PGDP	/X/
Strontium-90	2.11	pCi/samp BU			7.76	0.35	0.559	RL-7140	PGDP	/X/
Technetium-99	129	pCi/samp			6.18	8.46	10.8	RL-7100	PGDP	/X/
Thorium-230	4.75	pCi/samp			1.04	0.557	1.05	RL-7128	PGDP	/X/
Thorium-232	0.00412	pCi/samp U			0.366	0.00823	0.141	RL-7128	PGDP	/X/
Uranium-234	20.7	pCi/samp			1.02	1.03	3.69	RL-7128	PGDP	/X/
Uranium-235	1.32	pCi/samp			0.251	0.29	0.377	RL-7128	PGDP	/X/
Uranium-238	40.6	pCi/samp			0.903	1.44	7.07	RL-7128	PGDP	/X/

17-400-ISO-076

from: C-400

on 7/26/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	1.08	pCi/samp			0.364	0.236	0.336	RL-7128	PGDP	/X/
Cesium-137	-0.503	pCi/samp U			2.29	1.01	1.26	RL-7124	PGDP	/X/
Neptunium-237	14.5	pCi/samp			0.458	1.01	3.9	RL-7128	PGDP	/X/
Plutonium-238	0.121	pCi/samp U			0.138	0.0914	0.102	RL-7128	PGDP	/X/
Plutonium-239/240	7.13	pCi/samp			0.199	0.704	1.99	RL-7128	PGDP	/X/
Strontium-90	3.71	pCi/samp BU			6.57	0.58	0.963	RL-7140	PGDP	/X/
Technetium-99	1150	pCi/samp			6.18	21.4	63	RL-7100	PGDP	/X/
Thorium-230	35	pCi/samp			1.02	1.47	6.13	RL-7128	PGDP	/X/
Thorium-232	0.0924	pCi/samp U			0.399	0.155	0.197	RL-7128	PGDP	/X/
Uranium-234	89.4	pCi/samp			1.08	3.02	18	RL-7128	PGDP	/X/
Uranium-235	6.38	pCi/samp			0.301	0.895	1.55	RL-7128	PGDP	/X/
Uranium-238	162	pCi/samp			0.946	4.05	32.3	RL-7128	PGDP	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-077	from: C-400	on 7/26/2017	Media: SW	SmpMethod: GR
Comments:				

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	1.87	pCi/samp			0.371	0.335	0.496	RL-7128	PGDP	/X/
Cesium-137	1.43	pCi/samp U			2.69	2.86	2.86	RL-7124	PGDP	/X/
Neptunium-237	23.9	pCi/samp			0.313	1.17	5.88	RL-7128	PGDP	/X/
Plutonium-238	0.185	pCi/samp			0.114	0.103	0.116	RL-7128	PGDP	/X/
Plutonium-239/240	7.85	pCi/samp			0.183	0.672	2.01	RL-7128	PGDP	/X/
Strontium-90	0.464	pCi/samp BU			6.95	0.0807	0.125	RL-7140	PGDP	/X/
Technetium-99	893	pCi/samp			6.18	18.9	49.7	RL-7100	PGDP	/X/
Thorium-230	61.3	pCi/samp			1.06	2.02	10.9	RL-7128	PGDP	/X/
Thorium-232	0.442	pCi/samp			0.35	0.211	0.255	RL-7128	PGDP	/X/
Uranium-234	70.9	pCi/samp			1.02	2.31	13.6	RL-7128	PGDP	/X/
Uranium-235	3.41	pCi/samp			0.306	0.575	0.87	RL-7128	PGDP	/X/
Uranium-238	97	pCi/samp			0.928	2.69	18.5	RL-7128	PGDP	/X/

17-400-ISO-078	from: C-400	on 7/26/2017	Media: SW	SmpMethod: GR
Comments:				

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	1.99	pCi/samp			0.372	0.343	0.515	RL-7128	PGDP	/X/
Cesium-137	1.88	pCi/samp			1.86	1.74	1.77	RL-7124	PGDP	/X/
Neptunium-237	19.6	pCi/samp			0.359	1.13	5.05	RL-7128	PGDP	/X/
Plutonium-238	0.0799	pCi/samp U			0.126	0.0716	0.0807	RL-7128	PGDP	/X/
Plutonium-239/240	6.23	pCi/samp			0.181	0.633	1.69	RL-7128	PGDP	/X/
Strontium-90	2.7	pCi/samp BU			6.24	0.433	0.708	RL-7140	PGDP	/X/
Technetium-99	870	pCi/samp			6.18	18.7	48.5	RL-7100	PGDP	/X/
Thorium-230	32	pCi/samp			1.08	1.43	5.52	RL-7128	PGDP	/X/
Thorium-232	0.209	pCi/samp U			0.43	0.135	0.185	RL-7128	PGDP	/X/
Uranium-234	62.8	pCi/samp			1.05	2.27	12.3	RL-7128	PGDP	/X/
Uranium-235	2.92	pCi/samp			0.306	0.552	0.792	RL-7128	PGDP	/X/
Uranium-238	83.5	pCi/samp			0.927	2.61	16.2	RL-7128	PGDP	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-083

from: C-400

on 7/26/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	11.6	pCi/samp			0.363	0.726	2.15	RL-7128	PGDP	/X/
Cesium-137	0.603	pCi/samp U			2.61	1.21	1.35	RL-7124	PGDP	/X/
Neptunium-237	13.8	pCi/samp			0.296	0.846	3.34	RL-7128	PGDP	/X/
Plutonium-238	0.631	pCi/samp			0.124	0.189	0.242	RL-7128	PGDP	/X/
Plutonium-239/240	34.8	pCi/samp			0.173	1.34	8.23	RL-7128	PGDP	/X/
Strontium-90	2.18	pCi/samp BU			6.44	0.356	0.576	RL-7140	PGDP	/X/
Technetium-99	7810	pCi/samp			6.18	54.7	405	RL-7100	PGDP	/X/
Thorium-230	39.2	pCi/samp			1.05	1.58	6.71	RL-7128	PGDP	/X/
Thorium-232	0.319	pCi/samp U			0.337	0.154	0.203	RL-7128	PGDP	/X/
Uranium-234	452	pCi/samp T			1.44	10.9	112	RL-7128	PGDP	/X/
Uranium-235	27.2	pCi/samp T			0.508	2.99	7.36	RL-7128	PGDP	/X/
Uranium-238	508	pCi/samp T			1.15	11.6	126	RL-7128	PGDP	/X/

17-400-ISO-084

from: C-400

on 7/26/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	4.39	pCi/samp			0.365	0.472	0.917	RL-7128	PGDP	/X/
Cesium-137	2.2	pCi/samp			2.18	1.76	1.79	RL-7124	PGDP	/X/
Neptunium-237	8.3	pCi/samp			0.304	0.648	2.03	RL-7128	PGDP	/X/
Plutonium-238	0.349	pCi/samp			0.12	0.139	0.164	RL-7128	PGDP	/X/
Plutonium-239/240	20	pCi/samp			0.176	0.997	4.76	RL-7128	PGDP	/X/
Strontium-90	1.5	pCi/samp BU			6.11	0.251	0.4	RL-7140	PGDP	/X/
Technetium-99	1600	pCi/samp			6.18	25.1	85.9	RL-7100	PGDP	/X/
Thorium-230	109	pCi/samp			1.03	2.51	18	RL-7128	PGDP	/X/
Thorium-232	1.11	pCi/samp			0.333	0.262	0.342	RL-7128	PGDP	/X/
Uranium-234	616	pCi/samp T			1.14	10.9	140	RL-7128	PGDP	/X/
Uranium-235	32.3	pCi/samp T			0.527	2.77	7.84	RL-7128	PGDP	/X/
Uranium-238	719	pCi/samp T			1.02	11.7	164	RL-7128	PGDP	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-085	from: C-400	on 7/26/2017	Media: SW	SmpMethod: GR
Comments:				

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	2.09	pCi/samp			0.364	0.326	0.512	RL-7128	PGDP	/X/
Cesium-137	4.23	pCi/samp			2.39	3.18	3.24	RL-7124	PGDP	/X/
Neptunium-237	7.11	pCi/samp			0.253	0.549	1.66	RL-7128	PGDP	/X/
Plutonium-238	0.188	pCi/samp			0.107	0.0888	0.103	RL-7128	PGDP	/X/
Plutonium-239/240	11.6	pCi/samp			0.163	0.696	2.64	RL-7128	PGDP	/X/
Strontium-90	2.92	pCi/samp BU			6.44	0.465	0.763	RL-7140	PGDP	/X/
Technetium-99	762	pCi/samp			6.18	17.7	43	RL-7100	PGDP	/X/
Thorium-230	107	pCi/samp			1.06	2.67	18.1	RL-7128	PGDP	/X/
Thorium-232	0.839	pCi/samp			0.357	0.249	0.311	RL-7128	PGDP	/X/
Uranium-234	470	pCi/samp T			1.29	10.6	114	RL-7128	PGDP	/X/
Uranium-235	23.4	pCi/samp T			0.612	2.63	6.24	RL-7128	PGDP	/X/
Uranium-238	513	pCi/samp T			1.1	11.1	124	RL-7128	PGDP	/X/

17-400-ISO-086	from: C-400	on 7/26/2017	Media: SW	SmpMethod: GR
Comments:				

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	2.84	pCi/samp			0.365	0.375	0.612	RL-7128	PGDP	/X/
Cesium-137	0.17	pCi/samp U			2.61	0.339	1.38	RL-7124	PGDP	/X/
Neptunium-237	4.87	pCi/samp			0.252	0.436	1.14	RL-7128	PGDP	/X/
Plutonium-238	0.165	pCi/samp			0.104	0.0803	0.0932	RL-7128	PGDP	/X/
Plutonium-239/240	13.7	pCi/samp			0.164	0.731	3.05	RL-7128	PGDP	/X/
Strontium-90	1.42	pCi/samp BU			6.65	0.238	0.377	RL-7140	PGDP	/X/
Technetium-99	2320	pCi/samp			6.18	30.1	123	RL-7100	PGDP	/X/
Thorium-230	108	pCi/samp			1.03	2.6	18.5	RL-7128	PGDP	/X/
Thorium-232	1.15	pCi/samp			0.336	0.285	0.366	RL-7128	PGDP	/X/
Uranium-234	324	pCi/samp T			1.64	10.1	86.4	RL-7128	PGDP	/X/
Uranium-235	18.1	pCi/samp T			0.827	2.66	5.48	RL-7128	PGDP	/X/
Uranium-238	358	pCi/samp T			1.18	10.6	95.2	RL-7128	PGDP	/X/

Paducah OREIS Report for DD17-400-ISO-XX

17-400-ISO-087

from: C-400

on 7/26/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	3.43	pCi/samp			0.367	0.432	0.723	RL-7128	PGDP	/X/
Cesium-137	-0.203	pCi/samp U			3.1	0.406	1.96	RL-7124	PGDP	/X/
Neptunium-237	9	pCi/samp			0.248	0.611	2.08	RL-7128	PGDP	/X/
Plutonium-238	0.376	pCi/samp			0.104	0.124	0.153	RL-7128	PGDP	/X/
Plutonium-239/240	21.8	pCi/samp			0.163	0.943	4.92	RL-7128	PGDP	/X/
Strontium-90	1.62	pCi/samp BU			7.66	0.272	0.432	RL-7140	PGDP	/X/
Technetium-99	4560	pCi/samp			6.18	41.9	238	RL-7100	PGDP	/X/
Thorium-230	126	pCi/samp			1.03	2.8	21.6	RL-7128	PGDP	/X/
Thorium-232	1.29	pCi/samp			0.34	0.289	0.382	RL-7128	PGDP	/X/
Uranium-234	691	pCi/samp T			1.29	10.4	142	RL-7128	PGDP	/X/
Uranium-235	30.9	pCi/samp T			0.596	2.45	6.77	RL-7128	PGDP	/X/
Uranium-238	736	pCi/samp T			1.04	10.7	151	RL-7128	PGDP	/X/

17-400-ISO-088

from: C-400

on 7/26/2017

Media: SW

SmpMethod: GR

Comments:

Analysis	Results	Units	Result Qual	Foot Note	Reporting Limit	Counting Error	TPU	Method	LabCode	V/V/A*
RADS										
Americium-241	0.501	pCi/samp			0.364	0.168	0.236	RL-7128	PGDP	/X/
Cesium-137	-0.243	pCi/samp U			2.29	0.487	1.22	RL-7124	PGDP	/X/
Neptunium-237	1.38	pCi/samp			0.319	0.284	0.436	RL-7128	PGDP	/X/
Plutonium-238	0.0381	pCi/samp U			0.112	0.0545	0.0634	RL-7128	PGDP	/X/
Plutonium-239/240	3.34	pCi/samp			0.175	0.407	0.879	RL-7128	PGDP	/X/
Strontium-90	1.68	pCi/samp BU			6.24	0.277	0.444	RL-7140	PGDP	/X/
Technetium-99	409	pCi/samp			6.18	13.3	24.9	RL-7100	PGDP	/X/
Thorium-230	16.9	pCi/samp			1.03	1.03	3.15	RL-7128	PGDP	/X/
Thorium-232	0.159	pCi/samp U			0.343	0.115	0.17	RL-7128	PGDP	/X/
Uranium-234	65.4	pCi/samp			1.03	2.14	11.6	RL-7128	PGDP	/X/
Uranium-235	3.83	pCi/samp			0.271	0.584	0.892	RL-7128	PGDP	/X/
Uranium-238	76.1	pCi/samp			0.909	2.3	13.5	RL-7128	PGDP	/X/